Division of Workers’ Compensation Presents:

**LEVEL II ACCREDITATION**
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Curriculum Overview

- Each chapter in this curriculum is intended to be used in conjunction with the corresponding chapters in the AMA Guides, 3rd Edition, revised, and the Division’s Impairment Rating Tips. The outline of each chapter includes:
  - **Objectives**: learning intent for that chapter
  - **Summary/Steps for Determining Impairment Rating**: used as a quick reference for determining how to perform the impairment rating with Tables, Figures and AMA Guide page numbers identified. This portion of each chapter is intended as an important review of how to perform impairment ratings for that specific condition or body part. The summary/steps may be essential when performing impairment ratings in the future and for the case study examination questions.
  - **References/Links**: Impairment rating worksheets used for calculating impairment, impairment rating tips and medical treatment guideline links appropriate for that chapter
  - **Core Content**: examines the overall concept of how the impairment rating is calculated
  - **Impairment Rating General Principles**: thorough explanation of how to calculate an impairment rating, including Figures, Tables and their respective page numbers in the AMA Guides
  - **Additional Information from the Division’s Impairment Rating Tips**: important information that should be considered in the impairment rating calculation
  - **Pitfalls**: Items to consider prior to completing an impairment rating
  - **Exclusions/Omissions in the AMA Guides**: identifies Tables and Figures in the AMA Guides which cannot be used in impairment ratings. It is recommended that these are crossed out.
  - **Case Examples**: Case examples for practicing calculations of an impairment rating. Worksheets are provided for calculating the impairment, followed by the answers in written and worksheet format, if applicable.
○ **Worksheets:** impairment rating worksheets used to calculate a rating specific for that chapter

- In the left hand pocket of the binder you will find a laminated Combined Values Chart with conversion charts for easier access when calculating impairment ratings.
- The Division’s Impairment Rating Tips in the binder are important to review prior to performing impairment ratings.
- The pre-test and answers are included, which should be taken for preparation prior to the examination.
- We encourage you to review the materials by starting with the Curriculum and then using the AMA Guides as a reference to the Curriculum.
- Each chapter contains case examples for calculating impairment ratings, with the use of the AMA Guides and the Division’s Impairment Rating Tips. These are the same cases that are explained in the seminar.
Division of Workers’ Compensation
Level II Accreditation Course Curriculum

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Note: This curriculum was developed by the Division of Workers’ Compensation with input and approval of the Medical Care Advisory Committee and the medical director. It must be used with the 3rd revised edition of the AMA Guides to the Evaluation of Permanent Impairment only.
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LEVEL II Pre-Test

To the Level II Registrant:

Attached is the Level II Accreditation Pre-test. The pre-test reflects the objectives and the majority of the Level II educational materials that will be included in the final accreditation exam. The Pre-test will aid physicians without a sufficient background in the specialty sections to identify deficits. Please review the pre-test prior to studying the curriculum. After studying the curriculum, take the pre-test. Re-study those areas you did poorly in on the pre-test. For questions requiring an impairment rating, record the answer as directed. The answers to the pre-test are included with your binder. All physicians seeking Full Accreditation should answer questions 1-78. We encourage all physicians seeking accreditation to become fully accredited. If you plan to be accredited with limitations, you should complete questions 1-29, and all questions in sections required for your specialty.

Questions #1 – 16 Legal, Ethical & Administrative
Questions #17 – 29 Neurological
   (For questions 17–23, write the question number on your hand written answer on a separate sheet and attach to your computer answer sheet.) Show how you calculated the nerve rating.
Questions #30 – 38 Upper Extremity
   (For questions 34-38, complete both pages of the attached AMA Upper Extremity Report.)
Questions #39 – 53 Spine/Lower Extremity
   (For questions 47-50, complete both pages of the attached AMA Spinal Report.)
   (For questions 51-53, write the question number and your hand written answer on a separate sheet of paper and attach to your computer answer sheet.)
Questions #54 – 58 Vision, Hearing, Etc.
Questions #59 – 68 Pulmonary/Cardiovascular
Questions #69 – 72 Dermatological
   (For question 71, write the question number and your hand written answer on a separate sheet of paper and attach to your computer answer sheet.)
Questions #73 – 78 Mental & Behavioral Disorders
LEVEL II TEST QUESTIONS
Pre-test

1. What form or forms must be completed when received by the physician?
   a) WC1, WC2, WC3.
   b) M1, M2, M3.
   c) WC 164
   d) Narrative report form and the Physicians Initial Report.

2. A 20 year-old housekeeper reports two days after being casted for a radial head fracture. He requests a work status report from you and informs you that his boss does not allow light duty. As the authorized physician, you should:
   a) release the housekeeper to work at a light duty status and let the employer determine work status.
   b) place the housekeeper on "unable to work status" because no light duty is available.
   c) ask the housekeeper what other types of duty are available and release him to a specific job duty.
   d) release the housekeeper to return to work with specific physical restrictions.

3. Cancellation fees are appropriate under which of the following circumstances?
   a) Whenever services are scheduled but not actually provided because the patient has canceled or re-scheduled the appointment.
   b) When less than 24 hours notice is given of cancellation or re-scheduling.
   c) When the insurer has scheduled the appointment and the patient did not come, and the insurer did not timely cancel the appointment.
   d) When the patient has been given written notice by the Division of Workers' Compensation of the appointment and does not come.

4. All of the following are "recognized independently practicing non-physician providers" in the Rule 16 of the Workers' Compensation Rules of Procedure EXCEPT:
   a) Physical Therapists.
   b) Audiologists.
   c) Physician's Assistants.
   d) Massage Therapists.
5. When rendering opinions about a workers' compensation case, the physician may appropriately be influenced by:

   a) the insurer.
   b) a medical consultant.
   c) the defense attorney.
   d) none of the above.

6. A copy of the Physician's WC164 report(s) must always be:

   a) mailed to the insurer.
   b) mailed to all employers.
   c) mailed to the non self-insured employers.
   d) filed with the Division of Workers' Compensation.

7. Based on recommendations from the utilization review panel, the director of the division can order:

   a) the insurer to pay for costs of an unauthorized physician.
   b) a change in the date of maximum medical improvement.
   c) a retroactive denial of fees for the treating physician.
   d) an independent medical exam to review the question addressed by the utilization review panel.

8. In order to find a patient at Maximum Medical Improvement, the physician must declare that:

   a) future medical maintenance treatment is not required.
   b) the physical or mental impairment as a result of the injury is reasonably expected to improve with treatment.
   c) a course of treatment has a reasonable prospect of success and the claimant submits to such treatment.
   d) the physical or mental impairment as a result of the injury is stable.

9. A physician must complete the physician's WC164 report within:

   a) 7 days.
   b) 14 days.
   c) 10 days.
   d) 21 days.
10. If you do not respond promptly to a request for a verification of work status of a patient:
   a) the insurer may withhold payment of your fees.
   b) the insurer may discontinue benefits to the patient.
   c) you will automatically lose your Level II accreditation.
   d) the employer may terminate the employee.

11. Once the patient is declared at MMI, maintenance treatment:
   a) cannot be performed.
   b) is acceptable only if it occurs less than once a month.
   c) must be documented on the WC164 “closing” form.
   d) is acceptable up to a frequency of every 2 weeks.

12. The filing of a claim for compensation under the Workers’ Compensation act is deemed:
   a) a limited waiver of the doctor-patient privilege to persons who are necessary to resolve the claim.
   b) not to be a waiver of the doctor-patient privilege to persons who are necessary to resolve the claim.
   c) to be a full waiver of the doctor-patient privilege to persons who are necessary to resolve the claim.
   d) to be a waiver allowing the physician to send copies of the full medical record to persons who are necessary to resolve the claim.

13. Temporary disability benefits may be terminated under three of the following conditions. Which of the following is NOT a condition under which benefits may be terminated?
   a) The patient is able to return to modified employment.
   b) The attending physician gives the employee a written release to return to regular employment.
   c) The attending physician releases the employee to modified duty but the employer has no modified duty which fits the medical restrictions.
   d) The attending physician gives the employee a written release to return to modified employment, the employment is offered to the employee in writing and the employee fails to begin such employment.
14. Reimbursement for completion of the Physician’s “closing” report on Maximum Medical Improvement/ Impairment Report and the accompanying impairment worksheet(s) and report by the authorized treating physician providing primary care may be done by which of the following methods?

a) Fee to be calculated per the applicable Division code to a maximum of $355.00 (2010 value).
b) $42 under code 99962 for the completion of the forms

c) A two-level increase of the office visit code if the form is filled out at the time of the patient’s visit.
d) Completion of this form is included in the usual office level service and no additional fee can be charged.

15. Which of the following describes an authorized medical provider?

a) A medical consultant selected by the claimant’s attorney.
b) A provider selected by the employer after the time of injury.
c) A medical consultant chosen by the patient and not approved by the patient’s primary medical provider.
d) A provider selected by the patient at the time of injury when the employer has not designated a provider.

16. Did you complete the pretest:

a) prior to reviewing any of the curriculum.
b) after reviewing the curriculum.
c) after thoroughly studying the curriculum.
LEVEL II TEST QUESTIONS
Pre-test

NEUROLOGICAL

For questions 17 through 23, write the question number and your hand written answer on the back of the answer sheet.

A patient has his arm wrenched backward and down at the shoulder in an auto accident. Injuries to brachial plexus upper root C5/C6 are verified by neurologic exam originally. With time considerable recovery occurred, but he still has to use substitute patterns for C5/C6 weakness despite complete range of motion against gravity and some resistance. He also has a mild sensory residual deficit that interferes with activity somewhat.

17. What would be the sensory and motor impairment total loss of these nerve roots?
18. Calculate the sensory impairment.
19. Calculate the motor impairment.
20. What is the total upper extremity and whole person rating for this injury?

A 35 year old budget analyst is involved in a severe motor vehicle accident while in route to a sales meeting at a branch unit. The accident occurs during a blizzard on mountain roads. The employee suffers a significant closed head injury with residual impairments. Prior to the accident, the employee was well known in his field and respected by his colleagues. In addition, he was a friendly, outgoing person who had no problems socially, at home, or at work. Following the accident, the employee is unable to perform simple mathematical calculations necessary to balance his checkbook. In addition, he has episodes of significant emotional outbursts. These outbursts interfere with his family relationships and cause difficulty at work. Neuro-psychiatric testing confirms the patient’s limitation with mathematic functions. A psychiatrist who has been treating the patient confirms that the emotional problems he is now experiencing are secondary to the accident. In addition, the psychiatrist believes the patient meets criteria for post-traumatic stress disorder. He is unable to drive or even be a passenger in the car when the family plans trips to the mountains due to his anxiety in this setting.

21. What impairment rating would you give this employee under the nervous system?
22. What impairment would you give this employee under the mental and behavioral section?
23. What would be the total whole person impairment for this employee assuming there are no other ratable impairments other than those mentioned above?
24. It is possible to receive a rating for specific emotional disturbances based on combining ratings for this deficit from both the nervous system section and the mental and behavioral disorder section.
   a) True
   b) False
25. If an ankle range of motion deficit is present after treatment for an anterior tarsal tunnel syndrome affecting the deep peroneal nerve, it should:

a) be combined with the sensory rating before the motor rating is combined to the total.
b) be combined with the rating after the sensory and motor ratings are added.
c) combined with the rating after the sensory and motor ratings are combined.
d) not be used in the rating because it is 2º to a neurological deficit.
e) may be used when combined at the whole body impairment level.

26. Table 3, the sensory rating table in Chapter 4 of the AMA Guides, and Table 10, the sensory rating in Chapter 3:

a) have identical ratings categories.
b) may be used to rate any nerve from either chapter interchangeably.
c) can be used for the nerves in their specific chapters only.
d) are both given in extremity ratings.
e) are both given in whole body ratings.

27. A patient suffers an impairment of speech due to weakness of cranial nerves. This patient should receive a rating:

a) using Table 4, which grades the motor deficit loss for each nerve involved.
b) using the section in the neurological chapter which describes language disturbances.
c) according to classifications given in Chapter 9, the ear, nose and throat chapter.
d) according to loss of language function as noted in the mental and behavioral disorders chapter.

28. Which of the following sections is not included under the brain or spinal cord impairment values table?

a) episodic neurological disorders
b) language disturbances
c) emotional disturbances
d) use of the upper extremities
e) normal living postures

29. After the sensory and motor deficits of a specific nerve are calculated they are:

a) added to each other.
b) combined with each other.
c) converted to a whole body rating and combined.
d) added to other functional deficits.
e) added to the range of motion.
LEVEL II TEST QUESTIONS
Pre-test

UPPER EXTREMITY

30. Your office employee was on the way to the office supply store when he was involved in a serious motor vehicle accident. He suffered a humerus fracture, amputation of the index finger at distal interphalangeal joint, and a fractured lunate. After the patient fully recovered from these injuries, he had the following impairments: range of motion loss of the shoulder, amputation of the distal interphalangeal joint with a range of motion and sensory loss from the level of the proximal interphalangeal joint, and carpal instability based on ex-ray findings. In what order, should the impairments be combined to determine the total upper extremity impairment?

a) shoulder range of motion; carpal instability; sensation, amputation, and range of motion of the index finger.
b) shoulder range of motion, amputation, sensation, and range of motion of index finger; carpal instability.
c) sensation, amputation, and range of motion of index finger; carpal instability; shoulder range of motion.
d) amputation, sensation, and range of motion of index finger; carpal instability; shoulder range of motion.
e) amputation, sensation, and range of motion of index finger; shoulder range of motion; carpal instability.

31. Which of the following statements is correct regarding range of motion impairment of digits?

a) Range of motion deficits in the same plane are combined for all digits.
b) Range of motion deficits in the same plane are added for all digits.
c) Range of motion in the same plane (e.g. flexion, extension) are combined for the thumb only.
d) Range of motion from the DIP, PIP, and M-P joints are added for all digits.
e) Range of motion deficits for the thumb are added to determine total range of motion deficits.

32. Sensory loss for a digit is determined by:

a) measuring two point discrimination and multiplying the percentage of loss, (25%, 50%, or 100%), times the maximum loss for that nerve.
b) measuring 2 point discrimination and the length of the digit involved to determine loss at that level.
c) using light touch to determine partial loss value and multiplying this times the maximum loss for that nerve.
d) using the same grading method described in the neurological section.
e) using light touch to determine partial and total sensory loss based on available tables in the Guides.
33. Which of the following is a correct statement regarding impairment in the "Other Disorders" section of the upper extremities?

   a) All of the "other" impairments must be combined with range of motion and other impairments of the upper extremity.
   b) These disorders apply to many cases and must be included in the total impairment rating if present.
   c) To avoid duplication of rating, many of these disorders cannot be combined with the range of motion impairment.
   d) All "other" impairments are given in upper extremity percentages and do not require calculation.
   e) Impairment secondary to pre-existing arthritis cannot be rated in this section.

For questions 34 through 38, complete both pages of the attached AMA Upper Extremities Report Form.

A machinist is involved in a significant accident at work. He suffers loss of the little finger at the distal interphalangeal joint, ulnar digital nerve injury at the MP joint of the thumb and range of motion loss of the elbow secondary to a fracture. After receiving full treatment for his injuries, he has 2 point discrimination of 8mm on the ulnar side of the thumb to the MP joint. His elbow range of motion is 10° extension to 120° flexion and 70° supination with 80° pronation.

34. What is the digit % loss for the fifth finger?
35. What is the digit % loss for the thumb?
36. What is the hand impairment?
37. What is the % impairment for the elbow?
38. What is the upper extremity total impairment?
**Upper Extremity Impairment Evaluation Record–Part 1 (Hand)**

<table>
<thead>
<tr>
<th>Abnormal Motion</th>
<th>Amputation</th>
<th>Sensory Loss</th>
<th>Other Disorders</th>
<th>Hand Impairment %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Record Motion, Ankylosis and Impairment %</td>
<td>Mark Level &amp; Impairment %</td>
<td>Mark Type, Level &amp; Impairment %</td>
<td>List Type &amp; Impairment %</td>
<td>Combine Digit IMP%</td>
</tr>
<tr>
<td>Flexion</td>
<td>Extension</td>
<td>ANK</td>
<td>IMP%</td>
<td></td>
</tr>
<tr>
<td>THUMB</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IP</td>
<td>Angle°</td>
<td>IMP%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MP</td>
<td>Angle°</td>
<td>IMP%</td>
<td></td>
<td></td>
</tr>
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<td>ANK</td>
<td>IMP%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RAD</td>
<td>Angle°</td>
<td>IMP%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ABD</td>
<td>IMP%</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>CMC</td>
<td>CMS</td>
<td>IMP%</td>
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<tr>
<td>OPP</td>
<td>CMS</td>
<td>IMP%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Add Impairment % CMC + MP + IP = [IMP% = [IMP% = [IMP% = ] Hand Impairment % Convert above 0x0 Combine Digit IMP% Combine 1, 2, 3, 4]

Combine Impairment % MP+PIP+DIP= [IMP% = [IMP% = [IMP% = ] Hand Impairment % Convert above 0x0 Combine Digit IMP% Combine 1, 2, 3, 4]

Total Hand impairment (Add Hand Impairment % For Thumb + Index + Middle + Ring + Little Finger)

Upper Extremity Impairment (% Convert Total Hand Impairment % To Upper Extremity Impairment %)

**Figure 1.** Upper Extremity Impairment Evaluation Record–Part 1 (Hand)

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**Upper Extremity Impairment Evaluation Record—Part 2 (Wrist, Elbow & Shoulder)**

**Abnormal Motion**

<table>
<thead>
<tr>
<th>Wrist</th>
<th>Flexion</th>
<th>Extension</th>
<th>ANK</th>
<th>IMP%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angle°</td>
<td>IMP%</td>
<td>RD</td>
<td>UD</td>
<td>ANK</td>
</tr>
</tbody>
</table>

**Listen Type & Impairment %**

**Combine [1] + [2]**

**Amputation**

**Regional Impairment**

**Mark Level & Impairment %**

--

**Elbow**

<table>
<thead>
<tr>
<th>Elbow</th>
<th>Flexion</th>
<th>Extension</th>
<th>ANK</th>
<th>IMP%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angle°</td>
<td>IMP%</td>
<td>PRO</td>
<td>SUP</td>
<td>ANK</td>
</tr>
</tbody>
</table>

**Add IMP%**


**Shoulder**

<table>
<thead>
<tr>
<th>Shoulder</th>
<th>Flexion</th>
<th>Extension</th>
<th>ANK</th>
<th>IMP%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angle°</td>
<td>IMP%</td>
<td>ADD</td>
<td>ABD</td>
<td>ANK</td>
</tr>
<tr>
<td>Angle°</td>
<td>IMP%</td>
<td>INT ROT</td>
<td>EXT ROT</td>
<td>ANK</td>
</tr>
</tbody>
</table>

**Add IMP%**


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**I. Amputation Impairment (Other than Digits)**

**II. Regional Impairment of Upper Extremity**

(Combine Hand _____% + Wrist _____% + Elbow _____% + Shoulder _____%)

**III. Peripheral Nervous System Impairment**

**IV. Peripheral Vascular System Impairment**

**V. Other Disorders (Not Included in Regional Impairment)**

**Total Upper Extremity Impairment (Combine I + II + III + IV + V)**

**Impairment of Whole Person (Use Table 3)**

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If Both Limbs are Involved: Calculate Whole Person Impairment for Each Upper Extremity on Two Separate Charts and Combine Using Combined Values Chart

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LEVEL II TEST QUESTIONS
Pre-test

SPINAL, LOWER EXTREMITY & PELVIC IMPAIRMENT

39. Spinal impairment evaluation should be performed:
   a) prior to completion of all necessary medical, surgical and rehabilitation treatment.
   b) only when the acute illness or spasm is present.
   c) when the individual's condition has become static and well stabilized.
   d) when both the insurance carrier and the patient’s attorney agree the patient has reached MMI.

40. The only known criterion for validating optimum effort is:
   a) measurement techniques using inclinometers.
   b) simultaneous measurement of compound spinal motions.
   c) use of Waddell’s signs to identify behavioral modulation.
   d) reproducibility of abnormal motion after consecutive measurements.
   e) discrepancy between sitting and recumbent straight leg raising measurements.

41. Essential elements of the physical examination for the purpose of rating spinal impairment included all of the following except:
   a) palpation
   b) range of motion testing
   c) functional capacity evaluation
   d) straight leg raise

42. Valid optimum effort in spinal range of motion testing is defined as:
   a) six consecutive measurements which fall within ± 5% or 10° (whichever is greater).
   b) three consecutive measurements which fall within ± 10% or 5° (whichever is greater).
   c) three consecutive measurements which fall within ± 10% or 5° performed on at least two separate days.
   d) concordance between standing range of motion testing and recumbent straight leg raise.
   e) consecutive measurements that vary less than two standard deviations the maximum or median motion.
43. Table 53, p. 80 should be used to rate diagnosis-related factors including all of the following except:

   a) vertebral body compression fracture
   b) spondylolisthesis
   c) ankylosis
   d) intervertebral disc lesions
   e) spinal stenosis

44. Residual signs and symptoms which should be combined with all impairments are defined as the following except:

   a) chronic pain complaints
   b) spinal cord or spinal nerve root injuries with neuropathic impairment
   c) ankylosis
   d) abnormal motion in spine or extremities

45. Which of the following statement(s) regarding ankylosis as it is used to rate impairment is incorrect:

   a) Ankylosis includes complete absence of motion.
   b) To rate ankylosis use table 54, page 86, when radiographic methods are available.
   c) Ankylosis is present when planar restriction of motion prevents the subject from reaching the neutral position of motion in that plane.
   d) Table 54, page 86, should be combined with Table 53, page 80, to determine the individual's impairment for ankylosis.

46. Straight leg raising [SLR] may be used as an additional "effort factor" check for lumbar spinal flexion. The test for lumbar spine flexion is invalid unless the following criterion is met:

   a) Hip flexion accounts for at least 50% of total flexion
   b) If the tightest SLR ROM exceeds the sum of hip (sacral) flexion and extension by more than 50%.
   c) Combined lumbar flexion and hip (sacral) flexion are within ± 25% of SLR ROM.
   d) Sitting and recumbent SLR are consistent by ± 20º.
   e) The tightest SLR ROM exceeds the sum of hip (sacral) flexion and extension by 10º or less.
For questions 47-50, complete the two-page attached AMA Spinal Report Form. Show your calculations for the sensory rating.

J.C. is a 39 year old farm hand who fell from a tractor and ruptured her L5-S1 disc. When conservative measures failed, the patient underwent an L5-S1 discectomy and made an uneventful recovery, returning to work at her previous job. One year later, she is in your office for an impairment rating.

The patient complains of mild residual lower back pain and some loss of flexibility. Her lower extremity strength seems normal but she has a burning pain along the lateral margin of her right foot which is worse when she bends or lifts, but she can still perform those activities.

Your exam reveals:

Well-healed surgical scar, spine straight.
Tenderness at the lumbosacral junction and right buttock.
Valid maximal ranges of motion:
  - Lumbar flexion -- 55 degrees (sacral flexion angle 50 degrees).
  - Lumbar extension -- 20 degrees.
  - Lumbar right lateral flexion -- 20 degrees.
  - Lumbar left lateral flexion -- 15 degrees.
Normal lower extremity muscle strength and reflexes.
Decreased light touch and pin prick sensation over the lateral margin of the right foot and distal leg.

47. What is the patient's impairment for specific disorders?

48. What is the patient's impairment for range of motion?

49. What is the patient's impairment for sensory loss in terms of:
   a. lower extremity?
   b. whole person?

50. What is the total whole person impairment?

For questions 51 - 53, use the attached Lower Extremity worksheet to record your answers on.

A 27 year old environmental services worker slips on the ice while removing snow from the sidewalk and suffers a torn right medial meniscus. Arthroscopy is performed and a partial tear of the medial meniscus is identified and repaired. The patient completes all required physical therapy. He is able to return to this job and has no significant impairment at work. He notes that occasionally he must exercise some caution when playing baseball or hiking in the mountains, but otherwise does not have significant interference in his daily activities. His range of motion is active flexion to 140° and extension to 10°.

51. What is the total range of motion impairment for this patient?
52. What additional impairment, if any, would you assign him?

53. What is the total lower extremity and whole person impairment for this case?
### Figure 83. Lumbar Range of Motion

<table>
<thead>
<tr>
<th>Movement</th>
<th>Description</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lumbar Flexion</td>
<td>T12 ROM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sacral ROM</td>
<td></td>
</tr>
<tr>
<td>True lumbar flexion angle</td>
<td>±10% or 5°?</td>
<td></td>
</tr>
<tr>
<td>Maximum true lumbar flexion angle</td>
<td>% impairment</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Lumbar Extension</td>
<td>T12 ROM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sacral ROM</td>
<td></td>
</tr>
<tr>
<td>True lumbar extension angle</td>
<td>±10% or 5°?</td>
<td></td>
</tr>
<tr>
<td>Maximum true lumbar extension angle</td>
<td>% impairment</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Straight Leg Raising, Right</td>
<td>Right SLR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>±10% or 5°?</td>
<td></td>
</tr>
<tr>
<td>Maximum SLR Right</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Straight Leg Raising, Left</td>
<td>Left SLR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>±10% or 5°?</td>
<td></td>
</tr>
<tr>
<td>Maximum SLR Left</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Lumbar Right Lateral Flexion</td>
<td>T12 ROM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sacral ROM</td>
<td></td>
</tr>
<tr>
<td>Lumbar right lat flexion angle</td>
<td>±10% or 5°?</td>
<td></td>
</tr>
<tr>
<td>Maximum lumbar right lat flexion angle</td>
<td>% Impairment</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No</td>
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<tr>
<td>Lumbar Left Lateral Flexion</td>
<td>T12 ROM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sacral ROM</td>
<td></td>
</tr>
<tr>
<td>Lumbar left lat flexion angle</td>
<td>±10% or 5°?</td>
<td></td>
</tr>
<tr>
<td>Maximum lumbar left lat flexion angle</td>
<td>% Impairment</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Lumbar Ankylosis in Lateral Flexion</td>
<td>Position</td>
<td>% Impairment</td>
</tr>
</tbody>
</table>

**Total Lumbar Range of Motion Impairment**

*Add all ROM impairments if no ankylosis: use ankylosis impairment value if ankylosis is present*

**Straight-Leg Raise (SLR) Validity Test for Lumbar Flexion**

1. **Max SLR Right**
   
   **Max SLR Left**

2. **Tightest SLR**

   (Select smallest number from Step 1)

3. Sum of best sacral flexion and sacral extension measurements

   (Selected from above). Use Sacral ROM, NOT true lumbar flexion/extension angles.

4. Tightest SLR - (Sacral flexion + Sacral extension)
   
   (Step 2) - (Step 3) =

5. If the above (#4) is greater than 10 degrees, lumbar flexion is invalid

6. **For final invalidation**, claimant must have 2 sets of 3 measurements on 2 separate dates (total of 12).
   - See Level II Accreditation Curriculum (ROM of Spine) (Impairment Rating Tips)
   - DOWC Website: [www.colorado.gov/cdle/dwc](http://www.colorado.gov/cdle/dwc)
**Figure 84. Spine Impairment Summary**

<table>
<thead>
<tr>
<th>Impairment</th>
<th>Cervical</th>
<th>Thoracic</th>
<th>Lumbar</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Due to Specific Disorders (Table 53 or Table 54)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Range of Motion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Neurologic System: Loss of Sensation With or Without Pain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loss of Strength</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Other–From Sec. 3.4 p. 101</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Regional Impairment Total (Combine impairments in each column using the combined values Chart p. 254)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Spine Impairment Total (Combine all regional totals using the Combined Values Chart)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Impairment(s) of other organ systems: for each impairment list condition, page number in <em>Guides</em>, and percentage of impairment.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impaired System</td>
<td>% Impairment</td>
<td>Guides</td>
<td>Page No.</td>
</tr>
<tr>
<td>a.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Impairment of Whole Person–use Combined Values Chart to combine spine impairment with the impairment(s) listed in 7 above. If several impairments are listed, combine spine impairment with the larger or largest value, then combine the resulting percentage with any other value(s), until all the listed impairments have been accounted for.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total whole person impairment:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
VISION, HEARING, ETC. QUESTIONS

54. In regard to determining impairment of the visual system, which of the following statements is correct?
   a) Uncorrected visual acuity is used to calculate the impairment rating.
   b) Measurement of only the injured (impaired) eye is sufficient to complete the rating process.
   c) Visual field, acuity, and ocular motility must all be measured to determine visual impairment.
   d) Pseudophakia and aphakia do not affect the rating, other than the resultant decrement in visual acuity.

55. With regard to determining impairment of the auditory system, which of the following statements is correct?
   a) Hearing must be measured in both ears to determine auditory impairment.
   b) Hearing loss at 1000 Hz is weighted more heavily than is hearing loss at 500 Hz in determination of hearing loss.
   c) The only frequencies required to calculate hearing loss for auditory impairment are 500 Hz and 1000 Hz.
   d) Determining impairment of the auditory system requires measurement of speech discrimination.

56. With regard to determining impairment for temporomandibular joint (TMJ), which of the following is correct?
   a) Meniscal derangement is a 3% whole person rating per side.
   b) Functional evaluation with regard to dietary limitation is the exclusive factor on which to base ratings.
   c) An individual with a normal diet and persistent clicking and pain bilaterally has a 5% whole person rating.
   d) TMJ ratings for unilateral meniscal derangement must involvement assessment of the meniscus on the opposite side.

57. In properly rating speech impairment:
   a) audibility is more important that intelligibility.
   b) objective measurement with electronic devices is critical.
   c) there is no reason to take a history.
   d) the examiner must have normal hearing.
58. Which of the following factors is not required to determine upper digestive tract impairment?

a) anatomic loss or alteration of the digestive tract.
b) consideration of current weight versus ideal weight.
c) a specific and detailed description of the diagnosis.
d) description of dietary restrictions.
e) symptoms and signs of organic UG1 disease.
PULMONARY/CARDIOVASCULAR

A 58 year-old male has a history of non-productive cough for five years and slowly progressive dyspnea on exertion. He is dyspneic walking one block on level ground at his own pace. He is a lifelong non-smoker.

For the past 25 years he has worked for a mining company, mostly underground near the mine face, with exposure to hard rock dust. Review of annual chest radiographs over the past 10 years show diminished lung volumes, rounded opacities throughout the lungs which are most prominent in the upper lung zones, and some areas of coalescence of the opacities, that suggest complicated silicosis.

At examination the man weighed 87.5 kg, and was 172 cm tall. He had end-expiratory crackles throughout both lungs. There was no clubbing or cyanosis. Tuberculin skin test was non-reactive.

The patient's observed pulmonary function data were:

FVC          3.30 liters
FEV₁        2.50 liters
FEV₁/FVC %  76
D₁CO        20.0 m1/min/mm Hg
V₁O₂ max was 25 ml/(kg min)

59. Based on the tables in Chapter 5 of the AMA Guides, Third Edition, Revised, what percent of predicted is this patient's D₁CO?
   a) 63%
   b) 67%
   c) 77%
   d) 85%

60. Based on the information above, what is this patient's level of impairment of the whole person due to lung disease?
   a) Class 1 (0%)
   b) Class 2 (10-25%)
   c) Class 3 (30-45%)
   d) Class 4 (50-100%)
61. Which one of the following additional pieces of information would be helpful in assessing his level of impairment?
   a) History of alcohol use
   b) Sputum culture for mycobacteria
   c) Cumulative dose of silica dust exposure
   d) Race

62. Why did the physician who performed the impairment rating obtain an exercise capacity test?
   a) Because the patient had a chest radiograph that looked worse than his spirometry and Dco.
   b) Because the patient's symptoms were worse than his spirometry and Dco suggest.
   c) Because the AMA Guides recommends exercise testing for all patients with interstitial lung disease.
   d) Because the AMA Guides recommends exercise testing for all patients with respiratory system disease.

63. Four physiologic measures are routinely relied upon in estimating pulmonary impairment. These four measures are:
   a) FEV$_1$, FVC, FEF$_{25-75}$, D$_{CO}$
   b) FEV$_1$, FVC, FEV$_1$/FVC ratio, D$_{CO}$
   c) FEV$_1$, FVC, D$_{CO}$, arterial blood gas analysis
   d) Spirometry, D$_{CO}$, arterial blood gas analysis, exercise capacity testing.

64. Accurate and reproducible measurements are critically important to the physiologic assessment of pulmonary impairment. In order to be used, a laboratory's measurements of spirometry and D$_{CO}$ must:
   a) be shown to correlate with results from a reference laboratory.
   b) not vary more than 15% upon repeat testing.
   c) conform to 1993 American Thoracic Society (ATS) standards
   d) be performed by a NIOSH-certified respiratory technician.

65. Some diseases, such as asthma, produce respiratory impairment that is not directly related to lung function. Which of the following statements about impairment assessment of asthma is correct?
   a) Unless there is severe impairment, the individual can return to work.
   b) Post-bronchodilator spirometry values should not be used in rating impairment because they underestimate the severity of asthma.
   c) D$_{CO}$ is the most important physiologic measurement in asthma.
   d) Impairment due to asthma should be assessed when optimally treated using post-bronchodilator spirometry values.
66. Symptomatic limitation plays an important role in determining impairment due to cardiovascular disease. As such, physicians must take a careful history focusing on symptoms at rest and with different levels of activity, and classify the patient using a functional classification system. Which of the following statements about functional classification is correct?

a) Class I patients are asymptomatic at all times and may be without objective disease.
b) Class II patients are asymptomatic at rest but are limited by even mild activity.
c) Class III patients are symptomatic during normal activities.
d) Class IV patients are symptomatic at all times.

67. A cardiovascular disease sometimes can cause multiple problems, each of which could contribute to impairment. For example, valvular heart disease can produce a low cardiac output state as well as arrhythmias. When rating impairment in such situations, you should:

a) assign an impairment rating for the causative heart disease process only.
b) assign an impairment rating for each heart-related problem and then apply the combined values chart.
c) assign an impairment rating for each heart-related problem and then take the sum of these ratings.
d) assign an impairment rating for the most life threatening component of the patient's heart condition.

68. The timing of an impairment rating can make a big difference in the estimated level of impairment. Which of the following is the best reason to postpone the determination of impairment due to a cardiovascular disease?

a) Patient has recently been placed on a new heart medication.
b) The patient has fully recovered from heart surgery.
c) The patient is not a surgical candidate.
d) The patient's symptoms vary from day to day.
DERMATOLOGICAL SECTION

69. The five classifications of dermatological impairments are determined by which of the following considerations:
   
   a) Range of motion and sweat deficits secondary to scars, requirements for treatment, signs and symptoms of dermatological disease.
   b) Limitations in activities of daily living, requirements for treatment, sensory deficits over the affected area.
   c) Limitation in activities of daily living, sign and symptoms of skin disease and psychological affects of the disease.
   d) Signs and symptoms of skin disease, requirements for treatment, and limitations on activities of daily living.
   e) Signs and symptoms of skin disease, affects on daily living activities, disfigurement considerations, and requirements for treatment.

70. After being hit on both ears multiple times, a boxer suffers a bilateral cauliflower ears (significant deformity of both outer ears which affects the cartilage). He should receive:
   
   a) a 5% rating based on a class 1 impairment for skin disease
   b) a 7% rating based on class 2 facial abnormality.
   c) a 5% impairment based on class 1 facial abnormality.
   d) a 4% based on a 2% deformity of each outer ear.
   e) no impairment as patient has disfigurement only.

For question 71, write the question number and your hand written answer in the white space at the bottom third of your computer answer sheet.

71. A 35 year old mechanic develops a contact dermatitis from cutting oils. The dermatitis clears when he is removed from contact with the oils and treated for the skin condition. He now wears appropriate gloves whenever he is using cutting oils. Nevertheless, he continues to have occasional exacerbations when he unexpectedly comes into contact with cutting oil left on machine parts. These episodes require treatment and limit day to day activities when they occur. What is his rating?

72. Scars should be rated in the following manner:
   
   a) A psychological rating should be added to the functional deficits.
   b) A psychological rating should be a major portion of the scar impairment.
   c) Range of motion and sensation deficits should be rated and added.
   d) Strength and sensation deficits should be added to the psychological rating.
   e) Facial scars should be rated according to the E.N.T. chapter.
LEVEL II TEST QUESTIONS
Pre-test

MENTAL AND BEHAVIORAL DISORDERS SECTION

73. Which of the following tests would not be useful in determining the patient's diagnosis?
   a) TAT
   b) MMPI
   c) Rorschach
   d) WAIS/R

74. Which one of the following is not included in the Social Security Administration's "listings of mental impairment"?
   a) Social functioning
   b) Adaptation to stressful circumstances
   c) Motivation
   d) Activities of daily living
   e) Concentration, persistence, and pace

75. Which of the following areas best defines the nature of a workers' compensation psychiatric examination?
   a) acceptance of the impairment as obtained from test results
   b) obtaining relevant information about the worker's daily life activities
   c) performance of a detailed mental status examination not always required

76. In most cases, according to the AMA Guides 3rd edition, a patient who has chronic pain will have:
   a) a significant impairment.
   b) a moderate impairment.
   c) a measurable impairment.
   d) little or no impairment.

77. Which of the following must be established before a mental impairment rating is provided?
   1. physical impairment
   2. the requirement for post-MMI medication use
   3. psychological test results showing abnormal functioning
   4. a DSM diagnosis
   5. a permanent change in function
   a) all of the above
   b) 2, 3 & 4
   c) 3, 4 & 5
   d) 4, 5
e) 5 only

78. The following steps may be included in a psychiatric impairment rating. List all of the **required** steps in the correct order.

1. Average all four area of function scores.
2. Average the two highest scores for the four areas of function.
3. Convert the final total score to an impairment using the category conversion table.
4. Determine MMI.
5. Establish a diagnosis using the most current edition of the DSM.
6. Rate the subcategories under each area of function from 0 – 6.
7. Rate the subcategories under each area of function from 1 – 100%.
8. Average all the subcategories in each of the 4 areas of function.
9. Average the 2 highest subcategories in each area of function.

a) 5, 4, 7, 8, 1, 3
b) 5, 4, 6, 8, 1, 3
c) 4, 7, 9, 2, 3
d) 5, 4, 6, 9, 2, 3

79. How many impairment ratings have you performed using the AMA Guides 3rd edition (revised)?

a) None
b) 1-6
c) 6-10
d) More than 10
### ANSWERS TO PRETEST

#### ADMINISTRATIVE/LEGAL

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
<th>Curriculum section/subsection</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>C</td>
<td>Admin/Responsibilities of a physician at the first visit, Follow-up patient visits &amp; patient at MMI</td>
</tr>
<tr>
<td>#2</td>
<td>D</td>
<td>WC Reports/Work restrictions</td>
</tr>
<tr>
<td>#3</td>
<td>C</td>
<td>Admin/Patient No Shows</td>
</tr>
<tr>
<td>#4</td>
<td>D</td>
<td>Admin/Billing for Services</td>
</tr>
<tr>
<td>#5</td>
<td>B</td>
<td>Interprof. Code/Sec. 1:3 – the role of the expert ..... unbiased &amp; objective</td>
</tr>
<tr>
<td>#6</td>
<td>A</td>
<td>Admin/Responsibilities of a physician at the first visit</td>
</tr>
<tr>
<td>#7</td>
<td>C</td>
<td>Admin/Utilization Review Program (UR)</td>
</tr>
<tr>
<td>#8</td>
<td>D</td>
<td>WC Reports/Maximum Medical Improvement Admin/Determination of Maximum Medical Improvement (MMI)</td>
</tr>
<tr>
<td>#9</td>
<td>B</td>
<td>Admin/Responsibilities of a physician at the first visit</td>
</tr>
<tr>
<td>#10</td>
<td>A</td>
<td>Admin/Responsibilities of a physician at the first visit</td>
</tr>
<tr>
<td>#11</td>
<td>C</td>
<td>Admin/Patient at MMI</td>
</tr>
<tr>
<td>#12</td>
<td>A</td>
<td>Ethical Standards/In Patient/Doctor relationships in workers’ compensation cases</td>
</tr>
<tr>
<td>#13</td>
<td>C</td>
<td>Admin/Patient at MMI</td>
</tr>
<tr>
<td>#14</td>
<td>A</td>
<td>Admin/Authorized Medical Care &amp; Billing</td>
</tr>
<tr>
<td>#15</td>
<td>D</td>
<td>Admin/Authorized Medical Care &amp; Billing</td>
</tr>
</tbody>
</table>

Revised: 2/2018
NEUROLOGICAL SECTION

#17. Refer to Table 13, page 44, Brachial plexus deficits of the upper trunk, C-5, C-6. Sensation deficit equals 25%, motor deficit equals 70%.

#18. To determine the sensation deficit, use Table 10, page 42. A grade 3 deficit is determined from the history. Thus, 25% is multiplied by a number in the range of 26-60%. This equals an upper extremity deficit of 6.5% and 15%.

#19. Use Table 11, page 42. Given the history, this reveals a motor deficit of grade 2 which has a range of 1-25%. 70% is multiplied times a number in the range of 1-25%. This is equal to a range of 0.7-17.5% for an upper extremity rating.

#20. The upper extremity rating is between 8-30%. This is determined by using the Combined Values Chart and combining the sensory and motor deficits determined in questions 2 and 3. The whole person rating is between 5% and 18%. This is determined by converting the upper extremity rating to the whole person rating using Table 3, page 16.

#21. Review Table 1, page 109, B. Brain, under "Complex Integrated Cerebral Functions," and page 105, "Emotional Disturbances." The patient's description would appear to be in the impairment rating of 20-45% in both of these areas. This is because the patient is unable to carry out daily activities such as simple mathematics in order to balance his checkbook and he is also unable to operate under normal circumstances due to his emotional outbursts. Remembering that only the highest rating can be given one of these areas, the patient now can receive a rating between 20% and 45% but not over those categories within the neurological section.

#22. Turning to the psychiatric section, we may now only consider areas that were not considered under the neurological section. Since we have already considered the emotional disturbances and complex integrated functions of this patient, we can only consider post traumatic stress disorder. The post traumatic stress disorder appears to have a minimal effect in his life as it merely precludes driving in the mountains. Thus, after completing the mental impairment rating worksheet, you may have an impairment based on the conversion chart of around 5%. The mental impairment of 5% would be combined with the neurological rating.

COMMENT: It may be possible to make the argument that you choose not to consider the emotional disturbances under the neurological section and used the psychiatric section instead. If you were to rate the case in this manner, you would need to be able to prove that the emotional disturbance portion is not due to neurological brain damage but is rather due to the psychiatric diagnosis involved. According to the limited case description, this argument would not apply in the case given.

#23. To determine the total whole body rating, you would combine the rating from the neurological section, which is in the range of 20-45%, and the 5% rating from the psychiatric section. This would result in a rating in the range of 24-48% whole person.

Q. Ans. Curriculum section/subsection.
#24 B-False Neurological/The Brain
#25 D Neurological/Peripheral Spinal Nerves after case example and in RSD section
#26 C Neurological/Peripheral nerves
#27 C Neurological/Auditory

Revised: 2/2018
### UPPER EXTREMITY

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
<th>Curriculum section/subsection</th>
</tr>
</thead>
<tbody>
<tr>
<td>#30</td>
<td>D</td>
<td>Upper Extremity/general principals AMA Guides --- page 54</td>
</tr>
<tr>
<td>#31</td>
<td>E</td>
<td>Upper Extremity/Range of Motion – Thumb &amp; other digits</td>
</tr>
<tr>
<td>#32</td>
<td>B</td>
<td>Upper Extremity/Digital impairments/Sensory loss of the digits</td>
</tr>
<tr>
<td>#33</td>
<td>C</td>
<td>Upper Extremity/Other disorders of the upper extremity</td>
</tr>
<tr>
<td>#34</td>
<td></td>
<td>Use Fig.17, page 25. Amputation impairment = 45% of the finger</td>
</tr>
<tr>
<td>#35</td>
<td></td>
<td>Use Table 4, page 20, partial loss of the full length of digit for the ulnar nerve = 15% of the thumb</td>
</tr>
<tr>
<td>#36</td>
<td></td>
<td>Use Table 1, page 15. 15% of the thumb = 6% hand. 45% little finger = 5% hand. Add 5% + 6% = 11% hand</td>
</tr>
<tr>
<td>#37</td>
<td></td>
<td>Use Fig.32, page 32. Extension loss = 1% Flexion loss = 2% Add 1% + 2% = 3% upper extremity</td>
</tr>
<tr>
<td>#38</td>
<td></td>
<td>Use Table 2, page 16. 11% hand = 10% upper extremity Combine 10% and 3% to equal 13% upper extremity.</td>
</tr>
</tbody>
</table>
#39 C Lower Extremity & Spine/Essential elements of the exam

#40 D Lower Extremity & Spine/Range of Motion testing of the spine

#41 C Lower Extremity & Spine/Essential elements of the exam

#42 B Lower Extremity & Spine/Range of Motion testing of the spine

#43 C Lower Extremity & Spine/Diagnoses related factors

#44 A Lower Extremity & Spine/Diagnoses related factors

#45 D Lower Extremity & Spine/Diagnoses related factors

#46 E Lower Extremity & Spine/Range of Motion testing of the spine

#47 10% whole person rating - use table 53 page 80, II E/surgically treated disc with residuals.

#48 Use Tables 60 and 61, page 98, 2% for lumbar flexion, 2% for lumbar extension, 1% for right lateral flexion, 2% left lateral flexion. Add percentages to equal 7% whole person.

#49 1.3% - 3% lower extremity rating which is equal to a 1% whole person rating - to determine this, use Table 49. The total sensation loss is equal to 5%. This is rated using Table 10, page 42, as a grade 3 rating. Thus, the impairment is equal to (26% - 60%) x 5% or 1.3% - 3% range for the lower extremity. Use Table 46, page 72, to convert this percentage into a whole person rating. Any number in this range would be equal to a 1% whole person rating. The physician has the discrimination of using any number within the range presented above.

#50 17% whole person rating. This rating is determined by combining the 10% diagnosis related rating with a 7% range of motion and the 1% sensation deficit using the Combined Values Table on page 254 of the AMA Guides.

#51 The answer is 5% of the lower extremity. Use Table 39, page 68, which shows a 4% deficit for flexion and a 1% deficit for extension adding to a 5% deficit of the lower extremity.

#52 0-10%, To determine this, use Table 40, page 68. The range given is 0-10% for a 1 meniscal tear. Since this patient has residual signs, he would at least deserve a 1% rating, minimally and a limit of a 10% rating given the table.

#53 6-15% of the lower extremity equals 2-6% of the whole body. The 5% range of motion deficit is combined with the diagnosis related deficit of 1-10%. Using the Combined Values Chart, this would equal a lower extremity deficit of between 6% and 15%. To convert this to a whole body rating, use Table 46, page 72. The conversion results in a range of 2-6%.

Revised: 2/2018
### Vision, etc.

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
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<tbody>
<tr>
<td>#54</td>
<td>C</td>
<td>Vision, etc/The Vision system</td>
</tr>
<tr>
<td>#55</td>
<td>A</td>
<td>Vision, etc/Auditory impairment</td>
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<td>#58</td>
<td>C</td>
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### Pulmonary/ Cardiovascular

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<th>Q.</th>
<th>Ans.</th>
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<tr>
<td>#59</td>
<td>A</td>
<td>AMA Guides page 122</td>
<td>DC&lt;sub&gt;0&lt;/sub&gt; is 20.0/32.0 x 100 = 62.5% of predicted, based on Table 6 for 172 cm tall 58 year old male; n.b. FVC is 3.3/4.43 = 72.5%; FEV&lt;sub&gt;1&lt;/sub&gt; is 74%; FEV&lt;sub&gt;1&lt;/sub&gt; is 2.5/3.52 = 71%</td>
</tr>
<tr>
<td>#60</td>
<td>B</td>
<td>Curriculum pages 94-95; Also AMA Guides Applying spirometry &amp; DC&lt;sub&gt;0&lt;/sub&gt; In estimation of permanent impairment example</td>
<td>FVC is between 60-79% predicted. DC&lt;sub&gt;0&lt;/sub&gt; is between 60 – 79% Predicted; FEV&lt;sub&gt;1&lt;/sub&gt; and FEV&lt;sub&gt;1&lt;/sub&gt;/FVC% are less pertinent in a case Of interstitial lung disease; VO&lt;sub&gt;2&lt;/sub&gt; max is between 20 – 25 ml/(kg.min) These parameters fit Class 2 (10-25% Mild Impairment)</td>
</tr>
<tr>
<td>61#</td>
<td>D</td>
<td>Curriculum page 95 Applying spirometry &amp; DC&lt;sub&gt;0&lt;/sub&gt; in estimation of Permanent impairment</td>
<td>Alcohol use is irrelevant to this lung disease. Cumulative dose May be of interest, but whatever the dose was, it was sufficient To produce this disease and is not pertinent to rating impairment. Sputum culture for mycobacteria has no direct impact on Impairment rating but may be clinically important to some patients with silicosis because of the increased risk of tuberculosis. Race is important. The predicted values for spirometry are based on Caucasians. “The spirometry measurements for black persons and persons of Asian descent tend to be smaller than for whites of the same age, height, and sex. Therefore, the evaluating physician should multiply the predicted value by 0.9 before comparing a black of Asian individual’s values to the appropriate tables.”</td>
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Revised: 2/2018
Exercise capacity

One of the principal indications for performing exercise capacity testing as part of impairment assessment is when the patient's symptoms are at variance with results of spirometry and D\textsubscript{CO}. This patient reports a great deal more dyspnea than is reflected by his mild impairment of spirometry and D\textsubscript{CO}. Chest radiograph is known to correlate poorly with spirometry and D\textsubscript{CO}. The AMA Guides do not recommend exercise testing for all patients with interstitial disease, and it is not part of the routine assessment of all patients with respiratory system disorders.

Applying spirometry & D\textsubscript{CO} in estimation of Permanent impairment

FEF\textsubscript{25-75} is poorly reproducible and not relied upon in assessing impairment, although it is commonly calculated and reported as part of spirometry. Arterial blood gas analysis is specifically not included in routine assessment of pulmonary impairment. It should be included only when there is suspicion of hypoxemia or hypoxemia-related health effects.

Physiologic testing

It would be problematic to have every laboratory show interlaboratory comparability or hire only NIOSH-certified spirometry technicians. 15% variability is unacceptably high for either spirometry or D\textsubscript{CO}.

Respiratory Impairment not directly related to lung function

If a patient with occupational asthma develops sensitivity to a causative agent in the workplace, removal from that environment is important regardless of the severity of disease. Post-bronchodilator spirometry values are often not helpful in assessing impairment in asthma, giving a picture of how well the patient does with optimal medical treatment. D\textsubscript{CO} is often normal or slightly supranormal in patients with asthma, making it an insensitive indicator of severity of disease. Direct measures of airflow (spirometry) are more helpful. Occupational asthma usually warrants referral to a specialist. Also see attached American Thoracic Guidelines.

Cardiovascular system impairment

Class I patients are asymptomatic but have evidence of cardiac disease and may have symptoms with very heavy physical activities, explaining why impairment in this class ranges from 0-10%. Class II patients are asymptomatic during normal activities but show limitation with heavy physical exertion. Class III patients are symptomatic during normal activities. Class IV patients are significantly limited during normal activities and may or may not have symptoms at rest.

Heart disease and its secondary effects should be rated by assessing each component separately (eg. valvular disease, arrhythmias, hypertension) and then applying the combined valued chart on p.254-256 of the AMA Guides, 3rd edition revised.
### DERMATOLOGICAL SECTION

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<td>#69</td>
<td>D</td>
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| #70 | D    | Skin/Disfigurement/Scar/Impairment classification for skin diseases  
See AMA Guides ENT section, Chapter 9, Section 2, page 179 |
| #71 | 1-5% | Skin/Classification for skin diseases |
| #72 | E    | Skin/Scars |

### MENTAL AND BEHAVIORAL DISORDERS

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<td>#75</td>
<td>B</td>
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| #76 | D    | AMA Guides page 252  
Mental/Pain |
| #77 | D    | Mental/Introduction |
| #78 | D    | Mental/Determination of Impairment Rating/Mechanics of the mental impairment rating |

Revised: 2/2018
Please review the following recommendations when assigning impairment ratings:

**General Principles**

1. **Impairment Ratings Based on Objective Pathology:** Impairment ratings are given when a specific diagnosis and objective pathology is identified. *(Reference: C.R.S. §8-42-107(8)(c)) In cases with multiple symptoms, the clinician must determine whether separate diagnoses are established which warrant an impairment rating OR the impairment rating provided for a specific diagnosis incorporates the accompanying symptoms of the patient.

   For example, in shoulder cases with accompanying neck pain, the clinician must determine whether an additional objective work-related Table 53 cervical pathology qualifies for a rating OR the symptoms the patient has are those expected from the shoulder pathology and do not qualify for an additional rating.

2. **Impairment Rating for Workers Who Have Undergone an Invasive Treatment Procedure:** The rating physician should keep in mind the *AMA Guides*, 3rd Edition (rev.) definition for impairment: “The loss of, loss of use of, or derangement of any body part, system, or function.” Given this definition, one may assume any patient who has undergone an invasive procedure that has permanently changed any body part has suffered a derangement. Therefore, the patient should be evaluated for an impairment by a Level II Accredited Physician. Although the rating provided may be zero percent, it is essential that the physician perform the necessary tests, as outlined in the *AMA Guides*, 3rd Edition (rev.) for the condition treated, in order to justify the zero percent rating.

3. **Range of Motion Measurements:** Only *active* range of motion measurements should be used to determine impairment. The examiner should not assist the patient when obtaining spinal or extremity range of motion. For extremities, passive range of motion may be measured to assess the *validity* of active range of motion measurements. See the Spinal and Extremity Rating section for a more detailed discussion.

4. **Impairment Rating “Rounding”:** Although the *AMA Guides* allows rounding of an impairment rating to the nearest whole number ending in 0 or 5, the Division recommends rounding up or down to the nearest whole number when presenting the *final rating.* A number ending in .50 or above should be rounded up. Fractional ratings are not acceptable.

5. **Worksheets:** Make sure to attach all applicable worksheets to the narrative report and include this information to all legally concerned parties. The Lower Extremity and Mental Impairment forms created by the Division and the spinal and upper extremity forms found in the *AMA Guides* are required. If a spinal impairment rating is provided, both Figure 84 and the appropriate spinal range of motion worksheet are required. If you need to send an addendum or a response to an incomplete notice, make sure you copy all parties. Zero percent impairment based on physiological findings is considered an impairment rating and requires worksheets. *Note that you do not have to provide worksheets if you are not giving a rating for the injury(s) in question.*
6. **“Grover Meds” and Impairment:** If continuing treatment or medications are ordered in a case post MMI (“Grover Meds”), and that treatment was not being given prior to the onset of the work-related injury or condition, there may be a reasonable assumption that there has been a permanent change in a body part under the definition of impairment in the *AMA Guides, 3rd Edition (rev).* Therefore, it is incumbent on the physician to perform a full assessment for impairment at the time MMI is determined. This should not be interpreted to say that all persons receiving Grover Meds necessarily qualify for an impairment rating. *If the rating physician provides an assessment of zero or no impairment, yet orders post-MMI treatment, this shall be justified in the physician’s closing report.*

7. **Facial Disfigurement vs. Scars:**
   - Facial disfigurement should be rated using the *AMA Guides 3rd Edition (rev.)* Section 9.2 (p. 179).
   - **Scars** should be rated using the *AMA Guides 3rd Edition (rev.)* 13.6 (p.225) (*Reference: Level II Accreditation Curriculum, Dermatology section*) if the physician deems appropriate, or have the claimant go to the ALJ to request an award.
   - **Note:** Providers should be aware that not all scars qualify for an impairment rating and the claimant may request an award for scars from an ALJ. *Colorado Revised Statutes (C.R.S. §8-42-108)*

8. **Complex Regional Pain Syndrome/Reflex Sympathetic Dystrophy (CRPS/RSD):** The Division recommends using the spinal cord table (*Table 1, - Section A, pg. 109, AMA Guides*) for determining impairment, however the peripheral nerve tables may be used if the evaluator deems them more appropriate (*Table 14, pg. 46; Table 51, pg. 77, Table 10 pg. 42, AMA Guides*). In unusual cases where severe vascular symptoms cause additional impairment of ADLs the physician may choose to combine additional impairment for the vascular tables with the neurological impairment. (*Table 52, (p.79) and Table 16, (p. 47), AMA Guides*). Range of motion should not be used, when it is accounted for in the neurologic portion of the rating.

9. **Tinnitus:** The *AMA Guides, 3rd Edition (rev.*) (p.110) suggests that 3-5% impairment may be added to the binaural hearing impairment for tinnitus. Tinnitus impairment can only be provided when a hearing impairment is documented. The hearing impairment need not be from the current injury. Later editions of the AMA Guides have clarified that impairment for tinnitus is added to the total binaural hearing impairment rating before it is converted to whole person. If adding impairment for tinnitus to monaural hearing impairment, the 3-5% would be added to the monaural hearing impairment percentage. The rating is completed by converting to whole person.

10. **Headaches:** Headaches that qualify for a separate work-related impairment rating should be rated using the Episodic Neurological Disorders section in Table 1- Section B (Chapter 4, p. 109). It is important to remember that if the individual has a closed head injury the highest applicable rating from this table is the only rating used. If the headache rating is to be combined with another body part, the rater must be very careful not to rate the activities of daily living deficits in both impairment areas.
11. **Rating Abdominal Hernias:** There are three classes of hernia impairment (*AMA Guides, 3rd Edition (rev.), p. 196*). Remember that to qualify for a rating in any class at the time of MMI there must, at a minimum, be a “palpable defect in the supporting structures of the abdominal wall.”

**Apportionment**

1. **Apportionment of Prior Conditions:** Asymptomatic conditions cannot be evaluated for prior impairment. Only previously symptomatic conditions should be considered for apportionment. (Reference: Askew v. Industrial Claim Appeals Office, 927 P.2d 1333 (Colo. 1996); Rule 12).

   For Workers’ Compensation injuries occurring on or after July 1, 2008:

   - For prior **non-work related** injuries: To apportion prior injuries that are non-work related, they must have been *identified, treated, and independently disabling* at the time of the current work related injury. If the prior non-work related injury was not independently disabling at the time of the current injury, you may not apportion.

   - For prior **work-related** injuries: The Physician may provide an opinion on apportionment for any pre-existing work related permanent impairment to the same body part using the *AMA Guides, 3rd Edition, (rev.), where medical records or other objective evidence substantiate a pre-existing impairment*. Any such apportionment shall be made by subtracting the pre-existing impairment as it existed at the time of the subsequent injury or occupational disease from the injured worker’s total impairment as calculated according to the *AMA Guides, 3rd Edition (rev.).* The subtraction is best accomplished by deducting at the specific appropriate levels before combining all portions of the rating. The Physician shall explain in their written report the basis of any apportionment. (Rule 12-3) It is critical that complete information is provided, particularly the current total impairment—both apportioned and unapportioned.

   - The ‘current total rating’ should represent the person’s current and past impairment rating. You may **not** apportion by estimating the percentage attributable to the prior injury or disease; (i.e.: “50% of this impairment was pre-existing.” )

   - You **must have medical documentation** for the information that substantiates the previous work related rating.

   - Utilize the “Apportionment of Spinal Conditions Worksheet/Desk Aid 10” (*Reference: Level II Curriculum, Normalization/Apportionment and Spine sections*) to calculate the past injury’s range of motion if a prior apportionable spinal condition exists and no range of motion values are available.

2. **Age:** Because age is considered in the calculation of benefits which the injured worker will receive, there is no additional apportionment for age when awarding impairment ratings (Reference: C.R.S. §8-42-107)
Spinal Rating

1. **Table 53 and Application of Spinal Range of Motion:** In order to be assigned a spinal rating, the patient must have objective pathology and impairment that qualifies for a numerical impairment rating of greater than zero under Table 53. Spinal range of motion impairment must be completed and applied to the impairment rating only when a corresponding Table 53 diagnosis has been established. (References: Spine section of the *AMA Guides, 3rd Edition (rev.)*; Level II Accreditation Curriculum, Spine and Pelvis Impairment).

   - In unusual cases with established severe shoulder pathology accompanied by treatment of the cervical musculature, an isolated cervical range of motion impairment is allowed if it is well justified by the clinician. Otherwise, there are no exceptions to the requirement for a corresponding Table 53 rating.

2. **Table 53 and 0% Impairment Rating with Six Months or More Treatment:** Whenever 6 months of treatment of the spine has occurred and a Table 53 zero percent rating is assigned, the physician must provide justification for the zero percent rating, based on the lack of physiologic findings. The rating physician shall be aware that a zero percent rating in this circumstance implies that treatment was performed in the absence of medically documented pain and rigidity.

3. **Proper Use of Table 53:** Section I (fractures) of Table 53 is the only section where combining definitions A (compression) and B (posterior elements) is allowed. For Sections II, III and IV, the available sub values cannot be combined. These sections are meant to be progressive values. For example, if a patient suffered a lumbar strain with six months of treatment, they would receive 5% impairment (Section IIB). If several years later they suffered another lumbar strain, the rating would still be 5% per Section IIB of Table 53, not 5% (previous injury) combined with 5% (current injury). If this patient suffered a herniated disc as their current injury, the total rating would be 7% as they would have progressed to Section IIC on Table 53. To apportion the rating, 5% is subtracted from 7% to give a 2% rating.

4. **Impairment Ratings for Invasive Spinal Procedures:** The following procedures are considered surgical and should be rated under Table 53 using II (D) or II (E):
   a. IDEA (intradiscal electrothermal annuloplasty)
   b. Coblation of the nucleus pulposus
   c. Microdiskectomy
   d. Permanent spinal stimulator placement requiring laminotomy
   e. Vertebroplasty or kyphoplasty
   f. Artificial disk placement
   g. Removal of Spinal Hardware: Procedures for removal of spinal hardware are rated under Table 53 II (G) 1, or Table 53 II (G) 2 for subsequent surgical procedures.
5. **Not Rated as Surgical Spinal Procedures:** The following are *not* rated as surgical procedures using Table 53:

   a. Diagnostic or therapeutic spinal injections
   b. Intrathecal drug pumps
   c. Removal of spinal stimulator not requiring laminectomy

6. **Rhizotomy:** Rhizotomy is also currently known as a Radiofrequency Medial Branch Neurotomy or RF Neurotomy. It is not considered a surgical procedure under Table 53. Rhizotomies should be rated using II(C). A rhizotomy causes only minimal anatomic disruption and may not be permanent. In order to perform a rhizotomy the condition must meet the diagnostic criteria required in the Low Back Pain Medical Treatment Guideline (see section D). The degree of pathology required to perform a rhizotomy is deemed equivalent to moderate to severe degenerative changes at the facet joint. Most commonly two or more spinal levels are performed with rhizotomy procedures to assure coverage of the appropriate nerves.

To rate rhizotomies the total number of levels at which a rhizotomy is performed should be divided by 2. A two-level bilateral or unilateral rhizotomy receives a rating of II(C) because II(C) accounts for the initial two levels. Three or four-level rhizotomies receive a II(C) plus (II) F 1% for the additional levels. Five or six-level rhizotomies receive II(C) plus II (F) 2% for the additional levels.

For example, the Table 53 rating for rhizotomies at 4 lumbar levels would be 8% (II-C of 7% for the first two levels plus II-F of 1% for the additional two levels). Similarly, the Table 53 rating for 6 cervical levels would be 8% (II-C of 6% for the first two levels plus II-F of 2% for the additional four levels). Bilateral rhizotomies at the same spinal level do not receive any additional rating.

7. **Rating for SI Joint Dysfunction:** Patients who continue to have SI joint symptoms, and thus qualify under the “six months of medically documented pain and rigidity with or without muscle spasm,” Table 53 terminology should be rated as Table 53 II (B) in most circumstances. The appropriate spinal range of motion impairment must be combined with this.

8. **Vertebral Fractures:** An operatively treated vertebral fracture should be rated under Table 53 section IV (A) or (B). When more than one level has been fused, additional levels are added at 1% each using IV(C). If there are additional vertebral fractures which are not operatively treated, these should be rated under section I and the ratings from I and IV should be combined for a total Table 53 rating. (If multiple non operative fractures are present and rated under section I, these are combined as directed on Table 53.)

9. **Using Table 53 to differentiate between II (B), (C) and (F) regarding x-ray findings:**
   The mere presence of findings by diagnostic imaging is not a sufficient justification to rate a non-specific spinal complaint. This applies to the use of II (C) and II (F). The physician should not rate findings by diagnostic imaging if they have not been clearly defined as contributing significantly to the patient’s condition. Physicians should be aware that in the asymptomatic population, disc bulges, annular tears or high intensity zone areas, and disc height loss are commonly reported in the lumbar spine from 40 – 60% of the time depending on the condition and study *(Reference: Medical...*
Treatment Guidelines, Low Back Pain). In the cervical spine, the prevalence of disc degeneration or loss of signal intensity on MRI is greater than 50% in the 50 years and older asymptomatic population. Cervical disc bulging and posterior disc protrusion, while not rare, are more commonly symptomatic than in the lumbar spine due to the smaller cervical spinal canal. Mild reduction in the cross-sectional spinal cord may be seen without myelopathy in patients older than 40 years (Reference: Medical Treatment Guidelines, Cervical Spine Injury). Therefore, the existence of these anatomic findings cannot be considered pathological unless there are clear physiologic ties and correlation with clinical findings in an individual patient.

Asymptomatic moderate to severe lumbar facet degeneration has also been reported in 30% or more of the population 55 or older, but is uncommon in the younger population. Clear disk extrusion and nerve impingement are much less frequent in asymptomatic individuals. Symptomatic disk extrusion/herniation is rated under II(C). Due to these discrepancies between x-ray findings and pathological conditions, it is incumbent on physicians to carefully examine and apply other diagnostic tests as appropriate to identify the true pain generators in a patient and plan their treatment and impairment rating accordingly.

10. Table 54: Although Tables 53 and 54 are mutually exclusive and cannot be used in the same rating (Reference: Level II Accreditation Curriculum, Spine and pg. 81 AMA Guides), remember that in some cases with ankylosis as a pre-existing condition, Table 54 can be used for apportionment. In such cases, Table 53 can be used for the current rating and Table 54 can be used for the previous rating.

11. Straight-Leg Raise Check (SLR) for Invalidation of Lumbar Flexion: The SLR check applies to lumbar flexion only. Of the SLR measurements for each leg, the evaluator records the MAXIMUM SLR for each leg. Then the ‘tightest’ or the ‘lowest’ of these two maximum measurements for the right and left leg is used to compare to the sum of sacral flexion and extension (Reference: Level II Accreditation Curriculum, Measuring Spinal Range of Motion). If the SLR check is invalid, the claimant must be given another visit to repeat the range of motion (see below, Invalidation of Spinal Range of Motion.)

12. Invalidation of Spinal Range of Motion (cervical, thoracic, lumbar): To invalidate spinal range of motion impairment, due to internal or straight leg raise validity, or for physiologic reasons, claimants must have two visits. Two sets of three measurements must be taken on each visit (12 measurements total).

13. Lumbar Flexion Impairment: When using Table 60, you must first reference the sacral flexion angle (1st column), then the true lumbar flexion angle to calculate the impairment percentage for true lumbar flexion. (Reference: Table 60, pg. 98, AMA Guides, 3rd Edition (rev.).)

14. Angle of Minimum Kyphosis, Thoracic Flexion Worksheet: Angle of minimum kyphosis must be recorded in addition to the other measurements. This is because it is the GREATER of the two impairments (between thoracic flexion and angle of minimum kyphosis) which is used in the rating (Reference: Section 3.3d, pg. 91, AMA Guides, 3rd Edition (rev.)).
15. **Only Unassisted, Active Range of Motion Measurements Can Be Used in Impairment Rating:**

The AMA Guides to the Evaluation of Permanent Impairment, 3rd edition (rev.), uses only active, patient-initiated range of motion to determine spinal impairment. *(AMA Guides 3rd edition (rev.) (p.18, 55, 81)).* Any form of “assisted range of motion” is not part of the impairment rating process. If there is a significant, non-physiologic difference between the active and passive ranges of motion, physicians should have the patient stretch and repeat the measurements. When the physician believes the active range of motion obtained is non-physiologic, the physician is encouraged to inform the patient of their impression and the fact that it may affect the patient’s rating, before obtaining another trial of measurements. *If repeat measurements continue to appear significantly non-physiologic, the physician may use measurements obtained by other providers when there is reason to believe the measurements were performed according to the AMA Guides standards.*

**Extremity Ratings**

1. **Rating of Extremities Using Contralateral Joint/ “Normalization”:** In some cases, the contralateral joint is a better representation of the patient’s pre-injury state than the *AMA Guides population norms.* The 3rd Revised Edition has little commentary on this procedure, however the 5th Edition and the Division consider it reasonable to compare both extremities when there are specific conditions which would make the opposite, non-injured extremity serve as a better individual baseline. *(This procedure is *not* an apportionment procedure as it does not reflect a prior pathologic condition with impairment; therefore, avoid using the term “apportionment” when referring to this process. This process can be termed “normalization.”) Therefore, when deemed appropriate, the physician may subtract the contralateral joint ROM impairment from the injured joint’s ROM impairment. *(An example would be a patient with limited knee flexion due to obesity.) However, this subtraction should not be done if the contralateral joint has a known previous injury because that joint may not reflect the ‘normal’ ROM for that individual. Make sure an explanation of the methodology and rationale are present in the report.*

2. **Shoulder Surgery:**

- Resection arthroplasty referred to in the *AMA Guides 3rd Edition (rev.)* is used only for partial resection of the humeral head, a procedure rarely performed currently.
- Neither resection nor implant arthroplasty values should be used for a distal clavicular resection. *If providing a rating for a distal clavicular resection, the upper extremity value is 10%.*
- The AMA Guides 4th and 5th Editions continue to suggest that subacromial arthroplasty should be rated using ROM, and when appropriate, ‘joint crepitation with motion’ from the “Other Disorders” section. In general, when any additional rating for subacromial arthroplasty is deemed appropriate in a case with or without crepitus because “…other factors have not adequately rated the extent of the impairment,” it should not exceed 10%. *(AMA Guides 3rd Edition (rev.) p. 48).*
3. **Partial Shoulder Joint Replacement:**

- **Total implant arthroplasty** of the shoulder is a 30% rating per *The AMA Guides 3rd Edition (rev.)* Total arthroplasty is defined as an implant arthroplasty of the humeral head accompanied by resurfacing of the glenoid with any substance including metal, polyethylene or soft tissue graft.

- If a **hemi-arthroplasty** is done, the rating will generally be 20%. Hemi-arthroplasty includes resurfacing of the humeral head via a resurfacing cap or stemmed humeral replacement. The 20% rating should be combined with range of motion impairment and any peripheral nerve impairment ratings. Crepitus and synovial changes should not be rated as their ratings would be duplicative and the surgical procedure has presumably eliminated those anatomic derangements.

4. **Partial Knee Joint Replacements:** The *AMA Guides 3rd Edition (rev.)* allows a 20% rating for an optimally placed full knee arthroplasty. If a partial knee joint replacement is performed, the rating will generally be for a hemiarthroplasty or 10% for the knee replacement. The physician should take into account any additional pathology present in that knee ratable under Table 40 and combine it with the 10%. Degenerative changes for which the arthroplasty was performed should not be rated since the surgical procedure has presumably eliminated those anatomic derangements. Range of motion is always recorded and combined with Table 40 ratings.

5. **Peripheral Nerve Injuries Resulting from Cumulative Trauma:** All peripheral nerve injuries should be rated under the peripheral nerve tables in the *AMA Guides 3rd Edition (rev.)*: for upper extremity – Table 14 (p. 46), and for lower extremity – Table 51 (p. 77). The peripheral nerve values are then multiplied by percentages in Table 10 (grading scheme sensory function-p. 42), or Table 11 (grading scheme for motor function-p. 42). Range of motion or the CTD rating system should only be used if there is a separate and distinct non-neurologic cumulative trauma diagnosis (such as DeQuervain’s).

6. **Musculoskeletal Cumulative Trauma Disorders:**

Cumulative trauma staging is used to rate permanent impairment of specific disorders when no other rating is available in the *American Medical Association (AMA) Guides to the Evaluation of Permanent Impairment, 3rd Edition (rev.)*. Specific diagnoses must be provided prior to the assignment of an impairment rating. Remember that the terms ‘cumulative trauma disorder,’ repetitive motion syndrome,’ ‘repetitive strain injury,’ and other similar nomenclatures are umbrella terms that are not acceptable diagnoses. CTCs can be staged only after taking a thorough history and performing an appropriate physical examination (refer to the History Taking & Physical Examination section of the Medical Treatment Guidelines). The factors included in the CTC Staging Matrix are:

- A = History and Physical Examination.
- B = Response to Modification of Specific Aggravating Factors.
- C = Activities of Daily Living.

The following algorithm from the *Cumulative Trauma Medical Treatment Guideline* will help determine medical causality for cumulative trauma disorders.
c. Algorithmic Steps for Medical Causation Assessment

Step 1 – Diagnosis established using Section D.1.f Tables

Step 2 – Job duties clearly described. Job evaluation may be necessary.

Step 3

Job duties meet the following on risk factor definitions from the table

Neither Primary nor Secondary risks from the Risk Factor Definition Table are present

Case probably not job related

Physiologically related to diagnosis

Case is probably medially work related

One or more Primary risk factors from the Risk Factor Definition Table are present

Primary risk factor is

Not physiologically related to diagnosis

No secondary physiologically related factor is present

A physiologically related Secondary Risk Factor is present go to Step 4 Algorithm

One or more Secondary risk factors from the Risk Factor Definition Table are present, without primary risk factors

Go to Step 4 algorithm

Case is probably not medically work related∗
Algorithmic Steps for Medical Causation Assessment continued

**Step 4 – Consult Diagnosis-Based Risk Factor tables**

- **Secondary Risk Factors matches Diagnostic-Based Risk Factors tables**
  - Case is probably medically work related

- **Secondary risk is physiologically related to the diagnosis but does not meet Diagnosis-Based Risk Factors**
  - No Additional Risk Factors present
    - Case is probably not medically work related
  - An Additional Risk Factor present from the Diagnosis-Based Risk Factor table that does not overlap the Secondary Risk Factors
    - Case may be work related

*In the case of an aggravation or exacerbation of a pre-existing condition, the provider will need to make an individualized causation decision based on the presence of other accompanying conditions.*

**Cumulative Trauma Staging Matrix:** The staging matrix is only used to rate a cumulative trauma condition diagnosis when there is no impairment rating under range of motion, specific diagnosis, and/or peripheral nerve injuries in the AMA Guides, 3rd Edition Revised. It is expected that objective signs on physical examination will correlate with subjective symptoms. The primary presenting joint that corresponds to each specific established diagnosis should be rated. Descriptions of painful conditions without clear physiologic findings may not be rated using this chart. Examples include pain in the elbow or other upper extremity joint and myofascial pain disorder.

The signs and symptoms are staged in the Cumulative Trauma Staging Matrix as:

- **Stage 1 = Minimal.**
- **Stage 2 = Mild.**
- **Stage 3 = Moderate.**
- **Stage 4 = Severe.**
Stages 3 and 4 frequently may be associated with other secondary symptoms of chronic pain such as sleep alteration or depression.

Use of the Staging Matrix: The staging number chosen from the “Impairment Grades at MMI” row is multiplied by the upper extremity impairment rating value for the appropriate joint found in Table 17, p.48 of the *AMA Guides to the Evaluation of Permanent Impairment, 3rd Edition (rev.)*. The upper extremity rating is converted to whole person. The table is not intended to distinguish between permanent partial disability paid under § 8-42-107(2) and -107(8), C.R.S.

### Cumulative Trauma Staging Matrix

<table>
<thead>
<tr>
<th></th>
<th>Stage 1 (Minimal)</th>
<th>Stage 2 (Mild)</th>
<th>Stage 3 (Moderate)</th>
<th>Stage 4 (Severe)</th>
</tr>
</thead>
<tbody>
<tr>
<td>History and Physical Examination</td>
<td>1 to 2 symptoms with signs identified on history and supported by physical examination with consistency of subjective and objective findings</td>
<td>2 or more symptoms with signs identified and supported by physical examination with consistency of subjective and objective findings</td>
<td>3 or more symptoms with signs identified and supported by the physical examination with consistency of subjective and objective findings</td>
<td>3 or more symptoms with signs identified and supported by physical examination with consistency of subjective and objective findings</td>
</tr>
<tr>
<td>AND</td>
<td></td>
<td>AND</td>
<td>AND</td>
<td>AND</td>
</tr>
<tr>
<td>Response to Modification of Specific Aggravating Factors</td>
<td>Symptoms and/or signs improve or resolve with modification of specific aggravating activity</td>
<td>Symptoms and/or signs may improve but will not resolve completely with modification of specific aggravating activity</td>
<td>Symptoms and/or signs do not improve with modification of the specific aggravating activity, but may improve with elimination of the specific aggravating activity</td>
<td>Symptoms and/or signs do not improve with modification or elimination of the specific aggravating activity</td>
</tr>
<tr>
<td>AND</td>
<td></td>
<td>AND</td>
<td>AND</td>
<td>AND</td>
</tr>
<tr>
<td>Activities of Daily Living (ADLs)</td>
<td>Minimal problems with ADLs</td>
<td>Noticeable aggravation by more difficult ADLs</td>
<td>Significant interference with most ADLs</td>
<td>Severe limitations of ADLs</td>
</tr>
<tr>
<td>Impairment Grades at MMI (See Note above to obtain Multiplier)</td>
<td>0-10%</td>
<td>11-20%</td>
<td>21-30%</td>
<td>31-40%</td>
</tr>
</tbody>
</table>

### DIME Panel Physician Notes

1. **DIME Application- Body Parts Listed:** Although an impairment rating may not be provided for a condition listed on the DIME application, all issues and/ or body parts listed must be acknowledged and addressed in the narrative section of the DIME report.

   For most conditions that have been treated under the claim, an impairment evaluation must be performed even if you do not believe the condition is work related. Refer to DIME Panel Physician Notes #7, “Declaring Condition is Not Related to Injury.”

Revised: 2/2018
Worksheets are not required if no impairment evaluation for that body part was performed because it was not treated as part of the claim. *Keep in mind, a zero percent rating implies that treatment was performed and a rating was calculated according to the AMA Guides, therefore, worksheets must be provided.*

2. **DIME Physicians Must Perform Complete Assessments and Exams, including All Applicable Measurements:** As a Division Independent Medical Examiner you are required to perform your own examination of the claimant and ensure that all required measurements are performed and documented on the appropriate worksheets. If another medical professional (such as a physical therapist) performs range of motion measurements or other specialized tests and assessments (such as an audiogram), it is the responsibility of the physician to ensure that the medical professional performs the assessments in accordance with the AMA Guides and other professional standards. After completing the evaluation, in rare occurrences, you may decide that another physician’s impairment rating better reflects the condition being evaluated. Examples include instances where you find another physician’s range of motion more physiologically credible than the measurements you have obtained or when another physician has more training in a particular area than you do, such as a psychiatrist. *If you then decide to adopt another physician's rating, you should discuss in your report your own findings and clearly justify the reasons for using another physician’s rating.* If you do not provide such a discussion your report will be returned as incomplete.

3. **MMI Status:** Be specific about MMI status and date of MMI. If you agree with an authorized treating physician regarding MMI status and date, state the name of that doctor as well as the MMI date. If you decide to provide a different date of MMI, please provide a discussion of your reasoning. If you find the case is not work related and therefore is not awarded an impairment rating, it is still useful to provide information as to whether future care may be necessary for that condition.

4. **Impairment when “Not at MMI”:** Remember that a DIME is a legal/medical proceeding and you are being asked to provide specific information. *If the party requesting the DIME has asked that impairment be addressed, and if you find the patient not at MMI for that work-related injury, you should nevertheless provide a rating for that injury.* This information can be used by the parties for negotiations, settlement, or to help assess further treatment needs.

5. **Recommendations for Additional Treatment:** Division Independent Medical Examiners frequently recommend further treatment. Remember that the statute defines MMI as: “A point in time when any medically determinable physical or mental impairment...has become stable and when no further treatment is reasonably expected to improve the condition. The requirement for future medical maintenance which will not significantly improve the condition or the possibility of improvement or deterioration resulting from the passage of time shall not affect a finding of [MMI].”

To avoid ambiguity and controversy, we recommend that independent medical examiners consider the following legal opinion issued by the Industrial Claim Appeals Office, Gebert v. Nordstrom, Inc., W.C. No. 4-428-645 (ICAO, June 20, 2003), “A recommendation for therapies which present a reasonable prospect for improving physical function may be viewed as evidence that the
claimant’s condition is not stable, and the resulting impairment is not measurable. Therefore, such treatment recommendations are inconsistent with MMI…

- Treatment which is provided merely to maintain the claimant’s condition by preventing deterioration, or to relieve continuing symptoms, is not inconsistent with MMI and may be awarded as maintenance care.
- The DIME physician must clearly indicate whether the treatment recommendations in the DIME report are intended as maintenance treatment or if the treatment could affect the MMI date given.
- If the examiner indicates that the treatment recommended would affect the MMI date, the examiner should also indicate whether the patient would be at maximum medical improvement as of a specific date in the event the patient refused to undertake the treatment suggested by the examiner. That “specific date” may or may not be the date of your exam.

6. **Diagnostic Tests and MMI:** There are times when a patient is placed at MMI but the examiner will nevertheless order a diagnostic test. If there is a reasonable possibility that the results of a diagnostic test (such as an MRI or EMG) will change the patient’s MMI status, then in most instances, the patient will not be at MMI. If the diagnostic test is necessary only to provide impairment rating information, this would not affect the MMI date. The examiner is still expected to give an impairment rating that can be used by the parties for negotiations, settlement, or to help assess further treatment needs.

7. **Declaring Condition is Not Related to Injury:** Division Independent Medical Examiners may declare a condition is non-work related. This may occur despite the fact a payer accepts a body part or diagnosis as part of the claim, treatment has occurred, and MMI has been declared by the authorized provider. If this situation arises, an impairment rating must be provided in the report or as an addendum to the DIME report. This information will often be used by the parties for further negotiations and/or settlement of the claim.

8. **Accepting Spinal ROM (cervical, thoracic, lumbar) from Other Providers:** When a physician performing a Division IME finds range of motion measurements invalid (due to SLR check or for physiologic reasons) the physician may accept invalidated measurements from other reports in lieu of bringing the claimant back for a second set of measurements. However, the physician must report his/her own initial set of measurements on the appropriate worksheet. *(Reference: Level II Accreditation Curriculum, Measuring Spinal Range of Motion).*
Workers’ Compensation 201

Objectives:
1) Define the Level II Accreditation and Level II Re-accreditation processes and the steps for revocation.
2) Define impairment in the workers’ compensation system.
3) Indicate the steps for completing a workers' compensation case with an impairment rating.
4) Describe the components of a quality impairment rating report.

Level II Accreditation
Level I Accreditation is required before Level II Accreditation as of January 1, 2018 (Rule 13).
Level II Accreditation is required to evaluate an injured worker who has been determined to have permanent impairment by the authorized treating physician. Level II Accreditation can only be obtained by a physician (MD or DO).

The authorized treating physician providing primary care does not need to be Level I or II Accredited to determine maximum medical improvement (MMI) or that no impairment is present.
If a non-Level II treating physician determines that MMI has been reached and impairment is present, that physician must refer the patient to a Level II Accredited physician within 20 days.
If this referral is not made, the insurance company has an additional 20 days to refer to a Level II Accredited physician.

Probationary Period
In order to become accredited, the physician must pass the Level II Accreditation examination. At that time, the physician will be placed on a probationary period for a maximum of 12 months. During the probationary period, the physician is required to submit three impairment rating reports, that must be deemed sufficient by the Division. We encourage physicians to submit these reports immediately after passing the examination to ensure that they are producing sufficient impairment ratings. Once three reports have been deemed sufficient, the probationary period ends and accreditation will expire January 31st of the third calendar year following the year the physician passed the Level II Accreditation examination. If the physician fails to submit three sufficient impairment rating reports within 12 months from the examination date, then their accreditation will expire.

Revised: 2/2018
Level II Re-Accreditation:
In order to maintain accreditation, the physician must re-accredit every three years. Requirements for re-accreditation include the completion of the Level II re-accreditation course and submission of one impairment rating report, deemed sufficient by the Division (which may be a Division Independent Medical Examination report) by January 31st of the re-accreditation year.

Revocation of Level II Accreditation:
The Division of Workers' Compensation Director, with input from the Medical Director, may revoke accreditation on the following grounds:

- Failure to comply with the provisions of the Workers’ Compensation Rules of Procedure and all relevant statutes
- Misrepresentation on the application for accreditation, or
- A unanimous recommendation to revoke accreditation by a medical utilization review panel

Refer to Rule 13 regarding Revocation of Accreditation (found under the Resources tab in this curriculum)

Impairment
Impairment is the loss of, loss of use of, or derangement of any body part, system or function. Overall, impairment is based on functional deficits. Disability differs from impairment and includes the loss or absence of the capacity of an individual to meet personal, social, or occupational demands, or to meet statutory or regulatory requirements.

Impairment Rating Reports
The goal of writing an impairment rating report is to provide adequate communication to all parties involving the origin of the impairment rating and how it reflects the functional deficit of the patient. An impairment rating is the basis for paying permanent partial disability.

The report may be used in a medical/legal context, therefore, maintenance care and permanent work restrictions must be addressed.

Be sure to reference the exact tables and figures used from the AMA Guides, unless it is already noted on the impairment rating worksheet.

If the impairment rating differs from another rating physician, it is important to include a discussion of the differences and why this particular rating method was chosen.

Per Rule 5-5, when submitting the final impairment rating report to the insurer, it must include the narrative (written report), WC 164 form and all applicable worksheets.
Impairment Rating Concepts

- Impairment ratings are based on changes in physiologic function, not job duties,
  - A pianist may be disabled from her profession due to an index finger loss, however, her impairment rating would be the same as an internist with the same index finger loss since impairment is based on ADLs. The internist may be able to return to her profession without loss of salary and the pianist may not be able to return to her chosen profession.
- A patient who has an invasive procedure may or may not have an impairment rating per the *AMA Guides, 3rd Edition, revised*

Steps for Completing a Case

1. Determine Maximum Medical Improvement (MMI) or the time at which the impairment “has become stable and no further treatment is reasonably expected to improve the condition.”
2. If permanent impairment is present, perform an impairment rating:
   - Using the Level II Curriculum, *AMA Guides, 3rd edition, revised*, and Impairment Rating Tips (Desk Aid 11)
   - Convert the impairment rating to the whole person level
   - Provide a narrative report and include all applicable worksheets
   - Complete the closing WC164 form
   - Submit the report, worksheets and WC-164 form to the insurer and patient

Impairment Rating Report Elements: The required elements of a sufficient impairment rating report include:

History of injury

- A description of the mechanism of injury, or work-related disease and exposure
- All body parts or organ systems that have been treated under the claim
- Pertinent diagnostic tests that are essential to establishing the pathological basis of a disease or injury
- A short summary of the treatment and/or surgical procedures
- Current occupation and work level
- Description of the patient’s functional ability to perform ADLs (self-care and personal hygiene, communication, normal living postures, ambulation, travel, nonspecific hand activities, sexual function, sleep and social and recreational activities)
  - ADLs are the basis for impairment rating and should be used as a guide for determining the proper percentage when a physician is given a range of values for the impairment rating
- A list of the medical records reviewed when a non-treating physician performs the impairment rating

Most medical treatment guidelines include statements regarding causation of injuries. Refer to the appropriate guideline for the correlation between the mechanism of injury and diagnosis.
Keep in mind, under the federal Genetic Information Nondiscrimination Act of 2008 (GINA), family medical history can be construed as “genetic information” which is protected and confidential, and should not be disclosed to the injured worker’s insurer or employer without a specific release. Physicians and medical clinics are covered by Health Insurance Portability and Accountability Act (HIPAA), but insurers and employers are not. Thus, it is advisable to avoid including family health history in records provided to the insurer/employer in a workers’ compensation case unless you have the patient’s written authorization.

Physical Examination
- Examine all pertinent body parts treated under the claim
- Record specific range of motion values for any joints or spinal areas pertinent to the claim
- Document specific neurological findings and palpation findings (trigger points, muscle spasms) in detail
- Note inconsistent findings

Diagnosis
- Explain which diagnoses are work-related by discussing the relationship between the patient’s diagnosis and the work-related exposure
  - The assessment process requires estimating the risk of developing the suspected diagnosis as a result of the actual exposure of the patient
  - Legally, the physician must state the medical probability that the patient’s diagnosis and physical findings are related to the work-related exposure
    - Probability = greater than 50% likelihood
    - Medically possible indicates the work-related injury is less than or equal to a 50% likelihood that the injury is work-related
- The final diagnoses must correspond with the impairment rating using the pathologically related sections of the AMA Guides, 3rd Edition, revised
  - i.e. Radial nerve injury would be rated using the motor section of the radial nerve and not range of motion of the wrist

Maximum Medical Improvement (MMI)
- Establish that MMI (the time at which the impairment “has become stable and no further treatment is reasonably expected to improve the condition”) is present for all areas under treatment (including mental impairment)
  - The date the patient reached MMI must be included
  - Improvement that may only occur with the passage of time, does not affect MMI
A patient may choose not to participate in a treatment that has been recommended by their physician. It is appropriate to declare the patient at MMI if further treatment would improve the patient’s condition, but the patient chooses not to undergo any of the treatment that might be expected to improve their condition. For example, if a surgery is recommended for a patient to improve their condition and reach MMI, but the patient chooses not to have surgery, then the patient would be placed at MMI and an impairment rating would be performed. In this case, the physician must rate the worker as they are at the time of MMI. Physicians cannot rate based upon possible changes to the patient’s condition over time or as if the treatment that was recommended had actually been undertaken.

Discharge for Non-Medical Reasons and Non-Compliance does not mean the patient is at MMI:
If a patient fails to attend medical appointments or is otherwise non-compliant with treatment recommendations, an insurer cannot ask the provider to place the patient at MMI. It is the physician’s decision to declare MMI. The law provides various procedural mechanisms for an insurance carrier to bring a case to closure when a claimant fails to attend medical appointments or is non-compliant with treatment recommendations. These mechanisms are designed to require a stricter standard to ensure that a patient has been given the requisite due process afforded by the Workers’ Compensation Act.

Impairment Rating
● Address all diagnoses that you have identified in your report and include all required Division or AMA Guides worksheets and the closing WC 164 form
  ○ Spinal range of motion worksheets and the summary form (Figure 84) must be included when rating the spine
  ○ Some medical conditions do not have impairment worksheets, so be sure to explain the rating in detail
● All components of the rating should be included in the report (i.e., extremity rating and whole person rating) because the insurer may need to know the percentage loss at a certain extremity level to pay for the permanent impairment as a “scheduled injury”
  ○ Convert and report all impairments to “whole person” per the AMA Guides protocols. Conversion tables are provided in the Guides (i.e., Table 1, p.15 converts digit to hand impairment)
● The relevant impairment values are combined to arrive at the final whole person or extremity rating by using the Combined Values Chart, located in the AMA Guides pages 254-256.
  ○ Combining is an algebraic method for combining numbers to avoid exceeding 100%
    ■ Combining is required because an arm is equal to 60% of the whole person and a leg 40% of the whole person
If all four (4) extremities were lost and the impairments were added, this would equal 200%, and the value should not exceed 100%

- Combine ratings at the same anatomic level and in the same extremity (i.e., a shoulder upper extremity rating can only be combined with a hand rating after the hand rating is converted to upper extremity)

- Exceptions to the Combination Rule include:
  - Impairments for ranges of motion at the same joint are added instead of combined
  - Total impairment ratings for each digit are added to establish a hand impairment

Work restrictions
- If permanent work restrictions are necessary, provide specific physical details of the restriction (limitations for work hours, physical limitations, tool use and cold/hot working environments)

Maintenance care
- Report must include care that is needed after MMI, if applicable, to sustain the patient’s functional status (i.e., severe degenerative arthritis that may require a total knee replacement in the future)
- A settlement for “full and final” may include future medical care. The insurer would not pay for additional medical treatment if it is settled in full.
- It is essential that the patient and insurer understand the future medical liability for the life of the patient. (i.e., severe degenerative knee osteoarthritis that may require a total knee replacement in the future)

Billing for Impairment Rating Reports
The following codes are used when billing for a completed impairment rating report:
- Z0759: completion of an impairment rating by the primary authorized treating physician
- Z0760: completion of an impairment rating by a referred Level II Accredited physician (the patient is not a previously established patient to that physician)

If the patient has to return for repeat spinal ROM, the physician should use the appropriate CPT code for billing.

The total fee includes the office visit, complete history and physical examination, review of all medical records, determining MMI, completing all required measurements, referencing all AMA Guide tables to determine the impairment rating, and completion of the closing WC 164 form.

All physicians providing consulting services for the completion of a whole person impairment rating shall bill using the appropriate Evaluation and Management (E&M) consultation code and shall forward their portion of the rating to the authorized treating physician determining the combined whole person rating.
Sample Report of an Impairment Rating Evaluation

Patient Name: Construction Chris  
Date of Evaluation: June 2, 2014  
Date of Injury: September 12, 2013  
Insurance: We Make You Better Inc.  
Employer: We Build It  
Job Title: Construction Worker  
Injury: Left knee ACL and partial medial meniscus tear

Injury Summary:  
Mr. Chris is a 30-year-old male construction worker who was initially seen on 9/16/2013 for left knee pain. He reports while on duty as a construction worker for We Build It on 9/12/2013 he lifted a 75# load, twisted his body with the left foot planted, and felt a pop with immediate burning pain in his left knee. He had complaints of swelling, pain, and episodes of locking, catching and “giving way” with ambulation. He also reported instability of the left knee. The physical examination demonstrated swelling with effusion, limitations in ROM: Flexion to 80 degrees and extension to 10 degrees. Positive for tenderness to palpation over anterior knee and popliteal fossa. Positive McMurray’s valgus stress test, Lachman’s and pivot-shift, but these were also difficult to assess secondary to pain with all testing. He was instructed in the use of anti-inflammatories, an Ace compression wrap, crutches and was also instructed to rest, ice and elevate. He rested his knee over the next 2 days and the pain improved.

Treatment History:  
A MRI confirmed a torn ACL and partial medial meniscus tear. He was sent to physical therapy to decrease the edema, increase ROM and strength. He was advised to continue with ice, elevate the left leg, and continue with anti-inflammatories. A follow-up appointment was set for the next week with the treating physician for further evaluation and consideration for surgery. He was given work restrictions that included limiting standing / walking to 30 minutes per hour, keeping the leg elevated for the remaining time, no lifting and no shifts greater than 4 hours.

The following week he followed up with Injuries R Us. Mr. Chris reported that he continued to have pain in the left knee with the ability to now ambulate without crutches for short distances, but feels the knee is unstable and continues to lock. His physical exam was unchanged with continuation of restrictions in ROM.

A referral was made to Bones & Joints Orthopedics where he was seen by Dr. Pluto on 10/15/13 with the recommendation for ACL reconstruction and meniscus surgery due to his occupational requirements.

Revised: 2/2018
8 weeks post surgery, Mr. Chris followed up with the orthopedic surgeon and reported great progress in physical therapy with independent ambulation, decreased edema and increased strength. He was able to ascend and descend steps fluidly and comfortably. Dr. Pluto instructed the patient to follow up with him in one month and to continue follow up appointments with Dr. Star, the authorized treating physician.

9 months post surgery Mr. Chris graduated from physical therapy with instructions for a home exercise program for increasing the left lower extremity strength and proper lifting, pivoting techniques. He returned to work full duty without restrictions.

**Subjective:**
Today he reports that he is doing well except for mild soreness in the knee after a lot of activity or a long day at work. He reports that he is able to tolerate regular duty at work without any problems. He denies any locking, catching, crepitation, or instability. He reports good strength and there is no interference with his ADL’s. He also reports that he was able to kneel while gardening recently without any issues. He is not taking any medications for the knee injury.

**Physical Examination:**
Left knee demonstrates a vertical scar, which is well healed. No swelling is noted at this time. No tenderness to palpation including the medial and lateral joint lines. No crepitation is noted. Gait is nonantalgic and WNL.
Lower extremity strength is 5/5 including flexion and extension of the knee.
Lachman’s (-)
Anterior Drawer (-)
Posterior Drawer (-)
Valgus stress (-)
Varus stress (-)
Grind Test (-)
ROM: Flexion: 126
  Extension: 0
Sensation is intact for the lower extremity

**Assessment/Diagnosis:** Left knee ACL reconstruction with partial medial meniscectomy.

**Date of MMI:** He is being placed at MMI today, July 31st, 2014. Patient’s condition is stable at this time and additional treatment is not likely to improve his condition.
Impairment Rating: Impairment has been assessed according to the AMA Guides to the Evaluation of Permanent Impairment, 3rd edition revised. Using Table 40 (p. 68) I have assigned 10% impairment for the ACL and 5% for the torn meniscus, which combines to 15% lower extremity impairment. Using Table 39 (p.68) I have assigned 9% impairment of the lower extremity for knee flexion of 126 degrees and 0% impairment of the lower extremity for knee extension of 0 degrees. This adds to a total of 9% lower extremity impairment for knee ROM. The 15% lower extremity impairment for the ACL and meniscus, and 9% lower extremity impairment for knee ROM are combined using the Combined Values Table (p. 254) to equal 23% lower extremity impairment. 23% lower extremity is converted to 9% whole person impairment using Table 46 (p.72).

Apportionment: No apportionment is necessary as there is no documentation of previous injury to the left knee.

Function: Patient is able to ascend and descend steps, perform a light jog for one mile, but he is not able to return playing in his soccer league.

Return to Work: Mr. Chris has returned to work at full duty without permanent work restrictions.

Maintenance Care: No maintenance care is required.

Dr. Patrick Star, MD, MPH
Level II Accredited, Colorado Division of Workers’ Compensation

Doctors Plus Family Health Clinic
2513 S. Scissor St
Denver, CO 56897

Revised: 2/2018
Nervous System Impairments

The Brain, Spinal Cord, Cranial Nerves, Peripheral Spinal Nerves and Complex Regional Pain Syndrome
AMA Guides, 3rd Edition, revised - Chapter 4, (p.103)

Objectives:
1) Utilize the subcategory rating charts for calculating a brain or spinal cord impairment rating.
2) Identify when the brain and/or spinal cord impairment ratings should be combined versus using the highest rating for the final impairment rating.
3) Utilize the cranial nerve chart for determining a cranial nerve impairment rating.
4) Identify the steps for rating a peripheral nerve and using the combined values chart and conversion tables to calculate a final peripheral nerve impairment rating.
5) Describe the steps necessary for rating complex regional pain syndrome.

Summary/Steps for Determining Brain Impairment Ratings
1. Evaluate ADLs including the six rating categories found on pages 104-106 of the AMA Guides.
2. Refer to Table 1 (Column B.- Brain, p. 109) to grade the severity of the disorder.
3. The disorder may be rated in more than one category; therefore, indicate the percentage of impairment for each category.
4. Choose only the highest impairment rating from the categories identified in Step 3 to determine the whole person impairment rating on Table 1, p.109. Do not combine or add categories within column B.
5. Impairment for the brain is combined with other whole person impairment ratings for the final rating.

Summary/Steps for Determining Spinal Cord Impairment Ratings
1. Evaluate ADLs including the six rating categories found on pages 106-108 of the AMA Guides.
2. Refer to Table 1, (Column A.- Spinal Cord and/or Brain, p.109) to grade the severity of the disorder. Column A is predominantly used for Spinal Cord ratings.
3. Impairment values from multiple categories in column A are combined to calculate the final whole person impairment rating using the Combined Values Chart p. 254.
4. Impairment for the Spinal Cord is *combined* with other whole person ratings for the final rating.

**Summary/Steps for Determining Cranial Nerve Impairment Ratings**

1. Refer to the AMA Guides, pages 108-111 for rating cranial nerves.

**Summary/Steps for Determining Peripheral Spinal Nerve Ratings**

1. Identify the total motor and sensory value of the nerve.
   - Refer to the Nerve Reference Chart to locate the appropriate tables within the AMA Guides. Identify the nerve in the correct table and determine the total value of the nerve (sensory values located in the first column and motor values in the second column.)
   - Record maximum sensory and motor values for the affected nerve from the above table on the appropriate worksheet.

2. Determine the grade of the sensory and motor loss for each nerve using the corresponding grading table.
   - To grade *sensory* deficit, use physical examination findings and expected functional deficits.
     - Table 10, p. 42 is used to grade upper and lower extremity
     - Table 3, p.112 is used to grade the head and neck, inguinal region and perineum
   - To grade *motor* deficit, use muscle strength testing on a 5/5 scale.
     - Table 11, p.42 is used to grade upper and lower extremity
     - Table 4, p.113 is used to grade the head and neck, inguinal region and perineum

3. Use the sensory value determined from Step 1 (total maximum sensory) and multiply by the value determined in Step 2 (sensory grade) to determine the sensory nerve impairment rating.
   - (total maximum sensory nerve value) \( \times \) (sensory grade value) = sensory nerve impairment rating

4. Use the motor value determined from Step 1 (total maximum motor) and multiply by the value determined in Step 2 (motor grade) to determine the motor nerve impairment rating.
   - (total maximum motor nerve value) \( \times \) (motor grade value) = motor nerve impairment rating

5. The sensory and motor nerve impairments are *combined* using the Combined Values Chart (p.254) to determine the overall nerve impairment rating.

6. Record the nerve impairment value on the appropriate worksheet. *Combine* the nerve impairment with only “like” units when determining the impairment rating.
(i.e. Right UE nerve impairment and right UE ROM impairment, left UE nerve impairment with left ROM impairment)

7. **Convert** the upper extremity units to whole person using Table 3, p.16 and then **combine** this value with other whole person impairments for the final whole person rating.
   - For example, *whole person* spine rating **cannot** be combined with right *lower extremity* sensory nerve rating until the lower extremity rating is converted to whole person first.

**Summary/Steps for Determining Complex Regional Pain Syndrome (CRPS)**

1. **Identify the Type of CRPS**
   - Type I (CRPS): there is no demonstrable peripheral nerve injury. If upper extremity function or station and gait are affected, rate by using Spinal Cord/Brain, Table 1 - Column A (p.109)
     - ROM should **not** be used, as this would be accounted for in the neurologic portion of the rating from Table 1, p.109
   - Type II (Causalgia): A specific nerve injury is documented. If the symptoms are primarily deficits of sensory and motor that relate to a specific nerve injury, use the peripheral nerve rating system.
     - ROM should **not** be used, as this would be accounted for in the neurologic portion of the rating.
       - When using Table 10, p.42 for grading the nerve involved, category 4 and above include causalgia in the grading scheme.
     - If the evaluator believes the Spinal Cord/Brain, Table 1-Column A (p.109) better represents the impairment, this may be used.

**References/Links**
No worksheets needed for rating the brain, spinal cord or cranial nerves
Utilize the [Extremity or Spine Worksheets](#) for peripheral nerve injuries
[Division’s Impairment Rating Tips](#)

**Core Content:** Ratings are primarily based on the evaluation of activities of daily living, which include self care and personal hygiene, communication, normal living postures, (sitting, standing, lying down) ambulation, travel, non-specialized hand activities, (grasping, lifting, tactile discrimination) sexual function, sleep and social and recreational activities.
Brain Impairment General Principles: In a workers’ compensation case, a complete physical examination of the brain includes these essential elements:

- Sensory and motor disturbances
- Language disturbances
- Emotional disturbances
- Consciousness disorders
- Episodic neurological disorders
- Sleep and arousal disorders

The Brain

Many of the activities described in the brain section overlap with activities which could be rated in other areas, such as the mental and behavioral disorders section. Ratings for a specific category or dysfunction must be limited to only one section of the AMA Guides to avoid “double dipping.”

For example, if a neurological deficit causes difficulty with communication, it should only be rated in the central nervous system section and not receive an additional rating in the psychiatric section. If there are problems that are not related to physiological brain damage, but to overlying psychological effects of the injury, a psychiatric rating should be given.

Impairment Rating of the Brain Using Table 1, p.109 - Column B

1. Language Disturbances
2. Complex Integrated Cerebral Function Disturbances
3. Emotional Disturbances
4. Consciousness Disorders
5. Episodic Neurological Disorders
6. Sleep and Arousal Disorders

Even though the patient may fall into several categories, the patient only receives the highest rating that has been assigned in any of the categories. For example, if the patient receives a 10% rating for language disturbances and 15% rating for episodic neurological disorders, the overall rating would be 15% for episodic neurological disorders, since it is the highest rating.
Grading of the severity of the 6 above categories should be correlated with appropriate objective testing. The grading categories for the disturbance of daily activities are:

- Mild
- Moderate
- Supervision required
- Unable to care for themselves

1. Language Disturbances: Rating in this area is given only when there is a problem with the central mechanism for language comprehension, storage and production. When speech is affected by mechanical pathology, the rating is performed under Chapter 9 (ENT).

### Language Disturbances Rating (p.104-105)

<table>
<thead>
<tr>
<th>% Impairment</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-15 %</td>
<td>Minimal disturbance in comprehension and production of language symbols of daily living</td>
</tr>
<tr>
<td>20-45%</td>
<td>Moderate impairment in comprehension and production of language symbols for daily living</td>
</tr>
<tr>
<td>50-90%</td>
<td>Cannot comprehend language symbols, therefore has an unintelligible or inappropriate production of language for daily living</td>
</tr>
<tr>
<td>95%</td>
<td>Cannot comprehend or produce language symbols sufficient for daily living</td>
</tr>
</tbody>
</table>

2. Disturbances of Complex Integrated Cerebral Functions: These areas are related to organic brain dysfunction and include:

- Memory disturbances
- Difficulty understanding concepts or abstracting
- Thought organization
- Multi-tasking
- Orientation deficits
- Unacceptable social behavior
- Inability to initiate decisions
Disturbances of Complex Integrated Cerebral Functions Rating (p.105)

<table>
<thead>
<tr>
<th>% Impairment</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-15%</td>
<td>Degree of impairment of complex integrated cerebral functions but there is ability to carry out most activities of daily living as well as before onset</td>
</tr>
<tr>
<td>20-45%</td>
<td>Degree of impairment of complex integrated cerebral functions such that daily activities need some supervision and/or direction</td>
</tr>
<tr>
<td>50-90%</td>
<td>Degree of impairment of complex integrated cerebral functions that limit daily activities to directed care under confinement at home or other domicile</td>
</tr>
<tr>
<td>95%</td>
<td>A severe degree of impairment of complex integrated cerebral functions that the individual is unable to care for self in any situation or manner</td>
</tr>
</tbody>
</table>

3. **Emotional Disturbances:** When emotional disturbances are rated in this section, they must be due to physiological brain damage. Examples of emotional disturbances include:

- Outbursts of severe rage
- Irritability/agitation
- Anhedonia
- Lack of normal emotional responses

**Avoid overlap with mental/behavioral disorders when rating in this section.**

Emotional disturbances related to a mental disorder should not be rated under Table 1, p.109. Refer to the mental health section for rating.

Emotional Disturbances Rating (p.105)

<table>
<thead>
<tr>
<th>% Impairment</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-15%</td>
<td>Mild to moderate emotional disturbance under unusual stress</td>
</tr>
<tr>
<td>20-45%</td>
<td>Mild to moderate emotional disturbance under ordinary stress</td>
</tr>
<tr>
<td>50-90%</td>
<td>Moderate to severe emotional disturbance under ordinary to minimal stress, which requires sheltering</td>
</tr>
<tr>
<td>95%</td>
<td>Severe emotional disturbance which continually endangers self or others</td>
</tr>
</tbody>
</table>
4. Consciousness Disturbances: This section is used to rate disturbances of consciousness that are not rated under other central nervous system sections. Examples of consciousness disturbances include:
   - Hyperactive states
   - Stupor
   - Coma

Consciousness Disturbances Rating (p. 105)

<table>
<thead>
<tr>
<th>% Impairment</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-35%</td>
<td>Neurological disorder results in mild alteration in state of consciousness</td>
</tr>
<tr>
<td>40-70%</td>
<td>Neurological disorder results in moderate alteration in state of consciousness</td>
</tr>
<tr>
<td>75-90%</td>
<td>Neurological disorder results in state of stupor</td>
</tr>
<tr>
<td>95%</td>
<td>Neurological disorder results in state of coma</td>
</tr>
</tbody>
</table>

5. Episodic Neurological Disorders: Disorders in this section include:
   - Syncope
   - Seizures
   - Headaches related to brain injury

Episodic Neurological Disorders Rating (p.106)

<table>
<thead>
<tr>
<th>% Impairment</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-15%</td>
<td>Disorder of slight severity which is under control such that most activities of daily living can be performed</td>
</tr>
<tr>
<td>20-45%</td>
<td>Disorder of severity sufficient to interfere moderately with activities of daily function</td>
</tr>
<tr>
<td>50-90%</td>
<td>Severe and constant disorder which limits activities to supervised, protected care or confinement</td>
</tr>
<tr>
<td>95%</td>
<td>Severe and constant disorder which totally incapacitates the individual in terms of daily living</td>
</tr>
</tbody>
</table>

Revised: 2/2018
6. Sleep and Arousal Disorders: Disorders which reduce daytime attention and concentration should be the primary impairments rated in this section.

This category can significantly overlap with other diagnoses. For example, congestive heart failure, arrhythmias and cardiac failures may cause some arousal disorders. However; the functional impairment rated in this section should not overlap with functional impairment rated on the primary diagnosis section.

Sleep disorders due to depression is usually rated sufficiently under the mental and behavioral disorder section and not in this section.

Sleep and Arousal Disorders Rating (p.106)

<table>
<thead>
<tr>
<th>% Impairment</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-15%</td>
<td>Reduced daytime alertness due to sleepiness or sleep episodes, or disturbed nocturnal sleep affecting complex integrated cerebral functions but ability remains to carry out most activities of daily living (ADLs)</td>
</tr>
<tr>
<td>20-45%</td>
<td>Reduced daytime alertness, requires some supervision to carry out ADLs</td>
</tr>
<tr>
<td>50-90%</td>
<td>Reduced daytime alertness or other sleep disturbances significantly limits ADLs and requires supervision by caretakers</td>
</tr>
<tr>
<td>95%</td>
<td>Severe reduction of daytime alertness such that ADLs are severely limited, causing the patient to be unable to care for self in any situation or manner</td>
</tr>
</tbody>
</table>

Additional Information for Rating Headaches from the Divisions' Impairment Rating Tips (p.3)

- Headaches which qualify for a separate work related impairment rating, should be rated using the Episodic Neurological Disorders section in Table 1, p.109. If the individual has a closed head injury the highest applicable rating from this table is the only rating used. If the headache rating is to be combined with another body part, the rater must be very careful not to rate the ADL deficits in both impairment areas.
**Spinal Cord Impairment General Principles:** In a workers’ compensation case, a complete physical examination includes these essential elements:

- Station and gait
- Use of upper extremities
- Respiration
- Urinary bladder function
- Anorectal function
- Sexual function
- Sensory disturbances (pain, temperature, vibration, positional senses, autonomic disorders including sweating, circulation and temperature regulation)

**Spinal Cord**

Sensory disturbances including pain, temperature, vibration, or positional senses, and autonomic disorders including sweating, circulation and temperature regulation may be rated under spinal cord disorders. Impairment rating of the spinal cord is divided into 6 categories (Table 1, p.109, Column A):

1. Station and gait
2. Use of upper extremities
3. Respiration
4. Urinary bladder function
5. Anorectal function
6. Sexual function

**All of the rating areas for each category are combined for the final impairment rating.** For example, if the patient receives a 10% rating for station and gait and 15% rating for use of upper extremities, the overall rating would be 24% since the ratings are combined for the final impairment rating.
1. **Station and Gait**

**Station and Gait Rating (p.107)**

<table>
<thead>
<tr>
<th>% Impairment</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-20%</td>
<td>Ability to rise to a standing position and walk, but difficulty with elevations, grades, steps and distances</td>
</tr>
<tr>
<td>25-35%</td>
<td>Ability to rise to a standing position and walk with difficulty, but limited to level surfaces and variability as to the distance the patient can walk</td>
</tr>
<tr>
<td>40-60%</td>
<td>Ability to rise to a standing position and maintain it with difficulty, but inability to walk</td>
</tr>
<tr>
<td>65%</td>
<td>Can stand only with a prosthesis or help of others</td>
</tr>
</tbody>
</table>

2. **Use of Upper Extremities**: This is the only section in the AMA Guides that differentiates between dominant and nondominant upper extremities. This section rates for the preferred, non-preferred upper extremity and bilateral extremities.
   - Note that the extremity preference may change with time and should be re-evaluated as necessary

**Use of Upper Extremities Rating (p.107)**

<table>
<thead>
<tr>
<th>Description</th>
<th>Preferred Extremity % Impairment</th>
<th>Non-preferred Extremity % Impairment</th>
<th>Bilateral Extremity % Impairment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of extremity for self care, grasping and holding, but difficulty with digital dexterity</td>
<td>5-10%</td>
<td>0-5%</td>
<td>5-15%</td>
</tr>
<tr>
<td>Can use the involved extremity for self care, but grasp and hold objects with difficulty and no digital dexterity</td>
<td>15-25%</td>
<td>10-15%</td>
<td>20-40%</td>
</tr>
<tr>
<td>Description</td>
<td>Preferred Extremity % Impairment</td>
<td>Non-preferred Extremity % Impairment</td>
<td>Bilateral Extremity % Impairment</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------------</td>
<td>---------------------------------</td>
<td>--------------------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>Use of involved extremity, but difficulty with self care activities</td>
<td>30-35%</td>
<td>20-25%</td>
<td>45-80%</td>
</tr>
<tr>
<td>Cannot use the involved extremity for self care or cannot use upper extremities</td>
<td>40-60%</td>
<td>30-40%</td>
<td>85%</td>
</tr>
</tbody>
</table>

3. **Respiration:** rating is limited to the individual’s ability to perform the act of breathing

**Respiration Rating (p. 107-108)**

<table>
<thead>
<tr>
<th>% Impairment</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-20%</td>
<td>Capable of spontaneous respiration, but difficulty in ADLs that require extra exertion</td>
</tr>
<tr>
<td>25-50%</td>
<td>Spontaneous respiration, but of a degree that restricts patient to sitting, standing or limited ambulation</td>
</tr>
<tr>
<td>75-90%</td>
<td>Spontaneous respiration, but of a degree that limits the patient to bed existence</td>
</tr>
<tr>
<td>95%</td>
<td>No capacity for spontaneous respiration</td>
</tr>
</tbody>
</table>

4. **Urinary Bladder Function:** refers only to spinal cord disorders resulting in difficulties emptying the bladder. The rating should **not** overlap with Chapter 11 (Urinary and Reproductive Systems) and should be correlated with urodynamic testing when possible.
Urinary Bladder Function Rating (p.108)

<table>
<thead>
<tr>
<th>% Impairment</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-10%</td>
<td>Varying degree of voluntary bladder control but is impaired by urgency</td>
</tr>
<tr>
<td>15-20%</td>
<td>Good bladder reflex activity but no voluntary control (limited capacity with intermittent emptying times)</td>
</tr>
<tr>
<td>25-35%</td>
<td>Poor reflex activities (intermittent dribbling) and no voluntary control</td>
</tr>
<tr>
<td>40-60%</td>
<td>No reflex or voluntary control of the bladder (continuous dribbling)</td>
</tr>
</tbody>
</table>

5. Anorectal Function: refers to the ability to control anorectal emptying. The rating should not overlap with Chapter 10 (Digestive System), but should be correlated with functional bowel testing when possible.

Anorectal Function Rating (p.108)

<table>
<thead>
<tr>
<th>% Impairment</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5%</td>
<td>Reflex regulation but only limited voluntary control</td>
</tr>
<tr>
<td>10-15%</td>
<td>Reflex regulation but no voluntary control</td>
</tr>
<tr>
<td>20-25%</td>
<td>No reflex regulation and no voluntary control</td>
</tr>
</tbody>
</table>

6. Sexual Function: Rating in this area is only used for sexual difficulties caused by a spinal cord injury and not for problems due to other reproductive neurological or psychiatric disorders.

- If the patient is below 40 years old, the values may be increased by 50% (i.e.: 25 year old patient with 10% sexual function, the rating would be increased to 15%)
- If the patient is over 64 years old, the percentage impairment may be decreased by 50%.
Sexual Function Rating (p. 108)

<table>
<thead>
<tr>
<th>% Impairment</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-10%</td>
<td>Sexual function present, but with varying degree of difficulty of erection or ejaculation in males or awareness in both sexes</td>
</tr>
<tr>
<td>10-15%</td>
<td>Reflex sexual function possible, but there is no awareness</td>
</tr>
<tr>
<td>20%</td>
<td>No sexual function</td>
</tr>
</tbody>
</table>

Pitfalls:
Sensory and Motor Disturbances Table 1, p. 109 - Column A: It is rare that a patient would receive a rating only for brain sensory and motor disturbance. Evaluation is based on their ultimate effects on ADLs. The physician should determine whether the disturbance is unilateral, bilateral or which preferred side is affected.

An example of a sensory impairment that requires a sensory disturbance rating is phantom limb sensation. If rating a sensory disturbance, the following factors should be taken into account:

- Pain and dysesthesias of central origin
- Disorders in the recognition of the size, shape and form of objects (astereognosis)
- Disturbance of two-point and position sense
- Paresthesias of central origin
- Other central disturbances that might be identified with more complex testing

Examples of motor disorders that may receive a rating would include:

- Hemiparesis
- Involuntary tremors
- Disturbances of tone and posture
- Bradykinesia and cerebellar or frontal origin dysfunctions

Revised: 2/2018
The following table outlines cranial nerve impairment per the **AMA Guides (p.108-111):**

<table>
<thead>
<tr>
<th>Cranial Nerve</th>
<th>Description</th>
<th>% Impairment (whole person)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I: Olfactory (sensory)</td>
<td>Smell</td>
<td><strong>Bilateral involvement:</strong> complete loss of smell (anosmia) = 3% Unilateral involvement: No rating</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Note:</strong> Noxious smells (ammonia, isopropyl alcohol) are mediated by Trigeminal Nerve (V)</td>
</tr>
<tr>
<td>II. Optic (sensory only)</td>
<td>Vision</td>
<td><strong>One eye</strong> loss of vision = 24% <strong>Total (bilateral) blindness</strong> = 85% <strong>Partial losses</strong> rated under Chapter 8 (Visual System)</td>
</tr>
<tr>
<td>III. Oculomotor (motor only)</td>
<td>III. Upward, downward, medial gaze IV. Depression and intorsion VI. Lateral Gaze</td>
<td><strong>Permanent diplopia</strong> = loss of vision in one eye = 24% If diplopia requires compensatory head tilt: an additional rating can be used for Station and Gait (Chapter 8) if a partial visual impairment is present. Combine this rating with diplopia rating</td>
</tr>
<tr>
<td>V. Trigeminal (sensory)</td>
<td>Facial sensation (V1-3), noxious smells</td>
<td><strong>Unilateral loss of sensation</strong> = 3-10% <strong>Bilateral loss of sensation</strong> = 20-35% <strong>Tic douloureux</strong> (Trigeminal Neuralgia) = 10-50%</td>
</tr>
<tr>
<td>V. Trigeminal (motor)</td>
<td>Somatic, muscles of mastication</td>
<td><strong>Complete unilateral paralysis</strong> = 3-5% <strong>Complete bilateral paralysis</strong> = 30-45% <strong>Speech and swallowing disorders:</strong> see Chapter 9 (ENT)</td>
</tr>
<tr>
<td>Cranial Nerve</td>
<td>Description</td>
<td>% Impairment (whole person)</td>
</tr>
<tr>
<td>------------------------</td>
<td>-------------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>VII. Facial (sensory and motor)</td>
<td><em>Sensory</em>: taste <em>Motor</em>: facial expression</td>
<td><em>Sensory</em>: complete unilateral loss of taste (rare) = 3%</td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>Motor</em>: Complete unilateral paralysis: = 10-15%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Complete bilateral paralysis = 30-45%</td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>Other motor losses</em> are based on speech and eating difficulties -</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Refer to Chapter 9 (ENT)</td>
</tr>
<tr>
<td>VIII. Auditory (sensory only)</td>
<td>Hearing and equilibrium</td>
<td><em>Complete hearing loss</em>:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Unilateral = 6%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bilateral = 35%</td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>Vestibular</em>:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Unilateral = 0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bilateral = 0-25%</td>
</tr>
<tr>
<td>VIII. Auditory (tinnitus)*</td>
<td>Hearing loss must be documented to rate tinnitus</td>
<td>3-5% <em>added</em> to hearing impairment for tinnitus</td>
</tr>
<tr>
<td></td>
<td>(AMA Guides p. 110)</td>
<td></td>
</tr>
<tr>
<td>IX. Glossopharyngeal</td>
<td>Refer to Chapter 9 (ENT) for speech and swallowing</td>
<td>Diet restrictions also found in neurological section</td>
</tr>
<tr>
<td>X. Vagus</td>
<td>disorders, or diet restrictions</td>
<td></td>
</tr>
<tr>
<td>XI. Cranial Accessory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>XII. Hypoglossal</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Additional Information for Tinnitus Impairment from the Divisions’ Impairment Rating Tips (p.3)**

*Tinnitus*: Can only be rated when a hearing impairment is documented. The hearing impairment need not be from the current injury. If adding impairment for tinnitus, the 3-5% would be added to the binaural hearing impairment percentage.

**Peripheral Spinal Nerves:** The total value of the nerve indicated on the Nerve Reference Chart represents a fully severed nerve (sensory nerve deficit values in the first column and motor nerve deficit values in the second column.) Since most nerve injuries do not involve a fully severed nerve, the evaluator must grade the nerve, which determines the severity of impairment. This graded value is then multiplied by the...
maximum value of the nerve from the peripheral spinal nerve chart to determine the overall nerve impairment rating.

- Sensory nerve impairment is determined by the decrease in sensation (2 point discrimination), the presence of pain and the effect on activity performance.
- Motor nerve impairment is determined by gross resistance testing.

**Peripheral Spinal Nerves:**

1. Refer to the Nerve Reference Chart below to locate the appropriate tables within the AMA Guides. Identify the nerve in the correct table and determine the total value of the nerve (sensory values located in the first column and motor values in the second column.)

2. Determine the grade of the sensory and motor loss for each nerve using the corresponding grading table identified on the Nerve Reference Chart below.
   - To grade *sensory* deficit, use physical examination findings and associated functional deficits.
     - Table 10, p. 42 is used to grade upper and lower extremity
     - Table 3, p.112 is used to grade the head and neck, inguinal region and perineum
   - To grade *motor* deficit, use muscle strength testing on a 5/5 scale.
     - Table 11, p.42 is used to grade upper and lower extremity
     - Table 4, p.113 is used to grade the head and neck, inguinal region and perineum

3. Use the sensory value determined from Step 1 (total maximum sensory) and multiply by the value determined in Step 2 (sensory grade) to determine the sensory nerve impairment rating.
   - (total maximum sensory nerve value) \( \times \) (sensory grade value) = sensory nerve impairment rating

4. Use the motor value determined from Step 1 (total maximum motor) and multiply by the value determined in Step 2 (motor grade) to determine the motor nerve impairment rating.
   - (total maximum motor nerve value) \( \times \) (motor grade value) = motor nerve impairment rating

5. The sensory and motor nerve impairments of the same nerve are **combined** using the Combined Values Chart (p.254) to determine the overall nerve impairment rating.

6. Record the nerve impairment value on the appropriate worksheet. **Combine** the nerve impairment with only “like” units when determining the impairment rating.
(i.e. Right UE nerve impairment and right UE ROM impairment, left UE nerve impairment with left ROM impairment)

7. **Convert** the upper extremity units to whole person using Table 3, p.16 and then **combine** this value with other whole person impairments for the final whole person rating.
   
   - For example, *whole person* spine rating cannot be combined with right *lower extremity* sensory nerve rating until the lower extremity rating is converted to whole person first.

**Nerve Reference Chart:** Pay close attention to the type of rating (extremity or whole person) as this is important when combining with other values or converting the overall rating to whole person. Use the grading tables column on this chart to identify the location of the sensory and motor grading tables that correspond with the specific nerve. The reference column assists in locating the specific nerve for rating.

**Nerve Reference Chart:** The *extremity ratings* are highlighted below and must always be converted to whole person.

<table>
<thead>
<tr>
<th>Nerves Rated</th>
<th>Nerve Table #, page #</th>
<th>Units</th>
<th>Grading Tables S=Sensory, M=Motor</th>
<th>Reference for Locating Nerves</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unilateral spinal nerves - head and neck, greater occipital, lesser occipital, great auricular, spinal accessory</td>
<td>5, p.113</td>
<td>Whole person</td>
<td>S = Table 3, p.112 M = Table 4, p.113</td>
<td></td>
</tr>
<tr>
<td>Unilateral spinal nerves-inguinal and perineum, iliohypogastric, ilioinguinal, pudendal, coccygeal</td>
<td>7, p.114</td>
<td>Whole person</td>
<td>S = Table 3, p.112 M = Table 4, p.113</td>
<td>Figure 78, p.75</td>
</tr>
<tr>
<td>Thoracic Nerves</td>
<td>6, p.114</td>
<td>Whole person</td>
<td>S = Table 3, p.112 M = Table 4, p.113</td>
<td></td>
</tr>
<tr>
<td>Unilateral spinal nerve roots upper extremity <strong>C5-T1</strong></td>
<td>12, p.43</td>
<td>Upper extremity</td>
<td>S = Table 10, p.42 M = Table 11, p.42</td>
<td>Figure 45, p.39 Table 9, p.40 Figure 47, p.45</td>
</tr>
<tr>
<td>Unilateral brachial plexus upper, middle and lower trunks</td>
<td>13, p.44</td>
<td>Upper extremity and whole person</td>
<td>S = Table 10, p.42 M = Table 11, p.42</td>
<td>Figure 46, p.44</td>
</tr>
</tbody>
</table>
### Nerves Rated

<table>
<thead>
<tr>
<th>Nerves Rated</th>
<th>Nerve Table #, page #</th>
<th>Units</th>
<th>Grading Tables S=Sensory, M=Motor</th>
<th>Reference for Locating Nerves</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific upper extremity peripheral nerves (median, ulnar, radial, etc.)</td>
<td>14, p.46</td>
<td>Upper extremity and digit</td>
<td>S = Table 10, p.42 M = Table 11, p.42</td>
<td>Figure 45, p.39 Table 9, p.40 Figure 47, p.45</td>
</tr>
<tr>
<td>Upper extremity nerve entrapment</td>
<td>15, p.46</td>
<td>Upper extremity</td>
<td>S = Table 10, p.42 M = Table 11, p.42</td>
<td>Figure 45, p.39 Table 9, p.40 Figure 47, p.45</td>
</tr>
<tr>
<td>Unilateral spinal nerve roots lower extremity L3-S1</td>
<td>49, p.76</td>
<td>Lower extremity</td>
<td>S = Table 10, p.42 M = Table 11, p.42</td>
<td>Figure 77, p.73 Table 48, p.74 Figure 79, p.75</td>
</tr>
<tr>
<td>Unilateral lumbosacral plexus</td>
<td>50, p.76</td>
<td>Whole person</td>
<td>S = Table 10, p.42 M = Table 11, p.42</td>
<td>Figure 78, p.75</td>
</tr>
<tr>
<td>Specific lower extremity peripheral nerves (femoral, peroneal, tibial, etc.)</td>
<td>51, p.77</td>
<td>Lower extremity</td>
<td>S = Table 10, p.42 M = Table 11, p.42</td>
<td>Figure 77, p.73 Table 48, p.74 Figure 79, p.75</td>
</tr>
</tbody>
</table>

The total value of the nerve is multiplied by the grade of the nerve for the overall nerve impairment rating. Tables 10 and 11 are the most frequently used tables to grade the nerve and calculating the overall nerve impairment. It is recommended to tab these tables on page 42 in the AMA Guides for efficient reference.

### Sensory Nerve Grading: Table 10 (p. 42)

<table>
<thead>
<tr>
<th>Grade (%)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No loss of sensation or spontaneous abnormal sensation</td>
</tr>
<tr>
<td>1-25</td>
<td>Decreased sensation with or without pain which is forgotten during activity</td>
</tr>
<tr>
<td>26-60</td>
<td>Decreased sensation with or without pain which interferes with activity</td>
</tr>
<tr>
<td>61-80</td>
<td>Decreased sensation with or without pain which may prevent activities (minor causalgia)</td>
</tr>
<tr>
<td>81-95</td>
<td>Decreased sensation with severe pain which may cause outcries as well as prevent activity (major causalgia)</td>
</tr>
<tr>
<td>96-100</td>
<td>Decreased sensation with pain, which may prevent all activity</td>
</tr>
</tbody>
</table>
Motor Nerve Grading: Table 11 (p.42)

<table>
<thead>
<tr>
<th>Grade (%)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Complete range of motion against gravity and full resistance</td>
</tr>
<tr>
<td>1-25</td>
<td>Complete range of motion against gravity and some resistance, or reduced fine movements in motor control</td>
</tr>
<tr>
<td>26-50</td>
<td>Complete range of motion against gravity and only without resistance</td>
</tr>
<tr>
<td>51-75</td>
<td>Complete range of motion with gravity eliminated</td>
</tr>
<tr>
<td>76-99</td>
<td>Slight contractibility, but no joint motion</td>
</tr>
<tr>
<td>100</td>
<td>No contractibility</td>
</tr>
</tbody>
</table>

Additional Information for Peripheral Nerve Injuries Resulting from Cumulative Trauma Impairment Ratings from the Divisions' Impairment Rating Tips (p.8)

- All peripheral nerve injuries should be rated under the peripheral nerve tables and multiplied by the grading scheme as above.
- ROM or the Cumulative Trauma Disorders rating system should only be used if there is a separate and distinct non-neurologic cumulative trauma diagnosis (i.e. De Quervain's Tenosynovitis), or ROM impairment.

Case Example: A patient has a unilateral C5 nerve root sensory impairment, decreased sensation with pain, which is forgotten during activity. She also has C5 motor nerve involvement with decreased (4/5) biceps, brachioradialis and deltoid strength.

Calculate the sensory impairment, motor impairment and overall C5 nerve impairment and then convert to a whole person rating.
Answer:
1. Identify the nerve from the Nerve Reference Chart and determine the total value of the nerve.
   - Sensory nerve, Unilateral Spinal Nerve Root C5 (Table 12, p. 43 - 1st column) = 5%
   - Motor nerve, Unilateral Spinal Nerve Root C5 (Table 12, p.43 - Column 2) = 30%
2. Identify the graded value of the sensory nerve by referencing Table 10, p.42.
   - Decreased sensation with or without pain which is forgotten during activity = 20% is chosen.
3. Identify the graded value of the motor nerve by referencing Table 11, p.42.
   - Complete range of motion against gravity and some resistance, or reduced fine movements and motor control = 20% is chosen.
4. Multiply the sensory nerve loss by the graded value of sensory nerve for the total sensory nerve impairment rating.
   - Total sensory nerve impairment rating: 5% x 20% = 1%
5. Multiply the motor nerve loss by the graded value of motor nerve for the total motor nerve impairment rating.
   - Total motor nerve impairment rating: 30% x 20% = 6%
6. Combine (using the Combined Values Chart p. 254) the sensory and motor nerve impairment rating values for a final nerve impairment rating.
   - Sensory impairment (1%) combined with motor impairment (6%) = 7% upper extremity nerve impairment.
   - Impairment value is documented on the corresponding worksheet and combined with other impairments for final whole person rating.
7. Convert the upper extremity units to whole person using Table 3, p.16.
8. Combine this value with other whole person impairments for the final whole person rating.
   - In this case, if no other impairments were found, the 7% upper extremity nerve impairment would be converted to whole person using Table 3 (p.16) = 4%
Case Example
57-year-old female employee spends a minimum of 4 hours per day working on the assembly line in a poultry processing plant and develops carpal tunnel syndrome. Her EMG demonstrated median nerve changes and conservative measures did not improve her condition.

After a carpal tunnel release and upon reaching MMI, the patient improved but continued to have a median nerve motor deficit, which allowed complete ROM against some resistance and resulted in a reduction in fine movements. She also experienced decreased sensation and pain in the median nerve distribution, distal to the wrist. This limits her activity on the most intensive assembly line to 2 hours.

Calculate her impairment rating:
Answer:
1. Identify the nerve from the Nerve Reference Chart and determine the total value of the nerve.
   - Sensory Nerve, Median nerve below the mid-forearm: Table 14, p. 46 - Column 1 = 40%
   - Motor Nerve, Median nerve below the mid-forearm: Table 14, p.46 - Column 2 = 35%
2. Identify the grade of the sensory nerve using Table 10, p.42.
   - Grade 3 (26-50%): decreased sensation with or without pain which may prevent activities (minor causalgia) = 50% is chosen
3. Identify the grade of the motor nerve using Table 11, p.42
   - Grade 2 (1-25%): complete range of motion against gravity and some resistance, or reduced fine movements in motor control = 25% is chosen
4. Multiply the total sensory value for the median nerve by the graded value of the sensory nerve.
   - Sensory nerve: 40% x 50% = 20%
5. Multiply the total motor value for the median nerve by the value of the graded nerve:
   - Motor nerve: 35% x 25% = 9%
6. Combine the sensory and motor impairments for the final peripheral nervous system impairment rating by using the Combined Values Chart (p.254)
   - 20% (sensory) combined with 9%(motor) = 27% upper extremity impairment
   - Impairment value is documented on the corresponding worksheet and combined with other impairments for final whole person rating.
7. Convert the combined sensory and motor nerve upper extremity impairment rating to whole person using Table 3 (p.16)
   - 27% upper extremity nerve rating converts to 16% whole person rating
8. Combine this value with other whole person impairments for the final whole person rating.
   - In this case, no other impairments were found so the final impairment rating is 16% whole person.
### Upper Extremity Impairment Evaluation Record—Part 2 (Wrist, Elbow & Shoulder)

<table>
<thead>
<tr>
<th>Abnormal Motion</th>
<th>Other Disorders</th>
<th>Regional Impairment</th>
<th>Amputation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Record Motion, Ankylosis and Impairment %</td>
<td>List Type &amp; Impairment %</td>
<td>Combine [1] + [2]</td>
<td>Mark Level &amp; Impairment %</td>
</tr>
</tbody>
</table>

#### Wrist

<table>
<thead>
<tr>
<th>Angle°</th>
<th>Flexion</th>
<th>Extension</th>
<th>ANK</th>
<th>IMP%</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMP%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Add IMP% F/E + RD/UD = 

<table>
<thead>
<tr>
<th>Angle°</th>
<th>Flexion</th>
<th>Extension</th>
<th>ANK</th>
<th>IMP%</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMP%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Add IMP% F/E + PRO/SUP = 

<table>
<thead>
<tr>
<th>Angle°</th>
<th>Flexion</th>
<th>Extension</th>
<th>ANK</th>
<th>IMP%</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMP%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Add IMP% F/E + ADD/ABD + IR/ER = 

<table>
<thead>
<tr>
<th>Angle°</th>
<th>Flexion</th>
<th>Extension</th>
<th>ANK</th>
<th>IMP%</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMP%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Elbow

<table>
<thead>
<tr>
<th>Angle°</th>
<th>Flexion</th>
<th>Extension</th>
<th>ANK</th>
<th>IMP%</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMP%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Shoulder

<table>
<thead>
<tr>
<th>Angle°</th>
<th>Flexion</th>
<th>Extension</th>
<th>ANK</th>
<th>IMP%</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMP%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Add IMP% F/E + ADD/ABD + IR/ER = 

<table>
<thead>
<tr>
<th>Angle°</th>
<th>Flexion</th>
<th>Extension</th>
<th>ANK</th>
<th>IMP%</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMP%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

I. Amputation Impairment (Other than Digits) =

II. Regional Impairment of Upper Extremity (Combine Hand % + Wrist % + Elbow % + Shoulder %) =

III. Peripheral Nervous System Impairment = S: 40x50 = 20%, M: 35x25 = 9%

IV. Peripheral Vascular System Impairment =

V. Other Disorders (Not Included in Regional Impairment) =

Total Upper Extremity Impairment (Combine I + II + III + IV + V) = 20% and 9% = 27%

Impairment of Whole Person (Use Table 3) = 16%

If Both Limbs are Involved: Calculate Whole Person Impairment for Each Upper Extremity on Two Separate Charts and Combine Using Combined Values Chart

Revised: 2/2018
**Pitfalls**
Range of motion deficits cannot be combined with motor deficits of the nerve if ROM is secondary to motor nerve damage. This would be considered “double dipping” and the impairment for the motor deficit accounts for the ROM deficit.

Digital nerves are rated using a different system and will be discussed in the Upper Extremity Section.

**Exclusions/Omissions in the AMAGuides**
It is recommended that Table 15 (p. 46) “Impairment of Upper Extremity Due to Entrapment Neuropathy” be crossed out. It should not be used because the AMA Guides do not provide definitions for mild, moderate and severe impairment and Table 14 is more specific.

**Complex Regional Pain Syndrome (CRPS)**
There are different types of CRPS. Type I (CRPS) has no demonstrable nerve injury. However, if upper extremity function or station and gait are affected, rate by using Spinal Cord/Brain, Table 1 - Column A (p.109). ROM should not be used, as this would be accounted for in the neurologic portion of the rating.

Type II (Causalgia) has a documented specific nerve injury. Use the peripheral rating system if symptoms are primarily sensory and there are motor deficits that relate to a specific nerve injury. ROM should not be used, as this would be accounted for in the neurologic portion of the rating. The Spinal Cord/Brain, Table 1- Column A (p.109) may also be used to rate the impairment.

**Additional Information for Complex Regional Pain Syndrome Impairment Ratings from the Divisions’ Impairment Rating Tips (p.2)**
- The Division recommends using Spinal Cord/Brain, Table 1- Column A (p.109) for determining impairment; however, the peripheral nerve tables may be used if the evaluator deems them more appropriate. In unusual cases where severe vascular symptoms cause additional impairment of ADLs, the physician may choose to combine additional impairment for the vascular tables (Table 52, p.70 and Table 16, p.47) with the neurological
impairment. ROM should not be used, as this would be accounted for in the neurologic portion of the rating.
Upper Extremity Impairment
AMA Guides, 3rd Edition, revised - Chapter 3 (p.11)

Objectives:
1) Identify the steps for determining an impairment with an amputation of a digit.
2) Determine the steps for performing an impairment rating of the digits with range of motion and sensory deficits.
3) Identify the steps for performing an impairment rating of the wrist, elbow, and shoulder.
4) Determine the steps for performing an impairment rating using “Other Disorders” of the upper extremity.
5) Determine the steps for performing an impairment rating with a vascular disorder.
6) Demonstrate how to correctly determine the impairment for cumulative trauma conditions.

Summary/Steps for Determining Thumb Impairment Rating
1) Determine if the injury is an amputation if so, refer to Figure 7(p.19) in AMA Guides to rate the impairment.
   a) Determine the length of the thumb remaining after amputation on the left side of the chart and
   b) Consult the top of the chart to determine the impairment.
   c) Document the percent impairment on the Upper Extremity Worksheet - Part 1 under “Amputation.”
2) Determine if there is sensory loss of the digit by performing 2 point discrimination testing as described on p.19 in AMA Guides.
   a) Determine how much of the digit has sensory loss by using Figure 7 (p. 19) in AMA Guides.
   b) Determine if the ulnar and/or radial nerve is involved.
   c) Determine if the sensory loss is total (>15 mm) or partial (7-15mm)
   d) Apply the above information to Table 4 (p. 20) in AMA Guides to determine sensory impairment of the thumb
      i) If both radial and ulnar nerves are involved, add the ulnar and radial impairment values to determine the for the total sensory impairment.
   e) Document the percent impairment on the Upper Extremity Worksheet - Part 1 under “Sensory Loss.”
3) Measure the maximum range of motion (ROM) of the thumb joints and document the values on the Upper Extremity Worksheet - Part 1 under “Abnormal Motion.”
   a) Determine the percentage of impairment for ROM of the thumb using AMA Guides:
      - interphalangeal joint (IP) using Figure 10 (p.21) in the AMA Guides
      - metacarpophalangeal joint (MP) using Figure 13 (p.22) in the AMA Guides
      - carpometacarpal (CMC) ROM impairment for lack of:
        - adduction using Table 5 (p.23) in the AMA Guides
        - radial abduction using Table 6 (p.23) in the AMA Guides
        - opposition using Table 7 (p.24) in the AMA Guides
   b) Add all range of motion deficits of the thumb (CMC+MP+IP) for the final range of motion impairment rating.

4) **Add** all range of motion deficits of the thumb (CMC+MP+IP) for the final range of motion impairment rating.

5) **Combine** impairments from amputation, sensation, range of motion and any other applicable disorders to determine the **Total Thumb Impairment**.

6) **Convert** the digit impairment to hand impairment using Table 1 (p.15) in AMA Guides.
   a) Column 1 is for the thumb

7) **Add** all hand impairment percentages for the thumb, index, middle, ring and little fingers to determine the **Total Hand Impairment** and record at the bottom of the Upper Extremity Worksheet - Part 1.

8) **Convert** the **Total Hand Impairment** to **Upper Extremity Impairment** using Table 2 (p.16) in AMA Guides and document on the bottom row of the Upper Extremity Worksheet - Part 1

9) **Combine** with other upper extremity impairments of the same arm.

10) **Convert** the **Upper Extremity Impairment** to **Whole Person** using Table 3 (p.16) in AMA Guides and document on the Upper Extremity Worksheet - Part 2, last row.

   In summary, convert digit→hand→upper extremity→whole person

**Summary/Steps for Determining Digit Impairment Rating:**

1) Determine if the injury is an amputation if so, refer to Figure 17 (p.25) in the AMA Guides to rate the impairment.
   a) Determine the length of the digit remaining after amputation on the left side of the chart and
   b) Consult the top of the chart to determine the impairment.
2) Document the percent impairment on the Upper Extremity Worksheet - Part 1 under “Amputation.”

3) Determine if there is sensory loss of the digit by performing 2 point discrimination testing as described on p. 25 in the AMA Guides.
   a) Determine how much of the digit has sensory loss by using Figure 17 (p.25) in the AMA Guides.
   b) Determine if the ulnar and/or radial nerve is involved.
   c) Determine if the sensory loss is total (>15mm) or partial (7-15mm).
   d) Apply the above information to Table 8 (p.25) (index, middle and ring fingers) and Table 4 (p.20) (little finger) in AMA Guides to determine sensory impairment of the digit.
      i) If both radial and ulnar nerves are involved, add the ulnar and radial impairment values for the total sensory impairment.
   e) Document the percent impairment on the Upper Extremity Worksheet - Part 1 under “Sensory Loss.”

4) Measure the maximum range of motion (ROM) of the affected joints and document the values on the Upper Extremity Worksheet - Part 1 under “Abnormal Motion.”
   a) Determine the percentage of impairment for ROM of the digits using AMA Guides:
      - distal interphalangeal joint (DIP) using Figure 19 (p.26)
      - proximal interphalangeal joint (PIP) using Figure 21 (p.27)
      - metacarpophalangeal (MP) joint using Figure 23 (p.28)

5) Add range of motion deficits for flexion and extension of each joint to determine joint ROM impairment

6) Combine range of motion deficits from all involved joints of the digit for the total range of motion impairment. i.e.(MP+PIP+DIP) for the index finger

7) Combine impairments from amputation, sensation, range of motion and any other applicable disorders for each digit to determine the Total digit impairment.

8) Convert the Total Digit Impairment to Hand Impairment using Table 1 (p.15) in AMA Guides
   a) Column 2 is for the index and middle finger
   b) Column 3 is for the ring and little finger

9) Add all hand impairment percentages for the thumb, index, middle, ring and little fingers to determine the Total Hand Impairment and record at the bottom of the Upper Extremity Worksheet - Part 1.

10) Convert the Total Hand Impairment to Upper Extremity Impairment using Table 2 (p.16) in AMA guides and document on the bottom row of the Upper Extremity Worksheet - Part 1
11) **Combine** with other upper extremity impairments of the same arm.
12) **Convert** the *Upper Extremity Impairment* to *Whole Person* using Table 3 (p.16) and document on the Upper Extremity Worksheet - Part 2, last row.

In summary, **convert** digit→hand→upper extremity→whole person

**Summary/Steps for Determining Wrist Impairment Rating**

1) If the injury involves an amputation, refer to Figure 2 (p.15) in AMA Guides to determine the impairment rating.

2) Document the percent impairment on the Upper Extremity Worksheet - Part 2 under “Amputation.”

3) Measure the maximum range of motion (ROM) of the wrist and document values under “Abnormal Motion” on the Upper Extremity Worksheet - Part 2.
   a) Use the AMA Guides to determine the percentage of impairment for:
      - **Flexion and extension** using Figure 26 (p.29).
      - **Radial and ulnar deviation** using Figure 29 (p.31).

4) **Add** all range of motion deficits to determine the total wrist ROM impairment rating.

5) **Combine** impairments for ROM and any other applicable disorders to determine the *Upper Extremity Impairment* for the wrist.

6) **Combine** the Upper Extremity Impairment for the wrist with other upper extremity impairment ratings on the same arm for the total *Upper Extremity Impairment* rating.

7) **Convert** the *Upper Extremity Impairment* to *Whole Person* using Table 3 (p.16) in AMA Guides.

**Summary/Steps for Determining Elbow Impairment Rating**

1) If the injury is an amputation, refer to Figure 2 (p.15) in AMA Guides to determine the impairment rating.
   a) Document the percent impairment on the Upper Extremity Worksheet - Part 2 under “Amputation.”

2) Measure the maximum range of motion (ROM) of the elbow and document measurements under “Abnormal Motion” on the Upper Extremity Worksheet - Part 2.
   a) Use the AMA Guides to determine the percentage of impairment for:
      - **Flexion and extension** using Figure 32 (p.32).
      - **Supination and pronation using** Figure 35 (p.33).

3) **Add** all range of motion deficits to determine the elbow ROM impairment rating.
4) **Combine** impairments for ROM and any other applicable disorders to determine the *Upper Extremity Impairment* for the elbow.

5) **Combine** the Upper Extremity Impairment for the elbow with other upper extremity impairment ratings on the same arm for the total *Upper Extremity Impairment* rating.

6) **Convert** the *Upper Extremity Impairment* to *Whole Person* using Table 3 (p.16) in AMA Guides.

**Summary/Steps for Determining Shoulder Impairment Rating**

1) If the injury involves an amputation, refer to Figure 2 (p.15) in AMA Guides to determine the impairment rating.
   a) Document the percent impairment on the Upper Extremity Worksheet - Part 2 under “Amputation.”

2) Measure the maximum range of motion (ROM) of the shoulder and document measurements under “Abnormal Motion” on the Upper Extremity Worksheet - Part 2.
   a) Use the AMA Guides to determine the percentage of impairment for:
      - **flexion and extension** using Figure 38 (p.35).
      - **Abduction and adduction** using Use Figure 41 (p.36).
      - **Internal and external rotation** using Figure 44 (p.37).

3) **Add** the range of motion deficits to determine the shoulder ROM impairment rating.

4) **Combine** impairments for ROM and any other applicable disorders to determine the *Upper Extremity Impairment* of the shoulder.

5) **Combine** the Upper Extremity Impairment for the shoulder with other upper extremity impairment ratings on the same arm for the total *Upper Extremity Impairment* rating.

6) **Convert** the *Upper Extremity Impairment* to *Whole Person* using Table 3 (p.16) in AMA Guides.

**Summary/Steps for Determining Peripheral Nervous System Disorders**

Peripheral nerve disorders are determined as described in the Nervous System Impairment Chapter.

**Summary/Steps for Determining Vascular Disorders**

1) Determine the class of impairment by referring to Table 16 (p.47) in AMA Guides.

2) Document the percent impairment under Section IV - “Peripheral Vascular System Impairment” on the Upper Extremity Worksheet - Part 2.
3) **Combine** the vascular impairment with other upper extremity impairments on the same arm for the total upper extremity impairment using the appropriate section on the Upper Extremity Worksheet.

4) **Convert** the *Upper Extremity Impairment to Whole Person* using Table 3 (p.16) in AMA Guides.

**Summary/Steps for Determining Other Disorders of the Upper Extremity**

These tables must **ONLY** be used when other measures of impairment have **NOT** adequately addressed the patient’s impairment. They are specific to the body part. Refer to the Other Disorders Section of the Upper Extremity chapter in this curriculum for specific details.

**Summary/Steps for Determining Cumulative Trauma Conditions (CTC)**

1. Use the “Algorithmic Steps for Causation Assessment” from Colorado’s CTC Medical Treatment Guidelines to determine if the injury is work-related.
   a. Establish a diagnosis using section D1e & f in the guideline.
      i. The terms “cumulative trauma disorder,” “repetitive motion syndrome,” “repetitive strain injury,” and similar nomenclatures are umbrella terms that are not acceptable diagnoses.
   b. Identify job duties, which may require a job site evaluation.
   c. Refer to the Risk Factor Definitions Table. If any of the job duties match a risk factor, continue to the next step.
   d. Determine if the risk factor is related to the diagnosis by referring to the Diagnosis Based Risk Factors Table. Referencing this table is a required step if you have only identified a secondary risk factor.

2. If the work injury is causally related, determine if there is impairment for ROM or other applicable disorders.

3. If the injury is causally related, **and there is no other impairment that can be assigned** (i.e. ROM, etc), but there are history and physical exam findings and limitations in ADLs, then consult the “Cumulative Trauma Staging Matrix” in the CTC Guideline.
   a. Determine which stage is appropriate based on physical exam findings and/or ADLs.
   b. Choose a value within the identified stage which corresponds with the patient’s deficits in ADLs.

4. Use Table 17 (p. 48) in the AMA Guides to determine the Upper extremity value for the involved joint.
   a. Limit the impairment determination to the area of primary pathology that has anatomic or physiologic correlation based on objective findings.
b. Do not rate areas with reactive muscle spasm and/or radiating or referred pain.
5. Multiply the value of the joint by the percent of impairment determined on the “Cumulative Trauma Staging Matrix”.
6. Document the impairment rating on the Upper Extremity Worksheet - Part 2 under Section V “Other Disorders.”
7. If there is an anatomic and physiologic basis to rate other joints in the same extremity, complete the rating in the manner described and combine the extremity ratings distal to proximal.
8. Combine the “other disorders” impairment with other upper extremity impairments on the same arm for the Total Upper Extremity Impairment.
9. Convert the Upper Extremity Impairment to Whole Person using Table 3 (p.16) in AMA Guides.
10. If the extremity impairment is bilateral, convert each Upper Extremity Impairment to Whole Person and then combine right and left extremity whole person ratings.

References/Links:
Upper Extremity Worksheet - Part 1 (hand)
Upper Extremity Worksheet - Part 2 (wrist, elbow, shoulder) - needed for hand to convert to whole person
Apportionment Calculation Worksheet, if applicable
Medical Treatment Guidelines: Shoulder Injury, Cumulative Trauma Conditions
Impairment Rating Tips

Core Content: Upper extremity impairment ratings are predominantly based on amputation, sensory loss (digits), range of motion deficits, peripheral nerve deficits and vascular disorders. Other disorders including joint crepitation, joint swelling, deviation, subluxation and dislocation, arthroplasty, carpal instability, muscle and tendons, and strength loss can be applied to ratings per specific instructions by the AMA Guides.

Upper Extremity Impairment General Principles:
The total value of the upper extremity is equal to 60% impairment of the whole person or 100% of the Upper extremity (Fig. 2, p. 15 AMA Guides). I.e. if the arm was amputated the maximum impairment assigned would be 60% whole person. The rater should keep this value in mind when determining impairment for the upper extremity, particularly if you are given the option to choose from a range of values. Impairment percentage assigned to the upper extremity for any condition should correlate to deficits of activities of daily living within the 60% total value.
All upper extremity ratings are combined in order from distal to proximal to determine the total upper extremity rating.

Refer to the AMA Guides Tables for the following conversions:
Digit impairment ratings are converted to hand units. (Table 1, p.15)
Hand unit impairment is converted to upper extremity units. (Table 2, p.15)
Upper extremity units are converted to whole person units (Table 3, p.16)

Convert digit→hand→upper extremity→whole person

Shoulder, elbow and wrist impairments are documented in upper extremity units and converted to whole person (Table 3, p.16).
Multiple impairments of the same upper extremity are combined at the upper extremity level and then converted to whole person. For example, a hand impairment is converted to upper extremity and then combined with a wrist impairment before converting to whole person.

**Thumb Impairment**
Utilize the Upper Extremity Worksheet - Part 1 for documenting the calculation of impairment ratings

**Amputation**
The impairment percentage of the thumb can be calculated using Figure 7 (p.19) in the AMA Guides
- Determine the length of the thumb remaining after amputation on the left side of Figure 7
- Consult the top of Figure 7 to determine the percentage of thumb impairment

**Sensory Loss**
Determine sensory loss by performing 2 point discrimination testing
- 2 point discrimination greater than 15mm = total sensory loss or 100% sensory impairment
- 2 point discrimination between 15-7 mm = partial sensory loss or 50% sensory impairment
- 2 point discrimination equal to or less than 6 mm = normal sensation or 0% sensory impairment
- Determine the length of the thumb involved using the same corresponding charts outlined under “amputation” above - Figure 7 (p.19) in the AMA Guides
- Determine if the ulnar and/or radial nerve is involved
○ Determine the sensory loss of the thumb using Table 4 (p.20) in the AMA Guides
  ■ The length of the digit is indicated in the left column, ulnar and radial nerve in separate columns with total and partial loss indicated.
  ■ If both nerves are involved, add the ulnar and radial impairment values for the percentage of impairment.

Range of Motion:
Measure the maximum range of motion of the affected joints and document the values on the Upper Extremity Worksheet - Part 1

Figures used for ROM impairment determination have the following abbreviations:
  ● Measurement values are indicated in the “V” column
  ● Flexion impairment is indicated in the IF% column
  ● Extension impairment is indicated in the IE% column
  ● Ankylosis impairment is indicated in the IA% column (rarely used)

Thumb:
  ● Determine the percentage of thumb interphalangeal joint (IP) range of motion impairment using Figure 10 (p.21) in the AMA Guides
    ■ Flexion values listed are 0-80 degrees
    ■ Extension values listed are 0-30 degrees
    ○ Note: 0 degrees of thumb IP extension = 1% impairment
  ● Determine the percentage of thumb metacarpophalangeal joint (MP) range of motion impairment using Figure 13 (p.22) in the AMA Guides
    ■ Flexion values listed are 0-60 degrees
    ■ Extension values listed are 0-40 degrees
  ● Determine the percentage of thumb carpometacarpal (CMC) range of motion impairment for lack of
    ○ adduction using Table 5 (p.23) in the AMA Guides
    ○ radial abduction using Table 6 (p.23) in the AMA Guides
    ○ opposition using Table 7 (p.24) in the AMA Guides
    ■ Note: lost and retained columns are not used and should be crossed out
    ■ If the joint is ankylosed, use section b of the table
• **Add** all range of motion deficits of the thumb for the final range of motion impairment rating
• Record the values under the Abnormal Motion Column and under the Hand Impairment Percentage-Abnormal Motion Column of the Upper Extremity Worksheet - Part 1.

**Digit Impairment**

**Amputation**
The impairment percentage of digits can be calculated using Figure 17, (p.25) in the AMA Guides
- Determine the **length** of the digit remaining after amputation on the left side of Figure 17
- Consult the top of Figure 17 to determine the digit impairment

**Sensation**
Determine sensory loss by performing 2 point discrimination testing
- 2 point discrimination greater than 15mm = **total** sensory loss or 100% sensory impairment
- 2 point discrimination between 15-7 mm = **partial** sensory loss or 50% sensory impairment
- 2 point discrimination equal to or less than 6 mm = **normal** sensation or 0% sensory impairment
- Determine the **length** of the digits involved using the same corresponding charts outlined under “amputation” above - Figure 17 (p.25) in the AMA Guides
- Determine if the ulnar and/or radial nerve is involved
  - Determine the sensory loss of the **little** finger using Table 4 (p.20), **index**, **middle** and **ring** fingers using Table 8 (p.25) in the AMA Guides
    - The length of the digit is indicated in the left column, ulnar and radial nerve in separate columns with total and partial loss indicated.
    - If both nerves are involved, **add** the ulnar and radial impairment values for the percentage of impairment.

**Range of Motion:**
Measure the maximum range of motion of the affected joints and document the values on the Upper Extremity Worksheet - Part 1

Revised: 2/2018
Figures used for ROM impairment determination have the following abbreviations:

- Measurement values are indicated in the “V” column
- Flexion impairment is indicated in the IF% column
- Extension impairment is indicated in the IE% column
- Ankylosis impairment is indicated in the IA% column (rarely used)

**Digits**

- Determine the percentage of impairment for **distal interphalangeal joint (DIP)** range of motion using Figure 19 (p.26) in the AMA Guides
  - Flexion values listed are 0-70 degrees
  - Extension values listed are 0-30 degrees
- Determine the percentage of impairment for **proximal interphalangeal joint (PIP)** range of motion using Figure 21 (p.27) in the AMA Guides
  - Flexion values listed are 0-100 degrees
  - Extension values listed are 0-30 degrees
- Determine the percentage of impairment for **metacarpophalangeal joint (MP)** range of motion using Figure 23 (p.28) in the AMA Guides
  - Flexion values listed are 0-90 degrees
  - Extension values listed are 0-20 degrees
  - **Note**: 0 degrees of MP extension = 5% impairment

- **Add** range of motion deficits at each joint level
- **Combine** range of motion deficits from all involved joints of the digit for the range of motion impairment.
- Record the values under the Abnormal Motion Column and under the Hand Impairment Percentage-Abnormal Motion Column of the Upper Extremity Worksheet - Part 1.

**Isolated Digit Impairment:**

- **Combine** deficits from amputation, sensation, range of motion and any other applicable disorders for each digit for total **digit** impairment.
- **Convert** the digit impairment to hand impairment using Table 1 (p.15) in the AMA Guides
  - **Note**: when referring to Table 1:
    - **Column 1** is for the thumb
- Column 2 is for the index and middle finger
- Column 3 is for the ring and little finger

- **Convert** the total hand impairment to upper extremity impairment using Table 2 (p. 16) in the AMA Guides
- Record the total hand impairment of the hand at the bottom of the Upper Extremity Worksheet - Part 1 and on Section II of the Upper Extremity Worksheet - Part 2.
- If no other impairments are present for the same extremity, **convert** the upper extremity impairment to whole person using Table 3 (p.16) in the AMA Guides and record at the bottom of the Upper Extremity Worksheet - Part 2.

Multiple Digit Involvement:
- After determining total hand impairment of each digit as described above, **Add** all impairments of each digit to determine the **total hand impairment**.
- Record the total hand impairment in the row entitled “total hand impairment” on the Upper Extremity Worksheet - Part 1.
- **Convert** the total hand impairment to upper extremity impairment using Table 2 (p. 16) in the AMA Guides and record this value of the hand at the bottom of the Upper Extremity Worksheet - Part 2.
- If no other impairments are present for the same extremity, **convert** the upper extremity impairment to whole person using Table 3 (p.16) in the AMA Guides and record at the bottom of the Upper Extremity Worksheet - Part 2.

Additional upper extremity impairment ratings of the same extremity (wrist, elbow, shoulder) along with the hand:
- Utilize the Upper Extremity Worksheet - Part 2 to calculate the final upper extremity impairment rating by **combining** all impairments of the same extremity at the upper extremity level by using the Combined Values Chart (p.254) in the AMA Guides.
**Wrist Impairment**
Utilize the Upper Extremity Worksheet - Part 2 for documenting the calculation of impairment rating

**Amputation**
- Use Figure 2 (p.15) in the AMA Guides to determine impairment rating
  - Amputation at the wrist is 92% impairment of the upper extremity
- Record the values on the Upper Extremity Worksheet - Part 2 under the Amputation Column

**Range of Motion**
- Measure the maximum range of motion (ROM) of the wrist and document values under “Abnormal Motion” on the Upper Extremity Worksheet - Part 2.
  - Use the AMA Guides to determine the percentage of impairment for:
    - Flexion and extension using Figure 26 (p.29).
    - Radial and ulnar deviation using Figure 29 (p.31).
- **Add** all range of motion deficits to determine the total wrist ROM impairment rating.
- **Combine** impairments for ROM and any other applicable disorders to determine the *Upper Extremity Impairment* for the wrist.
- **Combine** the Upper Extremity Impairment for the wrist with other upper extremity impairment ratings on the same arm for the total *Upper Extremity Impairment* rating.
- **Convert** the *Upper Extremity Impairment* to *Whole Person* using Table 3 (p.16) in AMA Guides.

**Elbow Impairment**
Utilize the Upper Extremity Worksheet - Part 2 for documenting the calculation of impairment rating

**Amputation**
- Use Figure 2 (p.15) of the AMA Guides to determine impairment rating
  - Amputation at the elbow is 96% impairment of the upper extremity
- Record the values on the Upper Extremity Worksheet - Part 2 under the Amputation Column
Range of Motion
- Measure the maximum range of motion (ROM) of the elbow and document measurements under “Abnormal Motion” on the Upper Extremity Worksheet - Part 2.
  - Use the AMA Guides to determine the percentage of impairment for:
    - Flexion and extension using Figure 32 (p.32).
    - Supination and pronation using Figure 35 (p.33).
- Add all range of motion deficits to determine the elbow ROM impairment rating.
- Combine impairments for ROM and any other applicable disorders to determine the Upper Extremity Impairment for the elbow.
- Combine the Upper Extremity Impairment for the elbow with other upper extremity impairment ratings on the same arm for the total Upper Extremity Impairment rating.
- Convert the Upper Extremity Impairment to Whole Person using Table 3 (p.16) in AMA Guides.

Shoulder Impairment
Utilize the Upper Extremity Worksheet - Part 2 for documenting the calculation of impairment rating

Amputation
- Use Figure 2 (p.15) in the AMA Guides to determine impairment rating
  - Amputation at the shoulder equals 100% upper extremity impairment
- Record the values on the Upper Extremity Worksheet - Part 2 under the Amputation Column

Range of Motion
- Measure the maximum range of motion (ROM) of the shoulder and document measurements under “Abnormal Motion” on the Upper Extremity Worksheet - Part 2.
  - Use the AMA Guides to determine the percentage of impairment for:
    - Flexion and extension using Figure 38 (p.35).
    - Abduction and adduction using Use Figure 41 (p.36).
    - Internal and external rotation using Figure 44 (p.37).
Additional Information for Shoulder Impairment from the Division’s Impairment Rating Tips (p.7-8)

- **Distal Clavicle Resection**: Resection arthroplasty referred to in the AMA Guides is to be used only for partial resection of the humeral head, a procedure rarely performed. Neither resection nor implant arthroplasty values should be used for distal clavicular resection. If providing a rating for a distal clavicular resection, the upper extremity value is 10%.

- **Subacromial arthroplasty**: The AMA Guides 4th and 5th Editions suggest that subacromial arthroplasty should be rated using ROM, and when appropriate, “joint crepitation with motion” from the “Other Disorders” section. In general, when any additional rating for subacromial arthroplasty is deemed appropriate in a case with or without crepitus because “other factors have not adequately rated the extent of the impairment,” it should not exceed 10%.

- **Partial Shoulder Joint Replacement**: If a hemi-arthroplasty is performed, the rating will be 20%. This includes resurfacing of the humeral head via a resurfacing cap or stemmed humeral replacement. Crepitus and synovial changes should not be rated as this would be duplicative and the surgical procedure has presumably eliminated those anatomic derangements.

- **Total Shoulder Arthroplasty**: A 30% rating is given for total implant arthroplasty, and is defined as an implant arthroplasty of the humeral head accompanied by resurfacing of the glenoid with any substance including metal, polyethylene or soft tissue graft.

Additional Information for Rating of Extremities Using Contralateral Joint/“Normalization” from the Division’s Impairment Rating Tips (p.7)

- In some cases, the contralateral joint is a better representation of the patient’s pre-injury state than the AMA Guides population norms. The 3rd Revised Edition has little commentary on this procedure, however, the 5th Edition and the Division consider it reasonable to compare both extremities when there are specific conditions.
conditions which would make the opposite, non-injured extremity serve as a better individual baseline. (This procedure is **not an apportionment procedure** as it does not reflect a prior pathologic condition with impairment; therefore, avoid using the term “apportionment” when referring to this process. This process can be termed “normalization.”)

- Therefore, when deemed appropriate, the physician may subtract the contralateral joint ROM impairment from the injured joint’s ROM impairment. (An example would be a patient with limited knee flexion due to obesity.) However, this subtraction should not be done if the contralateral joint has a known previous injury because that joint may not reflect the ‘normal’ ROM for that individual. Make sure that you explain your methodology and your rationale in your report.

**Pitfalls**
If using normalization for upper extremity ROM, you must provide a worksheet for each upper extremity.

**Peripheral Nerve Disorders**
Peripheral nerve disorders are determined as described in Nervous System Impairment Chapter.

Grip and lateral pinch strength is rarely used for impairment ratings. If clear ADL deficits are not reflected in the range of motion and/or neurological ratings, or loss of strength from any non-neurological cause, it may be applicable.

Grip and lateral pinch strength is discussed under “Other Disorders of the Upper Extremity” later in this chapter and in the AMA Guides, p.48.

ROM cannot be rated in addition to a motor nerve deficit if the motor nerve is causing lack of ROM. For example, a patient has weakness due to an ulnar nerve deficit. The physician rates the ulnar nerve impairment but cannot rate the wrist range of motion deficit as well, as this would be considered “double dipping.”

**Impairments Due to Vascular Disorders**
Upper extremity vascular disorders are rated according to five (5) classes.

- Utilize the AMA Guides Table 16 (p.47) to rate upper extremity vascular disorders.
  - **Note:** Pay specific attention to the use of “and” and “or” when determining the class category.

- Vascular disorder impairment values are **combined** with other upper extremity impairments.
Other Disorders of the Upper Extremity
These impairment rating categories are optional.

These tables can ONLY be used when previous measures of impairment have NOT adequately addressed the patient’s impairment.

If an “other disorders” impairment is found, combine this rating with other impairments present.

Joint Crepitation:
- When ROM impairment is present, you must justify the need for crepitation as an additional impairment.
- Synovitis or cartilage degeneration
- Determine joint crepitation severity (AMA Guides p.48)
- Using AMA Guides Table 17 (p.48), identify the affected upper extremity body part and joint involved for the impairment percentage.
- Multiply the value of joint crepitation severity with the percent upper extremity impairment from Table 17.

Joint Swelling due to Synovial Hypertrophy
- Usually rated through loss of motion, if full ROM then synovial hypertrophy is NOT ratable
- Determine joint swelling due to synovial hypertrophy severity (AMA Guides p.48)
- Using AMA Guides Table 17 (p.48), identify the affected upper extremity body part and joint involved for the impairment percentage.
- Multiply the value of joint swelling severity with the percent upper extremity impairment from Table 17.

Digit Lateral Deviation
- Determine digit lateral deviation impairment (AMA Guides p.49)
- Using AMA Guides Table 17 (p.48), identify the affected upper extremity body part and joint involved for the impairment percentage.
- Multiply the value of digit lateral deviation joint impairment with the percent upper extremity impairment from Table 17.

Digit Rotational Deformity
- Measured during maximum active flexion of the finger
• If other impairments of the same digit are present, rotational deformity impairment is combined with them.
• Determine digit rotation deformity impairment (AMA Guides p.49)
• Using AMA Guides Table 17 (p.48), identify the affected upper extremity body part and joint involved for the impairment percentage.
• Multiply the value of digit rotational deformity joint impairment with the percent upper extremity impairment from Table 17.

Persistent Joint Subluxation and Dislocation
• Used only when there is no range of motion impairment rating for the joint
• Determine subluxation or dislocation deformity impairment (AMA Guides p.49)
• Using AMA Guides Table 17 (p.48), identify the affected upper extremity body part and joint involved for the impairment percentage.
• Multiply the value of joint subluxation of dislocation impairment with the percent upper extremity impairment from Table 17.

Joint Instability
• Excessive passive mediolateral motion is evaluated by comparing it with normal joint stability and graded to its degree of severity.
• Determine joint instability impairment (AMA Guides p.49)
• Using AMA Guides Table 17 (p.48), identify the affected upper extremity body part and joint involved for the impairment percentage.
• Multiply the value of joint instability impairment with the percent upper extremity impairment from Table 17.

Wrist and Elbow Joint Lateral Deviation
• Measured with the wrist or elbow in maximum active extension
• Determine elbow or wrist joint lateral deviation impairment (AMA Guides p.50)
• Using AMA Guides Table 17 (p.48), identify the affected upper extremity body part and joint involved for the impairment percentage.
• Multiply the value of wrist and elbow lateral deviation with the percent upper extremity impairment from Table 17

Carpal Instability Without ROM or strength deficits
• ONLY rated if ROM and strength have no deficits
• Based on radiographic findings: refer to AMA Guides Table 18 (p.50) for upper extremity impairment rating.

Arthroplasty
• Refer to AMA Guides Table 19 (p.50) for upper extremity impairment ratings for resection and implant arthroplasty
• If more than one joint in a digit is involved, refer to the footnotes in AMA Guides Table 19 (p.50.)
• Resection arthroplasty is used only for partial resection of the humeral head, a procedure rarely performed.
• If a partial shoulder replacement (hemiarthroplasty) is performed, the rating is 20%. (Impairment Rating Tips, p.8).
  ○ Crepitus and synovial changes should ___ not be rated in addition to partial shoulder replacement.
• For other arthroplasty procedures refer to the Impairment Rating Tips, p.7.

Musculotendinous Impairments and Intrinsic Tightness

Intrinsic Tightness Severity WITHOUT range of motion deficit
• Measure passive flexion of PIP joint with MP joint hyperextended (Bunnell’s test)
• Determine percent digit impairment for intrinsic tightness (AMA Guides p.52)
• Using AMA Guides Table 17 (p.48), identify the unit value percentage of impairment for that digit.
• Multiply the value of intrinsic tightness with the unit value percentage of impairment for that digit in AMA Guides Table 17.
• Record the value in Figure 1 of the Upper Extremity Worksheet - Part 1 under the “other disorders” of the appropriate digit.

Constrictive Tenosynovitis WITHOUT range of motion deficit
• Determine percent digit impairment for constrictive tenosynovitis (trigger finger) - AMA Guides p.52.
• Using AMA Guides Table 17 (p.48), identify the unit value percentage of impairment for that digit.
• Multiply the value of constrictive tenosynovitis with the unit value percentage of impairment for that digit in AMA Guides Table 17.
• Record the value in Figure 1 of the Upper Extremity Worksheet - Part 1 under the “other disorders” of the appropriate digit.
Extensor Tendon Subluxation at MP Joint **WITHOUT** range of motion deficit

- Determine percent digit impairment for extensor tendon subluxation (AMA Guides p. 52)
- Using AMA Guides Table 17 (p.48), identify the unit value percentage of impairment for that digit.
- Multiply the value of extensor tendon MP subluxation impairment with unit value percentage of impairment for that digit in AMA Guides Table 17.
- Record the value in Figure 1 of the Upper Extremity Worksheet - Part 1 under the “other disorders” of the appropriate digit.

**Other Musculoskeletal System Defects**

*Note: A clear description of the magnitude of ADL deficit is required in order to use Strength Index for impairment ratings. The Strength Index Table only allows large increases of 10, 20 or 30% to the previously calculated rating.*

**Loss of Strength**

- Rate **ONLY** when loss of strength cannot be adequately rated using the other sections, including neurological motor deficits.
- Neurological motor deficit and loss of strength must **NOT** be given for the same deficit.
- To perform a rating: at least three (3) measurements of grip and lateral pinch strength should be taken at several intervals in an examination.
  - The three (3) measurements should have less than a 20% variation in order to establish reliability.
  - At least three (3) reliable readings for each extremity are averaged

**Strength Index = strength of the normal hand - strength of the abnormal hand**

- Use AMA Guides Table 23 (p.54) to translate the strength index into upper extremity impairment.
  - Use AMA Guides Table 21 and 22 (p.53) if there is no uninjured hand to determine normal strength.
Cumulative Trauma Conditions

Cumulative trauma conditions (CTC) is an umbrella term and not a specific diagnosis. The patient must have a specific diagnosis in order to rate under CTCs.

*Rating cumulative trauma conditions can only be used if no other impairment exists, such as ROM, neurologic and/or vascular findings, or other disorders (excluding grip strength).*

The CTC rating system is *preferred* over an impairment from a decrease in grip strength. If grip strength is used, the CTC rating system shall *not* be used as it would be duplicative.

If no other impairment exists, then refer to the Cumulative Trauma Conditions (CTC) Medical Treatment Guideline to determine if the injury is work-related. A diagnosis must be established using section D1e & f in the guideline.

Next, identify job duties, which may require a job site evaluation. Refer to the Risk Factor Definitions Table in the CTC guideline. If any of the job duties match a risk factor, determine if the risk factor is related to the diagnosis by referring to the Diagnosis Based Risk Factors Table in the CTC guideline. Referencing this table is a required step if you have only identified a secondary risk factor.

If the work injury is causally related, and there are no other impairments that can be assigned (ROM), but history and physical examination findings and ADL limitations exist, then consult the Cumulative Trauma Staging Matrix in the CTC Guideline by following the below steps for rating:

1. Using the cumulative trauma matrix, determine the stage of cumulative trauma primarily using the ADL deficits and History and Physical Examination findings at MMI.
## Cumulative Trauma Staging Matrix

<table>
<thead>
<tr>
<th></th>
<th>Stage 1 (Minimal)</th>
<th>Stage 2 (Mild)</th>
<th>Stage 3 (Moderate)</th>
<th>Stage 4 (Severe)</th>
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<tbody>
<tr>
<td>History and Physical</td>
<td>1 to 2 symptoms with signs identified on history and supported by physical</td>
<td>2 or more symptoms with signs identified and supported by physical examination</td>
<td>3 or more symptoms with signs identified and supported by the physical examination with consistency of subjective and objective findings</td>
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<td>Symptoms and/or signs may improve but will not resolve completely with</td>
<td>Symptoms and/or signs do not improve with modification of the specific</td>
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<td>Modification of</td>
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<td>modification of specific aggravating activity</td>
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<td>Activities of</td>
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<td>Noticeable aggravation by more difficult ADLs</td>
<td>Significant interference with most ADLs</td>
<td>Severe limitations of ADLs</td>
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2. Identify the appropriate joint impairment found on Table 17(p.48) in the AMA Guides. Usually rating the major joint affected is adequate.

3. Multiply the joint impairment from AMA Guides Table 17 (p.48) by the CTC stage impairment from step 2 for the upper extremity impairment. If there is anatomic and physiologic basis to rate other joints in the same extremity, complete the rating in the manner described and combine the extremity ratings distal to proximal.

4. If the extremity impairment is bilateral, convert each upper extremity impairment to whole person and then combine whole person ratings for both right and left extremities.

5. Record the impairment rating value on Figure 1 of the Upper Extremity Worksheet - Part 2 under the “other disorders” category of the applicable joint.

**Exclusions/Omissions in the AMA Guides:** The following tables and figures have misleading information and should not be used for calculating impairments. It is preferable to cross out these sections to avoid confusion.

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<thead>
<tr>
<th>Table/Figure #</th>
<th>Page #</th>
<th>Special note</th>
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<td>Figure 7</td>
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<tr>
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</tbody>
</table>
Workshop Case #1:
A construction worker sustains a crush injury of the right thumb and index finger. Any missing information is to be considered normal.

Thumb:
- Amputated at IP joint
- MP ROM: -10° extension, 30° flexion
- Sensation at repaired tip of amputation site = 6 mm
- No significant pain with cold temperatures

Index:
- No amputation
- Radial digital nerve cut at PIP and repaired
  - Final 2-point discrimination = 7-8mm
- ROM (extension/flexion)
  - MP: 20°/90°
  - PIP: -10°/90°
  - DIP: -10°/50°
- Grip strength: overall decreased with grip strength trials:

<table>
<thead>
<tr>
<th>Trial #</th>
<th>#1</th>
<th>#2</th>
<th>#3</th>
<th>#4</th>
<th>#5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right hand</td>
<td>26</td>
<td>50</td>
<td>60</td>
<td>52</td>
<td>37</td>
</tr>
<tr>
<td>Left hand</td>
<td>30</td>
<td>90</td>
<td>103</td>
<td>84</td>
<td>40</td>
</tr>
</tbody>
</table>

Index finger gets cold at times but does not prevent activity.
Pain in the metacarpal region which interferes with grip and has caused the patient to drop objects unless he uses both hands.

Calculate the impairment rating to whole person
**Figure 1. Upper Extremity Impairment Evaluation Record—Part 1 (Hand)**

<table>
<thead>
<tr>
<th>Abnormal Motion</th>
<th>Amputation</th>
<th>Sensory Loss</th>
<th>Other Disorders</th>
<th>Hand Impairment %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Record Motion, Ankylosis and Impairment %</td>
<td>Mark Level &amp; Impairment %</td>
<td>Mark Type, Level &amp; Impairment %</td>
<td>List Type &amp; Impairment %</td>
<td>Combine Digit IMP%</td>
</tr>
<tr>
<td>Flexion</td>
<td>Extension</td>
<td>ANK</td>
<td>IMP%</td>
<td></td>
</tr>
</tbody>
</table>

**Thumb**
- Convert above

**Index**
- Convert above

**Middle**
- Convert above

**Ring**
- Convert above

**Little**
- Convert above

Total Hand impairment (Add Hand Impairment % For Thumb + Index + Middle + Ring + Little Finger)
Upper Extremity Impairment % (Convert Total Hand Impairment % To Upper Extremity Impairment %)
### Abnormal Motion

<table>
<thead>
<tr>
<th>Record Motion, Ankylosis and Impairment %</th>
<th>Other Disorders</th>
<th>Regional Impairment</th>
<th>Amputation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flexion</td>
<td>Extension</td>
<td>ANK</td>
<td>IMP%</td>
</tr>
</tbody>
</table>

**Wrist**

<table>
<thead>
<tr>
<th>Angle°</th>
<th>IMP%</th>
<th>RD</th>
<th>UD</th>
<th>ANK</th>
<th>IMP%</th>
</tr>
</thead>
</table>

Add IMP% $F/E + RD/UD =$ [1] IMP% = [2]

**Elbow**

<table>
<thead>
<tr>
<th>Angle°</th>
<th>IMP%</th>
<th>PRO</th>
<th>SUP</th>
<th>ANK</th>
<th>IMP%</th>
</tr>
</thead>
</table>

Add IMP% $F/E + PRO/SUP =$ [1] IMP% = [2]

**Shoulder**

<table>
<thead>
<tr>
<th>Angle°</th>
<th>IMP%</th>
<th>ADD</th>
<th>ABD</th>
<th>ANK</th>
<th>IMP%</th>
</tr>
</thead>
</table>

Add IMP% $F/E + ADD/ABD + IR/ER =$ [1] IMP% = [2]

---

### Other Disorders

I. Amputation Impairment (Other than Digits) =

II. Regional Impairment of Upper Extremity

(Combine Hand _____% + Wrist _____% + Elbow _____% + Shoulder _____%)

III. Peripheral Nervous System Impairment =

IV. Peripheral Vascular System Impairment =

V. Other Disorders (Not Included in Regional Impairment) =

---

Total Upper Extremity Impairment (Combine I + II + III + IV + V) =

Impairment of Whole Person (Use Table 3) =

---

If Both Limbs are Involved: Calculate Whole Person Impairment for Each Upper Extremity on Two Separate Charts and Combine Using Combined Values Chart

Revised: 2/2018
**Answer:**

**Thumb**
- Amputated at IP joint: AMA Guides Figure 7, p.19 = 50%
- Sensory: 0%
- ROM:
  - MP: AMA Guides Figure 13, p.22 = 3% flexion/1% extension, add to = 4% total
  - 50% (amputation) combined with 4%(ROM) = thumb impairment of 52%

**Index - Sensory**
- Determine digit length by using AMA Guides Figure 7, p.19 (PIP) = 80%
- Determine partial or total sensory loss from 2-point discrimination = partial loss radial nerve
- Use AMA Guides Table 8, p.25 to determine sensory loss = 12% sensory impairment

**Index - ROM**
- Determine ROM impairment (extension/flexion)
  - MP: AMA Guides Figure 23, p.28 = 0%
  - PIP: AMA Guides Figure 21, p.27 = 3%/6%, add to 9% total
  - DIP: AMA Guides Figure 19, p.26 = 2%/10%, add to 12% total
- **Combine** 9% with 12% = 20% total index ROM impairment

**Index - Sensory and ROM**
- Combine sensory (12%) with ROM (20%) = 30% index finger impairment

**Convert digit to hand to upper extremity impairment**
- **Convert** thumb (digit) rating to hand using AMA Guides Table 1, p.15-1st column
  - 52% digit impairment = 21% hand impairment
- **Convert** index finger rating to hand using AMA Guides Table 1, p.15 - 2nd column
  - 30% digit impairment = 6% hand impairment
- **Add** the hand impairments 21% and 6% for the final hand impairment = 27%
- **Convert** the hand impairment to upper extremity using AMA Guides Table 2, p.16:
  - 27% hand = 24% upper extremity rating

**Grip Strength:** should only be used when there is an additional objective injury that cannot be accounted for using ROM and amputation, and causes an impairment of ADLs. Values that are not within 20% of the other trials are not reliable and are not used.
<table>
<thead>
<tr>
<th>Trial #</th>
<th>#1</th>
<th>#2</th>
<th>#3</th>
<th>#4</th>
<th>#5</th>
</tr>
</thead>
<tbody>
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<td>90</td>
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<td>84</td>
<td>40</td>
</tr>
</tbody>
</table>

- Average strength right: 54
- Average strength left: 92

\[
\text{Strength Index} = \frac{\text{strength of the normal hand} - \text{strength of the abnormal hand}}{\text{strength of the normal hand}}
\]

- \(92 - 54 = \frac{.41}{92}\) Strength index
- Refer to AMA Guides Table 23, p.54 to determine the upper extremity strength impairment = 20%

**Total upper extremity impairment to whole person impairment**

- **Combine** 24% hand upper extremity impairment with 20% grip strength impairment = 39% total upper extremity impairment
- **Convert** upper extremity to whole person impairment using AMA Guides Table 3, p.16 = 23%

Revised: 2/2018
<table>
<thead>
<tr>
<th>Name</th>
<th>Case 1 - Answer</th>
<th>Age</th>
<th>Sex</th>
<th>M</th>
<th>F</th>
<th>Hand</th>
<th>R</th>
<th>L</th>
<th>Date</th>
</tr>
</thead>
</table>

**Abnormal Motion**

<table>
<thead>
<tr>
<th>Record Motion, Ankylosis and Impairment %</th>
<th>Amputation</th>
<th>Sensory Loss</th>
<th>Other Disorders</th>
<th>Hand Impairment %</th>
</tr>
</thead>
</table>

**Upper Extremity Impairment Evaluation Record – Part 1 (Hand)**

<table>
<thead>
<tr>
<th>SIDE</th>
<th>R</th>
<th>L</th>
<th>Dominant</th>
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</thead>
<tbody>
<tr>
<td>Name</td>
<td>Age</td>
<td>Sex</td>
<td>M</td>
</tr>
</tbody>
</table>

**Occupation**

**Diagnosis**

- Abnormal Motion
- Amputation
- Sensory Loss
- Other Disorders
- Digit Impairment %
- Combine Digit IMP%
- Convert to Hand IMP%

**Flexion Extension**

<table>
<thead>
<tr>
<th>IMP%</th>
</tr>
</thead>
</table>

- Abnormal Motion at IP

**Add Impairment %**

<table>
<thead>
<tr>
<th>IMP%</th>
</tr>
</thead>
</table>

**Combine Impairment %**

<table>
<thead>
<tr>
<th>IMP%</th>
</tr>
</thead>
</table>

**Hand Impairment %**

<table>
<thead>
<tr>
<th>IMP%</th>
</tr>
</thead>
</table>

**Total Hand impairment**

- (Add Hand Impairment % For Thumb + Index + Middle + Ring + Little Finger)

**Upper Extremity Impairment**

- (Convert Total Hand Impairment % To Upper Extremity Impairment %)

**Case 1 - Answer**

<table>
<thead>
<tr>
<th>IMP%</th>
</tr>
</thead>
</table>

**Revised: 2/2018**

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Upper Extremity Impairment Evaluation Record–Part 2 (Wrist, Elbow & Shoulder)

<table>
<thead>
<tr>
<th>Side</th>
<th>Name</th>
<th>Age</th>
<th>Sex</th>
<th>Occ</th>
<th>Diag</th>
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</thead>
<tbody>
<tr>
<td>L</td>
<td></td>
<td></td>
<td>M</td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Abnormal Motion</th>
<th>Other Disorders</th>
<th>Regional Impairment</th>
<th>Amputation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Record Motion, Ankylosis and Impairment %</td>
<td>List Type &amp; Combine [1] + [2]</td>
<td>Mark Level &amp; Impairment %</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wrist</th>
<th>Flexion</th>
<th>Extension</th>
<th>ANK</th>
<th>IMP%</th>
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</thead>
<tbody>
<tr>
<td>Angle°</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IMP%</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>RD</td>
<td>UD</td>
<td>ANK</td>
<td>IMP%</td>
<td></td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Elbow</th>
<th>Flexion</th>
<th>Extension</th>
<th>ANK</th>
<th>IMP%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angle°</td>
<td></td>
<td></td>
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<tr>
<td>IMP%</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>PRO</td>
<td>SUP</td>
<td>ANK</td>
<td>IMP%</td>
<td></td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Shoulder</th>
<th>Flexion</th>
<th>Extension</th>
<th>ANK</th>
<th>IMP%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angle°</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IMP%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADD</td>
<td>ABD</td>
<td>ANK</td>
<td>IMP%</td>
<td></td>
</tr>
</tbody>
</table>


I. Amputation Impairment (Other than Digits) =

II. Regional Impairment of Upper Extremity (Combine Hand _____% + Wrist _____% + Elbow _____% + Shoulder _____%)

III. Peripheral Nervous System Impairment =

IV. Peripheral Vascular System Impairment =

V. Other Disorders (Not Included in Regional Impairment) = Grip: 20

Total Upper Extremity Impairment (Combine I + II + III + IV + V) = Hand: 24 and Grip: 20=39

Impairment of Whole Person (Use Table 3) = 23

If Both Limbs are Involved: Calculate Whole Person Impairment for Each Upper Extremity on Two Separate Charts and Combine Using Combined Values Chart

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Workshop Case #2:

History:
A 54-year-old left-hand dominant female complains of a 2 year history of left forearm pain. She has been employed for 10 years by the Hart Toy Company. The patient intermittently suffered various hand complaints over the years including tingling, pain, and clumsiness. She has seen several physicians in the past for pain in the left forearm and left-hand weakness. The patient has experienced increasing pain over the past 2 years, but the symptoms rapidly worsened in the past 6 months. Her job requires picking up toys that weigh from 1-3 pounds with the left hand, gripping/pinching the object (2 pounds of force), while attaching parts with the right hand. She works on the “line” a minimum of 6 hours per day and finishes 3 toys per minute. The remainder of the day is spent on quality inspection.

Physical Examination:
- Palpation: marked tenderness at the left lateral epicondyle
- Special Tests:
  - (-) Tinel’s at elbow (ulnar nerve) or at pronator tunnel (median nerve)
  - (-) Tinel’s at wrist (median nerve)
  - (-) Phalen’s test
  - (+) Resisted wrist extension and middle finger extension provocative test
- ROM elbow: normal
- Sensation: normal

Diagnosis: left lateral epicondylitis

Clinical Course: Patient was given a tennis elbow wrap and removed from the “line.” A work site evaluation was ordered which resulted in ergonomic changes to the worksite (adjusting the height of the workspace to patient’s stature and decreasing the horizontal reach distance to the line.) Equipment was added that would keep the toy in place while the part was attached, so the employee did not have to hold the toy. A steroid injection was performed along with physical therapy including iontophoresis, stretching, strengthening exercises and ultrasound.

Overall the patient improved but the elbow remained problematic. The patient was able to now perform 3 hours of assembly work per day separated by quality inspections. She was permanently restricted from any heavy lifting or repetitive lifting of 5 pounds or more.
The patient was offered surgery for lateral epicondylitis but declined. Patient was then found to be at MMI.

**Present Symptoms:** No numbness or tingling in hand. Pain at the left lateral epicondyle that limits her ability to work. No sleep disturbances, minimal impact with ADLs.

**Physical Examination:**
- ROM: wnl
- Sensation: wnl in hand
- Strength:
  - Grip: normal
  - Abduction of digits: 5/5
  - Wrist extension: 4/5 - recreates lateral epicondyle pain
  - Forearm pronation: 5/5
- Palpation: tenderness at lateral epicondyle and extending into forearm for short distance

Revised: 2/2018
Using the Cumulative Trauma Staging Matrix and the Upper Extremity Worksheet provided, calculate an impairment rating.

### Cumulative Trauma Staging Matrix

<table>
<thead>
<tr>
<th></th>
<th>Stage 1 (Minimal)</th>
<th>Stage 2 (Mild)</th>
<th>Stage 3 (Moderate)</th>
<th>Stage 4 (Severe)</th>
</tr>
</thead>
<tbody>
<tr>
<td>History and Physical Examination</td>
<td>1 to 2 symptoms with signs identified on history and supported by physical examination with consistency of subjective and objective findings</td>
<td>2 or more symptoms with signs identified and supported by physical examination with consistency of subjective and objective findings</td>
<td>3 or more symptoms with signs identified and supported by the physical examination with consistency of subjective and objective findings</td>
<td>3 or more symptoms with signs identified and supported by physical examination with consistency of subjective and objective findings</td>
</tr>
<tr>
<td>Response to Modification of Specific Aggravating Factors</td>
<td>Symptoms and/or signs improve or resolve with modification of specific aggravating activity</td>
<td>Symptoms and/or signs may improve but will not resolve completely with modification of specific aggravating activity</td>
<td>Symptoms and/or signs do not improve with modification of the specific aggravating activity but may improve with elimination of the specific aggravating activity</td>
<td>Symptoms and/or signs do not improve with modification or elimination of the specific aggravating activity</td>
</tr>
<tr>
<td>Activities of Daily Living (ADLs)</td>
<td>Minimal problems with ADLs</td>
<td>Noticeable aggravation by more difficult ADLs</td>
<td>Significant interference with most ADLs</td>
<td>Severe limitations of ADLs</td>
</tr>
<tr>
<td>Impairment Grades at MMI</td>
<td>0-10%</td>
<td>11-20%</td>
<td>21-30%</td>
<td>31-40%</td>
</tr>
</tbody>
</table>
### Upper Extremity Impairment Evaluation Record–Part 2 (Wrist, Elbow & Shoulder)

<table>
<thead>
<tr>
<th>Abnormal Motion</th>
<th>Other Disorders</th>
<th>Regional Impairment</th>
<th>Amputation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Record Motion, Ankylosis and Impairment %</td>
<td>List Type &amp; Impairment %</td>
<td>Combine [1] + [2]</td>
<td>Mark Level &amp; Impairment %</td>
</tr>
<tr>
<td><strong>Wrist</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Angle°</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IMP%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RD</td>
<td>UD</td>
<td>ANK</td>
<td>IMP%</td>
</tr>
<tr>
<td><strong>Elbow</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Angle°</td>
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</tr>
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<tr>
<td><strong>Shoulder</strong></td>
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</tr>
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<td>Angle°</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IMP%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADD</td>
<td>ABD</td>
<td>ANK</td>
<td>IMP%</td>
</tr>
<tr>
<td>INT ROT</td>
<td>EXT ROT</td>
<td>ANK</td>
<td>IMP%</td>
</tr>
</tbody>
</table>

Add IMP% = F/E + RD/UD = [1] [2]

Add IMP% = F/E + PRO/SUP = [1] [2]

Add IMP% = F/E + ADD/ABD + IR/ER = [1] [2]

---

**I. Amputation Impairment (Other than Digits)**

**II. Regional Impairment of Upper Extremity**

(Combine Hand _____% + Wrist _____% + Elbow _____% + Shoulder _____%)

**III. Peripheral Nervous System Impairment**

**IV. Peripheral Vascular System Impairment**

**V. Other Disorders (Not Included in Regional Impairment)**

**Total Upper Extremity Impairment (Combine I + II + III + IV + V)**

**Impairment of Whole Person (Use Table 3)**

If Both Limbs are Involved: Calculate Whole Person Impairment for Each Upper Extremity on Two Separate Charts and Combine Using Combined Values Chart

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Answer:

Elbow ROM measurements = 0% impairment

The diagnosis of lateral epicondylitis falls into the Cumulative Trauma Medical Treatment Guidelines diagnosis tables, with patient experiencing tenderness at the lateral epicondyle and pain with wrist extension and middle finger extension resisted testing.

This patient falls into the CTC Guideline primary risk category under the Risk Definitions Table. She picks up toys that weigh from 1-3 pounds with the left hand, gripping/pinching the object (2 pounds of force), at a rate of 6 hours per day and finishes 3 toys per minute.

- Under the Cumulative Trauma Staging Matrix: The patient falls into Stage 1: (0-10%), with 10% chosen. (Minimal problems with ADLs, symptoms improved with modification of work activities, history and examination supports diagnosis)
- AMA Guides Table 17, p.48 is used to identify the value of the joint, in this case, the elbow is 70% upper extremity value
- 10% (Stage 1) x 70% (upper extremity value) = 7% upper extremity impairment rating
- Convert 7% upper extremity to whole person using AMA Guides Table 3, p. 16 = 4% whole person impairment
### Upper Extremity Impairment Evaluation Record—Part 2 (Wrist, Elbow & Shoulder)

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Diagnosis</th>
</tr>
</thead>
</table>

#### Abnormal Motion

<table>
<thead>
<tr>
<th>Wrist</th>
<th>Abnormal Motion</th>
<th>Other Disorders</th>
<th>Regional Impairment</th>
<th>Amputation</th>
</tr>
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<td></td>
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<td></td>
<td>Angle°</td>
<td>IMP%</td>
<td>Angle°</td>
<td>IMP%</td>
</tr>
<tr>
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<td>Flexion</td>
<td>Extension</td>
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<td>IMP%</td>
</tr>
<tr>
<td></td>
<td>RD</td>
<td>UD</td>
<td>ANK</td>
<td>IMP%</td>
</tr>
</tbody>
</table>

Add IMP% F/E + RD/UD = [1] IMP% = [2]

<table>
<thead>
<tr>
<th>Elbow</th>
<th>Abnormal Motion</th>
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<td>IMP%</td>
</tr>
<tr>
<td></td>
<td>Flexion</td>
<td>Extension</td>
<td>ANK</td>
<td>IMP%</td>
</tr>
</tbody>
</table>

Add IMP% F/E + PRO/SUP = [1] IMP% = 0 [2]

<table>
<thead>
<tr>
<th>Shoulder</th>
<th>Abnormal Motion</th>
<th>Other Disorders</th>
<th>Regional Impairment</th>
<th>Amputation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Angle°</td>
<td>IMP%</td>
<td>Angle°</td>
<td>IMP%</td>
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<tr>
<td></td>
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<tr>
<td></td>
<td>INT ROT</td>
<td>EXT ROT</td>
<td>ANK</td>
<td>IMP%</td>
</tr>
</tbody>
</table>

Add IMP% F/E + ADD/ABD + IR/ER = [1] IMP% = [2] IMP% 

### Regional Impairment of Upper Extremity

I. Amputation Impairment (Other than Digits) =

II. Regional Impairment of Upper Extremity

(Combine Hand _____ % + Wrist _____ % + Elbow _____ % + Shoulder _____ %)

III. Peripheral Nervous System Impairment =

IV. Peripheral Vascular System Impairment =

V. Other Disorders (Not Included in Regional Impairment) = CTC: 10% x 70% = 7

Total Upper Extremity Impairment (Combine I + II + III + IV + V) = 7

Impairment of Whole Person (Use Table 3) = 4

If Both Limbs are Involved: Calculate Whole Person Impairment for Each Upper Extremity on Two Separate Charts and Combine Using Combined Values Chart

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Worksheets:
Upper Extremity Worksheet - Part 1 (hand)
Upper Extremity Worksheet - Part 2 (wrist, elbow, shoulder) - needed for hand to convert to whole person
Apportionment Calculation Worksheet, if applicable
### Figure 1. Upper Extremity Impairment Evaluation Record—Part 1 (Hand)

**Abnormal Motion**

<table>
<thead>
<tr>
<th>Anomaly</th>
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**Amputation**

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</thead>
<tbody>
<tr>
<td><strong>Hand Impairment %</strong></td>
<td>• Combine Digit IMP%</td>
<td>• Convert to Hand IMP%</td>
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**Sensory Loss**

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<th>Other Disorders</th>
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</thead>
<tbody>
<tr>
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**Digit Impairment %**

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<th>Amputation</th>
<th>Sensory Loss</th>
<th>Other Disorders</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMP%</td>
<td>IMP%</td>
<td>IMP%</td>
<td>IMP%</td>
</tr>
</tbody>
</table>

**Combine Impairment %**

<table>
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<tr>
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<th>• Convert above</th>
</tr>
</thead>
<tbody>
<tr>
<td>MP+PIP+DIP=</td>
<td>IMP% = IMP% = IMP% =</td>
</tr>
</tbody>
</table>

**Total Hand Impairment**

| Use Table 1 (Digits to Hand); Combined Values Chart; **Use Table 2 (Hand To Upper Extremity) |
|--------|-----------------|
| **Upper Extremity Impairment** | Convert Total Hand Impairment % To Upper Extremity Impairment % |
### Upper Extremity Impairment Evaluation Record–Part 2 (Wrist, Elbow & Shoulder)

<table>
<thead>
<tr>
<th>Abnormal Motion</th>
<th>Other Disorders</th>
<th>Regional Impairment</th>
<th>Amputation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Record Motion, Ankylosis and Impairment %</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Wrist</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Angle°</td>
<td>IMP%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flexion</td>
<td>Extension</td>
<td>ANK</td>
<td>IMP%</td>
</tr>
<tr>
<td>RD</td>
<td>UD</td>
<td>ANK</td>
<td>IMP%</td>
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<tr>
<td>Elbow</td>
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<tr>
<td>Angle°</td>
<td>IMP%</td>
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<tr>
<td>Flexion</td>
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<td>ANK</td>
<td>IMP%</td>
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<tr>
<td>PRO</td>
<td>SUP</td>
<td>ANK</td>
<td>IMP%</td>
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<tr>
<td>Shoulder</td>
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<tr>
<td>Angle°</td>
<td>IMP%</td>
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<tr>
<td>Flexion</td>
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<tr>
<td>ADD</td>
<td>ABD</td>
<td>ANK</td>
<td>IMP%</td>
</tr>
<tr>
<td>INT ROT</td>
<td>EXT ROT</td>
<td>ANK</td>
<td>IMP%</td>
</tr>
</tbody>
</table>

Add IMP% F/E + RD/UD = [1] IMP% = [2]

Add IMP% F/E + PRO/SUP = [1] IMP% = [2]

Add IMP% F/E + ADD/ABD + IR/ER = [1] IMP% = [2]

I. Amputation Impairment (Other than Digits)

II. Regional Impairment of Upper Extremity
(Combine Hand _____% + Wrist _____% + Elbow _____% + Shoulder _____%)

III. Peripheral Nervous System Impairment

IV. Peripheral Vascular System Impairment

V. Other Disorders (Not Included in Regional Impairment)

Total Upper Extremity Impairment (Combine I + II + III + IV + V)

Impairment of Whole Person (Use Table 3)

If Both Limbs are Involved: Calculate Whole Person Impairment for Each Upper Extremity on Two Separate Charts and Combine Using Combined Values Chart

Revised: 2/2018
Apportionment Calculation Worksheet

Patient Name: ____________________________

Date of Injury: __________________________

**Step 1:** Is there medical documentation or objective evidence of a previous condition of the same body part which would qualify for a rating?

- [ ] No → Do NOT apportion
- [ ] Yes → Proceed to **Step 2**

**Step 2:** The date of the *current injury* is:

- [ ] Before July 1, 2008 → Apportion - proceed to **Step 4**
- [ ] After July 1, 2008 → Proceed to **Step 3**

**Step 3**

- [ ] The previous condition is *work related* → Apportion - proceed to **Step 4**
- [ ] The previous condition is *non-work related* and is *disabling* → Apportion - proceed to **Step 4**
- [ ] The previous condition is *non-work related* and is *NOT disabling* → No apportionment, provide a case specific impairment **rating (includes the current injury only) - refer to complete impairment report**

**Step 4:** Apportion by subtracting the previous impairment rating from the current total rating. The current total rating includes the previous condition and current condition. Preferably subtracting like from like, i.e. ROM from ROM

**Step 5:** Current apportioned rating:

<table>
<thead>
<tr>
<th>Spine</th>
<th>Current Total</th>
<th>Previous</th>
<th>Apportioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 53</td>
<td>%WP</td>
<td>%WP</td>
<td>%WP</td>
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<tr>
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<td>%WP</td>
<td>%WP</td>
<td>%WP</td>
</tr>
<tr>
<td>Nerve (Convert Extremity to WP)</td>
<td>% ext</td>
<td>% ext</td>
<td>% ext</td>
</tr>
<tr>
<td>Final Combined Apportioned Rating</td>
<td>% WP</td>
<td>% WP</td>
<td>% WP</td>
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</table>

<table>
<thead>
<tr>
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<th>Current Total</th>
<th>Previous</th>
<th>Apportioned</th>
</tr>
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<tr>
<td>ROM</td>
<td>% UE</td>
<td>% UE</td>
<td>% UE</td>
</tr>
<tr>
<td>Nerve</td>
<td>% UE</td>
<td>% UE</td>
<td>% UE</td>
</tr>
<tr>
<td>Other</td>
<td>% UE</td>
<td>% UE</td>
<td>% WP</td>
</tr>
<tr>
<td>Final Combined Apportioned Rating</td>
<td>% UE</td>
<td>% WP</td>
<td>% WP</td>
</tr>
</tbody>
</table>

Revised: 2/2018
**Lower Extremity**

"subtract like from like"

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<tr>
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<th>Current Total</th>
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<tr>
<td>ROM</td>
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<td></td>
<td>% LE</td>
</tr>
<tr>
<td>Nerve</td>
<td></td>
<td></td>
<td>% LE</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td>% LE</td>
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<tr>
<td><strong>Final Combined</strong></td>
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<td>% LE</td>
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<tr>
<td><strong>Apportioned Rating</strong></td>
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<td>% WP</td>
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</tbody>
</table>

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<th></th>
<th>Current Total</th>
<th>Previous</th>
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<td><strong>Final Combined</strong></td>
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<tr>
<td><strong>Apportioned Rating</strong></td>
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<td></td>
<td>% WP</td>
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</table>

* “Disabled” requires information that the prior injury was identified, treated and independently disabling at the time of the current injury. Disabled includes conditions which adversely impact the patient’s ability to perform their job (work restrictions), or limits the patient’s access to other jobs (permanent work restrictions)

** The case specific rating includes only the current work related diagnosis. If pre-injury ROM measurements are available, or the opposite pre-injury limb has no pathology, the ROM portion of the case specific rating may be individually adjusted or normalized accordingly, when appropriate.

**Example:**

The patient had a previous lumbar strain/sprain with Table 53 diagnostic rating of 5% and 5% ROM impairment. The current injury involves L4-5 disc herniation, unoperated. Current ROM rating is 10%. Remember for Table 53, Sections II, III and IV, the available sub values cannot be combined. These are sections are meant to be *progressive* values.

<table>
<thead>
<tr>
<th>Spine</th>
<th>Current Total</th>
<th>Previous</th>
<th>Apportioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 53</td>
<td>IIC (L4-5 herniated disc): 7%</td>
<td>IIB (sprain L1-3) 5%</td>
<td>2 % WP</td>
</tr>
<tr>
<td>ROM</td>
<td>10%</td>
<td>5%</td>
<td>5 % WP</td>
</tr>
<tr>
<td>Nerve (Convert Extremity to WP)</td>
<td>% ext</td>
<td>% ext</td>
<td>% ext</td>
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<tr>
<td><strong>Final Combined</strong></td>
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<tr>
<td><strong>Apportioned Rating</strong></td>
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Revised: 2/2018
Spine and Pelvis Impairment Ratings
AMA Guides, 3rd Edition, revised: Chapter 3 (p. 78)

Objectives:
1) Utilize Table 53 - Impairments Due to Specific Disorders of the Spine - to determine impairment for specific clinical diagnoses.
2) Demonstrate the ability to transfer information from the Spine Range of Motion Worksheets to the Spine Impairment Summary Worksheet (Figure 84).
3) Determine spinal nerve root impairment accurately using a specific case scenario.
4) Correctly determine pelvic impairment in a case scenario.

Summary/Steps for Determining Spinal Impairment Rating
1) Determine the primary injured region, i.e. Cervical, Thoracic, Lumbar
2) Determine diagnosis-related whole person impairment using Table 53 (p. 80) - only the primary diagnosis should be considered
   a) If they do not meet standards for a diagnosis as defined on Table 53, then no range of motion (ROM) impairment rating can be assigned.
3) Determine regional range of motion measurements, to obtain whole person impairment due to loss of motion/ankylosis
   a) Document measurements on the appropriate forms:
      i) Figure 81 (p. 82), Cervical ROM
      ii) Figure 82 (p. 83), Thoracic ROM
      iii) Figure 83 (p. 84), Lumbar ROM
      iv) Figure 84 (p.85), Spine Impairment Summary Worksheet
   b) Use mandatory internal validity checks and;
   c) For Lumbar ROM - straight leg raise validity check - refer to inclinometry section for details on ROM validity checks
4) Determine additional extremity impairments due to radiculopathy and convert these impairments to whole person.
5) Combine the diagnosis-related (Table 53), ROM/ankylosis-based whole person impairments and nerve impairments in whole person using the Combined Values Chart (p. 254). Document in Figure 84 (p. 85).
6) Repeat steps 1-5 for secondarily impaired spinal regions when appropriate.
7) Combine total whole person spine impairments for all involved spinal regions using the Combined Values Chart (p. 254).
8) Combine total spine whole person impairment with any other whole person impairment to arrive at a final whole person impairment.
9) If apportionment is appropriate, use the decision-making algorithm in the apportionment section. If the patient meets the standards for a pre-injury rating as defined in Table 53, but no pre-injury range of motion measurements was taken, complete the ROM apportionment worksheet.
Summary/Steps for Determining Pelvis Impairment Rating

1) Fractures of the pelvis are rated under Chapter 3 (page 101) with a whole person rating. Isolated SI joint dysfunction is rated using Table 53 and ROM.

References/Links: included at the end of this chapter
Cervical Range of Motion Worksheet: Figure 81
Thoracic Range of Motion Worksheet: Figure 82
Lumbar Range of Motion Worksheet: Figure 83
Spine Impairment Summary Worksheet: Figure 84
Range of Motion Spinal Apportionment Worksheet: Desk Aid #10
Medical Treatment Guidelines: Low Back Pain, Cervical Spine Disorder, Chronic Pain Disorder
Impairment Rating Tips
Apportionment Calculation Worksheet

Core Content: All impairment ratings are based on the established diagnosis and are directly correlated to the primary diagnosis. In this chapter, Table 53 (Impairments Due to Disorders of the Spine-page 80) and range of motion are used to determine spine impairment ratings. If neurological issues are present, they will also be included when calculating the final whole person spine impairment rating.

Spine Impairment General Principles: In a workers’ compensation case, a complete physical examination is expected, which is similar to general medical evaluations. The following are essential elements of the spine examination that should be included in the report:

- Inspection
- Palpation
- Range of Motion Testing - including measured active ROM straight leg raise for validity testing
- Sensation
- Muscle Strength
- Reflexes
- Provocative maneuvers to elicit radicular signs such as clinical straight leg raise for lumbar radicular symptoms.

Additional elements that must be reviewed and commented on include: chief complaint, history of present illness, past medical history, review of systems, family history and social history, psychometric testing when appropriate, functional activity level and
occupational activities. Because impairment is meant to represent the patient’s ability to perform activities of daily living, the functional status of the patient and return to work status should be discussed in the report.

The impairment rating must be performed when the patient does not have an acute illness or acute spasm as it should represent the patient as they function the majority of the time.

Use Table 53 (p.80) (Specific Disorders of the Spine) to determine if the patient qualifies for a spinal impairment. According to Table 53, the lowest level to qualify for impairment is 6 months of treatment for medically documented pain and rigidity. There is currently not an accepted definition for rigidity, thus the documented need for treatment over 6 months is the main criteria. On occasion treatment may not have continued up to six months, however; no further treatment is necessary despite new functional improvement. Only the primary diagnosis related to the work injury should be considered for rating on Table 53. Table 53 spine rating is in whole-person units.

Whenever 6 months of treatment of the spine has occurred and a Table 53 zero percent rating is assigned, the physician must provide justification for the zero percent rating, based on the lack of physiologic findings. The rating physician shall be aware that a zero percent rating in this circumstance implies that treatment was performed in the absence of medically documented pain and rigidity.

If a Table 53 rating is used, spinal range of motion must be completed and applied to the rating. Range of motion can only be applied if a Table 53 rating is above zero.

**Diagnosis of the Spine:** The medical record should clearly state the diagnoses being rated. Only the primary diagnosis in a given region can be considered for rating.

*For example*, if a patient sustained an L2 fracture, but had pain in the thoracic spine associated with the fracture, he should not receive ratings for the thoracic portions of the spine since the lumbar area was the site of the primary injury and the thoracic pain was secondary to the primary injury. On the other hand, if the patient fractured a cervical vertebrae and L2 then he would receive ratings for the cervical and the lumbar areas. In this case, an impairment rating may also be provided if justification is in the medical report.

Table 53 (p.80) gives ratings for fractures, intervertebral discs, soft tissue lesions, spondylolysis, and spondylolisthesis as well as spinal stenosis.

Table 54 (p.86) (Ankylosis Determined by Radiographic Methods) is rarely used in the workers’ compensation system. It cannot be used in addition to Table 53, but may be used instead of Table 53, if ankylosis is determined by radiography. Table 54 cannot be combined with range of motion.
Table 53 (p.80): As with all Tables in the Guides, it is important to note whether adding or combining is used to calculate impairment. Please be sure to read all Table footnotes as well.

I. Fractures
   - Vertebral body compression fractures - Should be combined if multiple levels are fractured.
   - Posterior element fractures - Should be combined if multiple levels are involved.
   - Dislocations - Should be combined if multiple levels are involved.

II. Intervertebral disc or other soft tissue lesions: choose the highest level of A-E
   A. Unoperated, with no residual signs or symptoms
   B. Unoperated, with medically documented injury and a minimum of six months of medically documented pain and rigidity with or without muscle spasm, associated with none to minimal degenerative changes on structural tests.
   C. Unoperated, with medically documented pain and rigidity with or without muscle spasm, associated with moderate to severe degenerative changes on structural tests; includes unoperated herniated nucleus pulposus with or without radiculopathy
   D. Surgically treated disc lesion with no residual signs or symptoms
   E. Surgically treated disc lesion with residual, medically documented pain and rigidity with or without muscle spasm
   F. Multiple levels, with or without operations and with or without residual signs or symptoms: add on to B-E
   G. Multiple operations with or without residual symptoms: add on to D or E
      1. Second operation
      2. Third or subsequent operation

III. Spondylolysis and spondylolisthesis, unoperated
   - Grades I and II - note requirements outlined in Table 53
   - Grades III and IV - note requirements outlined in Table 53

IV. Spinal stenosis, segmental instability, or spondylolisthesis, operated
   A. Single level operation without residual signs or symptoms: chose A or B
   B. Single operation with residual signs or symptoms
   C. Multiple levels, operated, with residual, medically documented pain and rigidity with or without muscle spasm: add on to A-B
   D. Multiple operations with residual, medically documented pain and rigidity with or without muscle spasm: add on to A-B
      1. Second operation
      2. Third or subsequent operation
Additional information on Spine Impairment from the Division’s Impairment Rating Tips:

- The following procedures are considered surgical and should be rated under Table 53 II (D) or II (E):
  - Intradiscal electrothermal annuloplasty (IDEA)
  - Coblation of the nucleus pulposus
  - Microdiscectomy
  - Permanent spinal stimulator placement requiring laminotomy vertebroplasty or kyphoplasty
  - Artificial disc replacement
- Procedures for removal of spinal hardware are rated under Table 53 II (G) 1 or 2
- Rhizotomy (Radiofrequency Medial Branch Neurotomy or RF Neurotomy)
  - Not considered a surgical procedure under Table 53
  - Two level bilateral or unilateral rhizotomy is rated using Table 53 II (C)
  - Three or four level rhizotomies receive a Table 53 II (C) plus II (F) for the additional level.
- The following procedures are NOT rated as surgical procedures using Table 53:
  - Diagnostic or therapeutic spinal injections
  - Intrathecal drug pumps
  - Removal of spinal stimulator not requiring laminotomy

Case Example: A construction worker suffered a herniated lumbar disc at work and has been treated beyond 6 months, without surgery. What Table 53 rating would you give him?
Answer: Table 53 II C

Range of Motion: Spine range of motion measurements are performed using the inclinometer method as described in the AMA Guides and will be reviewed in the inclinometer workshop. Utilize the appropriate worksheets below for documenting range of motion:

  i) Figure 81 (p. 82), Cervical ROM
  ii) Figure 82 (p. 83), Thoracic ROM
  iii) Figure 83 (p. 84), Lumbar ROM
  iv) Figure 84 (p.85), Spine Impairment Summary Worksheet
ROM Tables in the *AMA Guides*:

<table>
<thead>
<tr>
<th>Spine/motion</th>
<th>Table #</th>
<th>Page #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cervical Flexion/Extension</td>
<td>55</td>
<td>88</td>
</tr>
<tr>
<td>Cervical Lateral Flexion</td>
<td>56</td>
<td>90</td>
</tr>
<tr>
<td>Cervical Rotation</td>
<td>57</td>
<td>90</td>
</tr>
<tr>
<td>Thoracic Flexion/Extension</td>
<td>58</td>
<td>96</td>
</tr>
<tr>
<td>Thoracic Rotation</td>
<td>59</td>
<td>96</td>
</tr>
<tr>
<td>Lumbar Flexion/Extension</td>
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<td>98</td>
</tr>
<tr>
<td>Lumbar Lateral Flexion</td>
<td>61</td>
<td>98</td>
</tr>
</tbody>
</table>

Ankylosis measurements.
Ankylosis is defined as a complete absence of motion and an inability to achieve the neutral position of motion in a given plane. It is rarely present in spinal injuries.

**Internal Validity Criteria for Spinal ROM**

Internal validity must be determined for each spinal range of motion measurement. In order to determine internal validity, three consecutive measurements must fall within +/- 10% or 5 degrees of the median (middle) number. A maximum of six measurements can be taken per day. If the additional measurements are not valid, the patient must come back on a different day for repeat ROM measurements.

All spine worksheets include a section to document internal validity by marking “yes” or “no”.

*For example*: True lumbar flexion angle measurements of 24, 29, and 34 are valid.
If it is determined that all of the measurements obtained are non-physiological you do not have to provide impairment for ROM. However, all workers must have a total of two testing sessions before invalidity or non-physiologic performance can be determined.

A Table 53 rating greater than zero is required in order to provide an impairment for range of motion.

When testing ROM, it is encouraged to have the examinee stretch thoroughly before beginning measurements. The testing must be performed when the patient does not have an acute illness or acute spasm as it should represent the patient as they function the majority of the time.

**Straight Leg Raise (SLR) Validity Testing:** This will be explained in the Spinal Range of Motion/Inclinometer Workshop.

**Additional information on Spine Impairment Range of Motion from the Division’s Impairment Rating Tips**

- If severe shoulder pathology exists with treatment of the cervical musculature, an isolated cervical range of motion impairment may be allowed if well-justified.

- Angle of minimum kyphosis MUST be recorded on the thoracic ROM worksheet, in addition to the other measurements. The greater of the two impairments (thoracic flexion and angle of minimum kyphosis) is used in rating thoracic ROM. Refer to the inclinometry section for details.

**Neurological Findings Associated with Spine Impairment:** These findings are typically radicular and are usually provided in extremity units. See the Nervous System section for instructions for rating neurological impairments.

Convert all nervous system impairment ratings into whole person ratings before combining with Table 53 impairment and range of motion impairments.

- For Example: If the rating for an L5 nerve root impairment for both the sensory and motor components is 4%, convert the 4% lower extremity rating to whole person using Table 46 (p. 72) which equals 2% whole person.
  The nerve rating of 2% whole person can be combined with the total spine rating from Table 53 (diagnosis related rating) and ROM to determine the final whole person rating.
If a nerve root injury exists that affects extremity range of motion and motor strength do NOT rate both (unless they are independent processes) as this would be “double dipping.” i.e.: rating both ankle ROM restriction and motor strength of the ankle dorsiflexors due to a nerve root injury would be considered “double dipping.”

When both sensory and motor impairments are present, combine them at the extremity level using the Combined Values Chart (p.254).

Converting/Combining:

- Convert the total nerve specific extremity impairment to whole person using Table 3 (p. 16) for the upper extremity or Table 46 (p.72) for the lower extremity.
- Combine this value (Combined Values Chart, p. 254) with the related spinal whole person impairment rating for the final rating.

Note: When neurological ratings are present in two extremities you cannot combine the ratings at the extremity level. They must instead both be converted to whole person and then combined.

Case Example: A construction worker with a herniated lumbar disc suffered permanent sensation loss in the right L5 nerve root distribution. What are the steps required to rate the nerve?

Answer:
1) Rate the L5 nerve root sensation deficit using Tables 49 (p.76) and 10 (p.42)
2) The impairment rating will be in lower extremity terms. Convert to whole person using Table 46 (p.72)
3) Combine the rating with the Table 53 impairment and ROM impairment

Pelvis Impairment: Use Chapter 3 (page 101) to rate healed fractures with and without displacement, deformity, and residuals, which are given as a whole person rating.

Range of motion is not included when rating the pelvis using the chart on page 101.

Do not use this for SI joint dysfunction as these are rated with Table 53 and ROM.

Additional information for Pelvis Impairment from the Division’s Impairment Rating Tips (p.5): Rating for SI Joint Dysfunction: must qualify under the “six months of
medically documented pain and rigidity with or without muscle spasm” for a Table 53 II (B) impairment rating. Appropriate ROM impairment must be combined with this.

**Case Example:** An injured worker suffered a coccyx fracture when slipping and landing directly on her tailbone. She was eventually placed at MMI, but still had difficulty sitting for more than 15 minutes. The x-ray revealed nonunion of the coccyx. What rating would you give her?

**Answer:**

*According to the chart on page 101, #3 g: healed fracture with displacement or deformity and residuals, coccyx (nonunion or excision) = 5% impairment*

**Pitfalls**

Determine the total whole person impairment rating for each area of the spine and then combine the values of each area.

Figure 84 must be attached with spinal impairment worksheets for final rating.

**Exclusions/Omissions in the AMA Guides:** The following Tables or parts within the Tables are for information only and are not used to perform any ratings. It is preferable to cross them out to avoid confusion.

- Figure 92 (p.97): omit
- Table 56 and 57 (p.90): cross out “Degrees of Cervical Motion Lost and Retained”
- Table 58 and 59 (p.96): cross out “Degrees of Thoracic Motion Lost and Retained”
- Table 60 (p.98): cross out “Degrees of Lumbosacral Motion Lost and Retained” under the True Lumbar Extension From Neutral Position section
- Table 61 (p.98): cross out “Degrees of Lumbosacral Motion Lost and Retained”

**Workshop**

J.C. is a 39-year-old truck driver from Greeley, Colorado, sent to you by his attorney for an impairment rating. He complains of severe lower back pain and bilateral lower extremity weakness, all of which he relates to an industrial injury in 9

Revised: 2/2018
2012. At that time, he was en route from Chicago to Greeley when he stopped for coffee in Omaha. Upon leaving the truck stop, he decided to check the air pressure in two of his tires. As he leaned forward and applied the pressure gauge, he experienced a sudden sharp, stabbing pain in his lower back and “electric shocks” down the backs of both thighs and legs – all the way to his heels. He reported the incident to his employer who provided him a local orthopedic surgeon as one of the authorized provider choices.

Plain films demonstrate significant disc space narrowing at L₅-S₁ and a “vacuum disc” is present at the L₅-S₁ level. His physical examination reveals decreased bilateral foot plantar flexion at 4/5 against resistance and slightly decreased ankle jerks bilaterally at 1/4. Straight leg raise is positive bilaterally. The patient is started on a standard conservative management program. After 2 months off work he is no better. An MRI scan demonstrated very significant disc desiccation and a large midline HNP at the L₅-S₁ level with displacement of both S₁ nerve roots. The L₄-L₅ disc demonstrates mild desiccation and minimal concentric bulging with no nerve root compression. Electrodiagnostic studies are positive for a bilateral S₁ nerve root irritation. The patient undergoes an L₅ discectomy in early 2013 and then a repeat discectomy for recurrent herniation at the end of 2013. During 2014, he undergoes two courses of physical therapy and a Work Hardening Program. His former employer cannot accommodate his 40 lb. lifting restriction. He is being sent to you for an impairment rating.

The patient is completely cooperative with your evaluation today. He can stand erect with some pain at the lumbosacral junction, where there is also mid-line point tenderness. Some pain extends into the buttocks bilaterally. His range of motion study results are recorded on the ROM form. He has normal sensation in lower extremities but decreased bilateral foot plantar flexion at 4/5 against resistance. He has slightly decreased ankle jerks bilaterally at 1/4.

**QUESTIONS:**

1. Would you consider this patient’s condition stable and rateable, and therefore at MMI?

2. Assuming you believe that his condition is stable, what are the ratable components?
3. Calculate his ratable impairment
## Lumbar Range of Motion

<table>
<thead>
<tr>
<th>Movement</th>
<th>Description</th>
<th>Range</th>
<th>% Impairment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lumbar Flexion</td>
<td>T12 ROM</td>
<td>91</td>
<td>95</td>
</tr>
<tr>
<td></td>
<td>Sacral ROM</td>
<td>48</td>
<td>47</td>
</tr>
<tr>
<td></td>
<td>True lumbar flexion angle</td>
<td></td>
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<tr>
<td></td>
<td>±10% or 5°?</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Maximum true lumbar flexion angle</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>% impairment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lumbar Extension</td>
<td>T12 ROM</td>
<td>27</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>Sacral ROM</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>True lumbar extension angle</td>
<td></td>
<td></td>
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<td>±10% or 5°?</td>
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<tr>
<td></td>
<td>Maximum true lumbar extension angle</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>% impairment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Straight Leg Raising, Right</td>
<td>Right SLR</td>
<td>84</td>
<td>81</td>
</tr>
<tr>
<td></td>
<td>±10% or 5°?</td>
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<td>Maximum SLR Right</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Straight Leg Raising, Left</td>
<td>Left SLR</td>
<td>67</td>
<td>68</td>
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<td></td>
<td>±10% or 5°?</td>
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<td></td>
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<td></td>
<td>Maximum SLR Left</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lumbar Right Lateral Flexion</td>
<td>T12 ROM</td>
<td>35</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>Sacral ROM</td>
<td>15</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Lumbar right lat flexion angle</td>
<td></td>
<td></td>
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<td>±10% or 5°?</td>
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<td>Maximum lumbar right lat flexion angle</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>% Impairment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lumbar Left Lateral Flexion</td>
<td>T12 ROM</td>
<td>20</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>Sacral ROM</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Lumbar left lat flexion angle</td>
<td></td>
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<td>±10% or 5°?</td>
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<td></td>
<td>Maximum lumbar left lat flexion angle</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>% Impairment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lumbar Ankylosis in Lateral Flexion</td>
<td>Position</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>% Impairment</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total Lumbar Range of Motion Impairment**

*(add all ROM impairments if no ankylosis: use ankylosis impairment value if ankylosis is present)*

### Straight-Leg Raise (SLR) Validity Test for Lumbar Flexion

1. Max SLR Right ____________________________
   Max SLR Left ____________________________

2. Tightest SLR ____________________________  (Select smallest number from Step 1)

3. Sum of best sacral flexion and sacral extension measurements ____________________________  (Selected from above).
   Use Sacral ROM, NOT true lumbar flexion/extension angles.

4. Tightest SLR - (Sacral flexion + Sacral extension)
   (Step 2) ______ - (Step 3) ______ = ______

5. If the above (#4) is greater than 10 degrees, lumbar flexion is invalid

6. **For final invalidation**, claimant must have 2 sets of 3 measurements on 2 separate dates (total of 12).
   - See Level II Accreditation Curriculum (ROM of Spine) (Impairment Rating Tips)
   - DOWC Website: www.colorado.gov/cdle/dwc
Figure 84. Spine Impairment Summary

<table>
<thead>
<tr>
<th>Impairment</th>
<th>Cervical</th>
<th>Thoracic</th>
<th>Lumbar</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Due to Specific Disorders (Table 53 or Table 54)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Range of Motion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Neurologic System: Loss of Sensation With or Without Pain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loss of Strength</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Other—From Sec. 3.4 p. 101</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Regional Impairment Total (Combine impairments in each column using the combined values Chart p. 254)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Spine Impairment Total (Combine all regional totals using the Combined Values Chart)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Impairment(s) of other organ systems: for each impairment list condition, page number in Guides, and percentage of impairment.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impaired System</td>
<td>% Impairment</td>
<td>Guides</td>
<td>Page No.</td>
</tr>
<tr>
<td>a.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>c.</td>
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<td></td>
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<tr>
<td>d.</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Impairment of Whole Person—use Combined Values Chart to combine spine impairment with the impairment(s) listed in 7 above. If several impairments are listed, combine spine impairment with the larger or largest value, then combine the resulting percentage with any other value(s), until all the listed impairments have been accounted for.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total whole person impairment:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Answers:
1. Yes, patient is stable and at MMI
2. The ratable components are Table 53 diagnostic impairment rating for the surgically treated L5 disc and second surgery, ROM deficits and S1 motor nerve rating.
3. Diagnosis:
   - Table 53 II (E) 10% and second surgery of the same disc (G) =2%, overall 12% rating
   - ROM: 7%
   - Nerve impairment: S1 motor
     - Table 49 (p.76) S1 nerve root: 20%
     - Table 11 (p.42) Grade 2: 1-25% and chose 25%
     - 20% x 25% = 5% LE impairment
     - Convert 5% LE to whole person using Table 46 (p.72) = 2%
     - Right LE 2% whole person combined with Left LE 2% whole person = 4% overall nerve impairment rating
   
   Overall impairment: Combine 12% (Table 53 diagnosis rating), 7% (Range of motion rating) and 4% (nerve impairment whole person rating) using the Combined Values Chart (p.254) = 21% impairment

*The additional level noted as disc desiccation in the history is not given a rating under Table 53 II (F) as radiologic findings not clearly associated with pathology are not rated per Impairment Rating Tips (p.5.)

Worksheets
Cervical Range of Motion Worksheet: Figure 81
Thoracic Range of Motion Worksheet: Figure 82
Lumbar Range of Motion Worksheet: Figure 83
Spine Impairment Summary Worksheet: Figure 84
Range of Motion Spinal Apportionment Worksheet: Desk Aid #10
Apportionment Calculation Worksheet

Revised: 2/2018
### Figure 83. Lumbar Range of Motion

<table>
<thead>
<tr>
<th>Movement</th>
<th>Description</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lumbar Flexion</td>
<td>T12 ROM</td>
<td>91</td>
</tr>
<tr>
<td>Sacral ROM</td>
<td>95</td>
<td></td>
</tr>
<tr>
<td>True lumbar flexion angle</td>
<td>94</td>
<td></td>
</tr>
<tr>
<td>±10% or 5°?</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>Maximum true lumbar flexion angle % impairment</td>
<td>47</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes No</td>
<td></td>
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<td>43</td>
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<tr>
<td></td>
<td>49</td>
<td></td>
</tr>
<tr>
<td>Lumbar Extension</td>
<td>T12 ROM</td>
<td>27</td>
</tr>
<tr>
<td>Sacral ROM</td>
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<td></td>
</tr>
<tr>
<td>True lumbar extension angle</td>
<td>29</td>
<td></td>
</tr>
<tr>
<td>±10% or 5°?</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Maximum true lumbar extension angle % impairment</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes No</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10</td>
<td></td>
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<tr>
<td></td>
<td>20</td>
<td></td>
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<tr>
<td></td>
<td>19</td>
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<tr>
<td>Straight Leg Raising, Right</td>
<td>Right SLR</td>
<td>84</td>
</tr>
<tr>
<td></td>
<td>81</td>
<td></td>
</tr>
<tr>
<td></td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>±10% or 5°?</td>
<td>Yes No</td>
<td></td>
</tr>
<tr>
<td>Maximum SLR Right</td>
<td>84</td>
<td></td>
</tr>
<tr>
<td>Straight Leg Raising, Left</td>
<td>Left SLR</td>
<td>67</td>
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<td>68</td>
<td></td>
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<tr>
<td></td>
<td>67</td>
<td></td>
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<tr>
<td>±10% or 5°?</td>
<td>Yes No</td>
<td></td>
</tr>
<tr>
<td>Maximum SLR Left</td>
<td>68</td>
<td></td>
</tr>
<tr>
<td>Lumbar Right Lateral Flexion</td>
<td>T12 ROM</td>
<td>35</td>
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<tr>
<td>Sacral ROM</td>
<td>37</td>
<td></td>
</tr>
<tr>
<td>Lumbar right lat flexion angle</td>
<td>35</td>
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</tr>
<tr>
<td>±10% or 5°?</td>
<td>15</td>
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<tr>
<td>Maximum lumbar right lat flexion angle % impairment</td>
<td>17</td>
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<tr>
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<tr>
<td>Lumbar Left Lateral Flexion</td>
<td>T12 ROM</td>
<td>20</td>
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<tr>
<td>Sacral ROM</td>
<td>22</td>
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<tr>
<td>Lumbar left lat flexion angle</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>±10% or 5°?</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Maximum lumbar left lat flexion angle % impairment</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes No</td>
<td></td>
</tr>
<tr>
<td>Lumbar Ankylosis in Lateral Flexion</td>
<td>Position</td>
<td>(Excludes any impairment for abnormal flexion/extension motion)</td>
</tr>
<tr>
<td></td>
<td>% Impairment</td>
<td></td>
</tr>
</tbody>
</table>

Total Lumbar Range of Motion Impairment

(add all ROM impairments if no ankylosis: use ankylosis impairment value if ankylosis is present)

---

**Straight-Leg Raise (SLR) Validity Test for Lumbar Flexion**

1. Max SLR Right \[84\]
   Max SLR Left \[68\]

2. Tightest SLR \[68\] (Select smallest number from Step 1)

3. Sum of best sacral flexion and sacral extension measurements \[48+10=58\] (Selected from above).
   Use Sacral ROM, NOT true lumbar flexion/extension angles.

4. Tightest SLR - (Sacral flexion + Sacral extension)
   \[68 \text{ (Step 2)} - (68 \text{ (Step 3)} ) = 10(\text{valid})\]

5. If the above (#4) is greater than 10 degrees, lumbar flexion is invalid

6. **For final invalidation**, claimant must have 2 sets of 3 measurements on 2 separate dates (total of 12).
   - See Level II Accreditation Curriculum (ROM of Spine) (Impairment Rating Tips)
   - DOWC Website: [www.colorado.gov/cdle/dwc](http://www.colorado.gov/cdle/dwc)
## Figure 84. Spine Impairment Summary

<table>
<thead>
<tr>
<th>Impairment</th>
<th>Cervical</th>
<th>Thoracic</th>
<th>Lumbar</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Due to Specific Disorders (Table 53 or Table 54)</td>
<td></td>
<td></td>
<td>12%</td>
</tr>
<tr>
<td><strong>Table 53 II E, G</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Range of Motion</td>
<td></td>
<td></td>
<td>7%</td>
</tr>
<tr>
<td>3. Neurologic System: Loss of Sensation With or Without Pain</td>
<td></td>
<td></td>
<td>4%</td>
</tr>
<tr>
<td>25% x 20% = 5% LE, 2% WP  Loss of Strength</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Other–From Sec. 3.4 p. 101</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Regional Impairment Total (Combine impairments in each column using the combined values Chart p. 254)</td>
<td></td>
<td></td>
<td>21%</td>
</tr>
<tr>
<td>6. Spine Impairment Total (Combine all regional totals using the Combined Values Chart)</td>
<td></td>
<td></td>
<td>21%</td>
</tr>
<tr>
<td>7. Impairment(s) of other organ systems: for each impairment list condition, page number in <em>Guides</em>, and percentage of impairment.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impaired System</td>
<td>% Impairment</td>
<td>Guides Page No.</td>
<td></td>
</tr>
<tr>
<td>a.</td>
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<td>b.</td>
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<td>c.</td>
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<tr>
<td>d.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>8. Impairment of Whole Person–use Combined Values Chart to combine spine impairment with the impairment(s) listed in 7 above. If several impairments are listed, combine spine impairment with the larger or largest value, then combine the resulting percentage with any other value(s), until all the listed impairments have been accounted for.</td>
<td></td>
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</tr>
<tr>
<td>Total whole person impairment: 21%</td>
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</tr>
<tr>
<td>Movement</td>
<td>Description</td>
<td>Range</td>
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<tr>
<td>----------------------------------</td>
<td>---------------------------</td>
<td>----------------</td>
<td></td>
</tr>
<tr>
<td>Cervical Flexion</td>
<td>Occipital ROM</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>T1 ROM</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cervical flexion angle</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>±10% or 5°?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum cervical flexion angle</td>
<td>Yes  No</td>
<td></td>
</tr>
<tr>
<td>Cervical Extension</td>
<td>Occipital ROM</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>T1 ROM</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Cervical flexion angle</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>±10% or 5°?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum cervical extension angle</td>
<td>Yes  No</td>
<td></td>
</tr>
<tr>
<td>Cervical Ankylosis in Flexion/Extension</td>
<td>Position</td>
<td>% Impairment</td>
<td>(Excludes any impairment for abnormal flexion/extension motion)</td>
</tr>
<tr>
<td>Cervical Right Lateral Flexion</td>
<td>Occipital ROM</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>T1 ROM</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Cervical flexion angle</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>±10% or 5°?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum cervical right lat flexion angle</td>
<td>Yes  No</td>
<td></td>
</tr>
<tr>
<td>Cervical Left Lateral Flexion</td>
<td>Occipital ROM</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>T1 ROM</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cervical flexion angle</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>±10% or 5°?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum cervical left lat flexion angle</td>
<td>Yes  No</td>
<td></td>
</tr>
<tr>
<td>Cervical Ankylosis in Lateral Flexion</td>
<td>Position</td>
<td>% Impairment</td>
<td>(Excludes any impairment for abnormal flexion/extension motion)</td>
</tr>
<tr>
<td>Cervical Right Rotation</td>
<td>Cervical right rotation angle</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>±10% or 5°?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum cervical right rotation angle</td>
<td>Yes  No</td>
<td></td>
</tr>
<tr>
<td>Cervical Left Rotation</td>
<td>Cervical left rotation angle</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>±10% or 5°?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum cervical left rotation angle</td>
<td>Yes  No</td>
<td></td>
</tr>
<tr>
<td>Cervical Ankylosis in Rotation</td>
<td>Position</td>
<td>% Impairment</td>
<td>(Excludes any impairment for abnormal flexion/extension motion)</td>
</tr>
<tr>
<td>Total Cervical Range of Motion Impairment</td>
<td>(add all ROM impairments if no ankylosis; use largest ankylosis impairment value if ankylosis is present)</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>Movement</td>
<td>Description</td>
<td>Range</td>
<td></td>
</tr>
<tr>
<td>----------</td>
<td>-------------</td>
<td>-------</td>
<td></td>
</tr>
<tr>
<td>Angle of Minimum Kyphosis (Thoracic Ankylosis in Extension)</td>
<td>T1 reading</td>
<td>xxxx</td>
<td>xxxx</td>
</tr>
<tr>
<td></td>
<td>T12 reading</td>
<td>xxxx</td>
<td>xxxx</td>
</tr>
<tr>
<td></td>
<td>Angle of minimum kyphosis</td>
<td>xxxx</td>
<td>xxxx</td>
</tr>
<tr>
<td></td>
<td>% Impairment due to thoracic ankylosis</td>
<td>% Impairment</td>
<td></td>
</tr>
<tr>
<td>Thoracic Flexion</td>
<td>T1 ROM</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>T12 ROM</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Thoracic flexion angle</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>±10% or 5°?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Maximum thoracic flexion angle</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>% Impairment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thoracic Right Rotation</td>
<td>T1 ROM</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>T12 ROM</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Thoracic right rotation angle</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>±10% or 5°?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Maximum thoracic right rotation angle</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>% Impairment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thoracic Left Rotation</td>
<td>T1 ROM</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>T12 ROM</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Thoracic left rotation angle</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>±10% or 5°?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Maximum thoracic left rotation angle</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>% Impairment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thoracic Ankylosis in Rotation Position</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>% Impairment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Thoracic Range of Motion Impairment</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>
### Movement Description Range

<table>
<thead>
<tr>
<th>Movement</th>
<th>Description</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lumbar Flexion</strong></td>
<td>T12 ROM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sacral ROM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>True lumbar flexion angle</td>
<td></td>
</tr>
<tr>
<td></td>
<td>±10% or 5°?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum true lumbar flexion angle</td>
<td></td>
</tr>
<tr>
<td></td>
<td>% impairment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

| **Lumbar Extension**      | T12 ROM             |       |
|                           | Sacral ROM          |       |
|                           | True lumbar extension angle |       |
|                           | ±10% or 5°?         |       |
|                           | Maximum true lumbar extension angle |       |
|                           | % impairment        |       |
|                           | Yes                 | No    | (add Sacral flexion and extension ROM and compare to tightest Straight Leg Raising Angle)

| **Straight Leg Raising, Right** | Right SLR          |       |
|                                | ±10% or 5°?        |       |
|                                | Maximum SLR Right  |       |
|                                | Yes                 | No    | (if tightest SLR ROM exceeds sum of Sacral flexion and extension by more than 10°, Lumbar ROM test is invalid)

| **Straight Leg Raising, Left** | Left SLR           |       |
|                                | ±10% or 5°?        |       |
|                                | Maximum SLR Left   |       |
|                                | Yes                 | No    | (if tightest SLR ROM exceeds sum of Sacral flexion and extension by more than 10°, Lumbar ROM test is invalid)

| **Lumbar Right Lateral Flexion** | T12 ROM             |       |
|                                  | Sacral ROM          |       |
|                                  | Lumbar right lat flexion angle |       |
|                                  | ±10% or 5°?         |       |
|                                  | Maximum lumbar right lat flexion angle |       |
|                                  | Yes                 | No    |

| **Lumbar Left Lateral Flexion** | T12 ROM             |       |
|                                | Sacral ROM          |       |
|                                | Lumbar left lat flexion angle |       |
|                                | ±10% or 5°?         |       |
|                                | Maximum lumbar left lat flexion angle |       |
|                                | Yes                 | No    |

| **Lumbar Ankylosis in Lateral Flexion** | Position |       |
|                                         | % Impairment |       |
|                                         |             |       |

### Straight-Leg Raise (SLR) Validity Test for Lumbar Flexion

1. Max SLR Right _____________________________
   Max SLR Left _____________________________ (Select smallest number from Step 1)

2. Tightest SLR ______________________________ (Select smallest number from Step 1)

3. Sum of best **sacral** flexion and **sacral** extension measurements __________________________ (Selected from above).
   Use Sacral ROM, NOT true lumbar flexion/extension angles.

4. Tightest SLR - (Sacral flexion + Sacral extension) (Step 2) ______ - (Step 3) ______ = __________

5. If the above (#4) is greater than 10 degrees, lumbar flexion is invalid

6. **For final invalidation**, claimant must have 2 sets of 3 measurements on 2 separate dates (total of 12).
   - See Level II Accreditation Curriculum (ROM of Spine) (Impairment Rating Tips)
   - DOWC Website: www.colorado.gov/cdle/dwc

---

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## Figure 84. Spine Impairment Summary

<table>
<thead>
<tr>
<th>Impairment</th>
<th>Cervical</th>
<th>Thoracic</th>
<th>Lumbar</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Due to Specific Disorders (Table 53 or Table 54)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Range of Motion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Neurologic System: Loss of Sensation With or Without Pain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loss of Strength</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Other–From Sec. 3.4 p. 101</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Regional Impairment Total (Combine impairments in each column using</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>the combined values Chart p. 254</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Spine Impairment Total (Combine all regional totals using the</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Combined Values Chart)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Impairment(s) of other organ systems: for each impairment list</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>condition, page number in <em>Guides</em>, and percentage of impairment.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impaired System</td>
<td>% Impairment</td>
<td>Guides</td>
<td>Page No.</td>
</tr>
<tr>
<td>a.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Impairment of Whole Person–use Combined Values Chart to combine spine</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>impairment with the impairment(s) listed in 7 above. If several impairments</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>are listed, combine spine impairment with the larger or largest value,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>then combine the resulting percentage with any other value(s), until all</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>the listed impairments have been accounted for.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total whole person impairment:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Figure 84. Spine Impairment Summary

<table>
<thead>
<tr>
<th>Impairment</th>
<th>Current</th>
<th>Prior</th>
<th>Apportioned</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cervical</td>
<td>Thoracic</td>
<td>Lumbar</td>
</tr>
<tr>
<td>1. Due to Specific Disorders (Table 53 or Table 54)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Range of Motion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Neurologic System: Loss of Sensation With or Without Pain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loss of Strength</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Other–From Sec. 3.4 p. 101</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Regional Impairment Total (Combine impairments in each column using the combined values Chart p. 254)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Spine Impairment Total (Combine all regional totals using the Combined Values Chart)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Impairment(s) of other organ systems: for each impairment list condition, page number in <em>Guides</em>, and percentage of impairment.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impaired System</td>
<td>Guides</td>
<td>Current Impairment</td>
<td></td>
</tr>
<tr>
<td>a.</td>
<td>Page No.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Impairment of Whole Person–use Combined Values Chart to combine spine impairment with the impairment(s) listed in 7 above. If several impairments are listed, combine spine impairment with the larger or largest value, then combine the resulting percentage with any other value(s), until all the listed impairments have been accounted for.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total whole person impairment:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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APPORTIONMENT OF SPINAL CONDITIONS / INJURIES

INSTRUCTIONS:

1. Each spinal area is rated separately: cervical, thoracic and lumbar. For example, a previous injury to the cervical spine cannot be used to justify apportionment on a current thoracic spine injury.

2. For injuries that occurred on or after July 1, 2008: If you determine that the previous injury is (1) non-work-related, and (2) was not independently disabling at the time of the current injury, do not continue with this process.

3. The physician must determine whether there is objective evidence to support a pre-injury Table 53 rating. The six-month time period required in Table 53 can be met by cumulative or consecutive episodes. If a pre-injury Table 53 rating can be supported, it must be subtracted from the current Table 53 rating. Remember that the current TOTAL rating cannot be less than the previous rating.

4. If the patient has pre-injury spinal range of motion measurements taken consistent with the AMA Guides 3rd edition (revised), the impairment from those measurements should be subtracted from the ROM impairment calculated for the current spinal injury.

5. If no pre-injury range of motion measurements exist and the patient has a pre-injury condition of diskectomy, fusion, fracture, spinal stenosis, spondylolysis, spondylolistheses, or chronic pain with medically documented injury and a minimum of six months medically documented pain and rigidity with or without muscle spasm, then the ROM category may be evaluated for apportionment.

   a. To apportion ROM, the physician uses clinical judgment, history and physical exam findings, and other objective evidence to choose the severity category (none, mild, moderate or severe) that best represents the preinjury state of the patient. The total number in each severity category on the Severity Index worksheet (Table A) can be used as a guide to help determine the appropriate severity category. In many cases all of the information in Table A may not be available. In that case, indicate the information that is missing on Table A and determine the severity category from the available information.

   b. Each severity category has a range of percentage associated with it (Table B). After you have determined the appropriate severity category use Table B to determine the available percentage for that category that you believe best represents the patient.

   c. Multiply the percentage for the severity category from Table B times the maximum available apportionable percentage for ROM for the patient’s previous diagnosis found in Table C. Round 0.5% or higher up and less than 0.5% down. See Table D.

   d. Subtract the apportionable ROM percentage from the total ROM percentage calculated for the current impairment.
## Worksheet for Range of Motion Spinal Apportionment

| Patient: _____________________________ | Patient WC#: ______________________ |
| Date of Injury: ______________________ | Carrier #: __________________________ |
| Physician: ___________________________ | Patient Record #: ___________________ |

### TABLE A

**Severity Index Worksheet for Evaluation of Range of Motion Deficit from a Previous Spinal Injury**

<table>
<thead>
<tr>
<th>Severity:</th>
<th>(None)</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
<th>N/A²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restriction in activity (work and activities of daily living) caused by previous spinal injury</td>
<td>Full Activity (no restrictions)</td>
<td>Temporary episode-related restriction</td>
<td>Some permanent restriction</td>
<td>Limited to sedentary activities</td>
<td></td>
</tr>
<tr>
<td>Number of episodes within the year prior to the current injury causing functional disability</td>
<td>0</td>
<td>1</td>
<td>2 - 3</td>
<td>&gt;3</td>
<td></td>
</tr>
<tr>
<td>Time lost from work in last 12 months due to the previous injury</td>
<td>0</td>
<td>1-2 days</td>
<td>3-5 days</td>
<td>&gt;5 days</td>
<td></td>
</tr>
<tr>
<td>Medical visits (MD, DO, DC) in the last 12 months due to the previous injury</td>
<td>None</td>
<td>1-2 visits</td>
<td>3-6 visits</td>
<td>&gt;6 visits</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>(NONE)</td>
<td>(MILD)</td>
<td>(MODERATE)</td>
<td>(SEVERE)</td>
<td>N/A</td>
</tr>
</tbody>
</table>

1 This table only applies when the injury occurred in the same spinal area—cervical, thoracic or lumbar—as the work-related injury being rated.

2 Frequently, detailed information on a specific category may not be available. If that is the case, check this column.

DK 10 Rev. 10/08
Revised: 2/2018
**TABLE B**

Severity Category Ranges

<table>
<thead>
<tr>
<th>Range of motion apportionment for previous injury</th>
<th>None</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
<th>Patient’s %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0%</td>
<td>1 – 33%</td>
<td>34 - 66%</td>
<td>67 – 100%</td>
<td></td>
</tr>
</tbody>
</table>

**TABLE C**

Maximum Allowable Spinal Deficits for Range of Motion Apportionment of Prior Injuries

<table>
<thead>
<tr>
<th>Medical Condition (using Table 53 p. 80 as a reference)</th>
<th>Cervical</th>
<th>Thoracic</th>
<th>Lumbar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spinal Fusion(^1)</td>
<td>14%</td>
<td>4%</td>
<td>12%</td>
</tr>
<tr>
<td>Other surgically-treated disc lesions(^2)</td>
<td>6%</td>
<td>2%</td>
<td>5%</td>
</tr>
<tr>
<td>Other disorders rated under Table 53(^3)</td>
<td>3%</td>
<td>1%</td>
<td>3%</td>
</tr>
</tbody>
</table>

\(^1\) For one-level fusion, complete severity category rating (Table B) as directed. For a two or multi-level fusion, use the full 14%, 4% or 12% (as appropriate to the spinal region).

\(^2\) If diskectomy is done in conjunction with fusion, use fusion value on the table.

\(^3\) This includes all other Table 53 ratings including diagnosis for fracture, spinal stenosis, spondylolysis, spondylolistheses, or chronic pain with medically documented injury and a minimum of six months medically documented pain and rigidity with or without muscle spasm.
TABLE D

Calculation of Apportionable ROM

<table>
<thead>
<tr>
<th>Patient’s Percentage from Table B</th>
<th>% x WP Apportionable Percentage from Table C</th>
<th>% = % ROM impairment due to previous injury</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Pre-apportionment ROM Impairment % - % ROM due to previous injury
= % ROM WP Impairment after apportionment*  

*Round 0.5% up to the next whole number, less than 0.5% down to the nearest whole number.

Physician Signature: ___________________________ Date: ________________
Apportionment Calculation Worksheet

Patient Name: __________________________

Date of Injury: __________________________

**Step 1:** Is there medical documentation or objective evidence of a previous condition of the same body part which would qualify for a rating?

- No → Do NOT apportion
- Yes → Proceed to **Step 2**

**Step 2:** The date of the *current injury* is:

- Before July 1, 2008 → Apportion - proceed to **Step 4**
- After July 1, 2008 → Proceed to **Step 3**

**Step 3**

- The previous condition is *work related* → Apportion - proceed to **Step 4**
- The previous condition is *non-work related* and is *disabling* → Apportion - proceed to **Step 4**
- The previous condition is *non-work related and is NOT disabling* → No apportionment, provide a case specific impairment **rating (includes the current injury only) - refer to complete impairment report**

**Step 4:** Apportion by subtracting the previous impairment rating from the current total rating. The current total rating includes the previous condition and current condition. Preferably subtracting like from like, i.e. ROM from ROM

**Step 5:** Current apportioned rating:

<table>
<thead>
<tr>
<th>Body Part</th>
<th>Current Total</th>
<th>Previous</th>
<th>Apportioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spine</td>
<td></td>
<td></td>
<td>% WP</td>
</tr>
<tr>
<td>UE</td>
<td></td>
<td></td>
<td>% UE</td>
</tr>
<tr>
<td>LE</td>
<td></td>
<td></td>
<td>% LE</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td>% WP</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td>% UE/LE</td>
</tr>
</tbody>
</table>

* “Disabled” requires information that the prior injury was identified, treated and independently disabling at the time of the current injury. Disabled includes conditions which adversely impact the patient’s ability to perform their job (work restrictions), or limits the patient’s access to other jobs (permanent work restrictions)

** The case specific rating includes only the current work related diagnosis. If pre-injury ROM measurements are available, or the opposite pre-injury limb has no pathology, the ROM portion of the case specific rating may be individually adjusted or normalized accordingly, when appropriate.
**Sample Apportionment Calculations:**

Calculate (subtract) values across rows horizontally, **combine** values in the columns vertically.

Patient had a previous meniscus tear with a 5% impairment rating and ROM impairment of 2%. The current injury includes meniscus surgery (10% rating), ACL repair (10% rating), and ROM (7% rating).

<table>
<thead>
<tr>
<th>Body Part</th>
<th>Current Total</th>
<th>Previous</th>
<th>Apportioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spine</td>
<td></td>
<td></td>
<td>% WP</td>
</tr>
<tr>
<td>UE</td>
<td></td>
<td></td>
<td>% UE</td>
</tr>
<tr>
<td>LE Knee</td>
<td>1. Table 40.2 (meniscus tear) = 10%</td>
<td>1. 5%</td>
<td>1. 5</td>
</tr>
<tr>
<td></td>
<td>2. Table 40.6 (ACL tear and rep.) = 10%</td>
<td>2. 0%</td>
<td>2. 10 % LE</td>
</tr>
<tr>
<td></td>
<td>3. ROM = 7%</td>
<td>3. 4%</td>
<td>3. 3</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td>% WP</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>Combined Total = 25% (includes previous injury)</td>
<td>9%</td>
<td>18 % UE/LE  7 % WP</td>
</tr>
</tbody>
</table>

The patient had a previous L1-3 lumbar strain/sprain with Table 53 diagnostic rating of 5% and 5% ROM impairment. The current injury involves L4-5 disc herniation, unoperated, with the addition of a new level from the previous injury (7% + 1%). Current ROM rating is 10%.

<table>
<thead>
<tr>
<th>Body Part</th>
<th>Current Total</th>
<th>Previous</th>
<th>Apportioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spine</td>
<td>1. Table 53 (disc herniation at new level L4-5): current total is highest in Table 53 II level: II C + II F= 7%+1%= 8%</td>
<td>1. Table 53 II B (sprain: spine levels L1-L3) = 5%</td>
<td>1. 3% % WP</td>
</tr>
<tr>
<td></td>
<td>2. ROM = 10%</td>
<td>2. ROM Previously documented = 5%</td>
<td>2. 5%</td>
</tr>
<tr>
<td>UE</td>
<td></td>
<td></td>
<td>% UE</td>
</tr>
<tr>
<td>LE</td>
<td></td>
<td></td>
<td>% LE</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td>% WP</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>Combined Total = 17% (includes previous injury)</td>
<td>10%</td>
<td>% UE/LE 8 % WP</td>
</tr>
</tbody>
</table>

Revised: 2/2018
Measuring Spinal Range of Motion with Inclinometers
AMA Guides, 3rd Edition, revised, Chapter 3 (p.81-101)

Objectives:
1) Perform spine range of motion for cervical, lumbar and thoracic spines in accordance with the AMA Guides to Permanent Impairment, 3rd edition, revised.
2) Determine if spine range of motion measurements are valid.
3) Utilize the appropriate tables of the AMA Guides to determine the range of motion impairment.

References/Links
Cervical Range of Motion Worksheet
Thoracic Range of Motion Worksheet
Lumbar Range of Motion Worksheet
Spine Impairment Summary Worksheet
Impairment Rating Tips

Core Content
Evaluation of spine impairment involves diagnosis-related factors, such as structural abnormalities (refer to Spine and Pelvis Impairments), as well as musculoskeletal or neurologic factors. The technique for performing range of motion (ROM) measurements of the spine includes the use of dual inclinometers to assess deficits for calculating impairment. Regional spinal motion is a compound motion, and it is essential to measure simultaneously the motion of both the upper and lower extremes of that region, therefore, dual inclinometers are used.

Validity: Validity of measurements is only accounted for in spine ROM under the AMA Guides, 3rd edition, revised.

Internal validity determines whether or not three consecutive measurements are within +/- 10% or 5 degrees of the median (middle) number. This should be applied to all measurements of the spine. If you are unable to obtain three consecutive measurements that are valid, it may indicate that the patient is being inconsistent with their efforts. It may be helpful to discuss this with the patient to help you obtain the measurements needed.

Straight leg raise validity is determined by adding the best sacral flexion from the set of three valid measurements, measured when assessing lumbar flexion, and the best sacral extension from the set of three valid measurements, measured when assessing
lumbar extension. The sum of these two numbers is then subtracted from the tightest (smallest number) measurement from the set of three valid measurements for straight leg raising. If this number exceeds 10 then lumbar flexion is invalid. If lumbar flexion is invalid and repeated measurements are taken, it is important to note that the following should be repeated: straight leg raising, lumbar flexion and lumbar extension since all of these measurements are taken into consideration for straight leg raising validity. The examiner must obtain at least three measurements for each motion and a maximum of six measurements per visit.

If the three measurements are invalidated for any reason, three additional measurements must be obtained.

If the six measurements do not meet the validity requirements, then the patient must be brought back on a separate day to obtain additional spine measurements.

If these additional measurements taken on a separate day continue to be invalid then no impairment will be assigned for ROM. **Keep in mind that impairment for ROM can only be assigned in the presence of a specific diagnosis impairment rating from Tables 53 (refer to Spine and Pelvis Impairments).**

**General Guidelines:**

1. The patient should not have an aggravation of symptoms on the day of the appointment.
2. Only active range of motion measurements may be obtained, do not assist the patient.
3. It is recommended to have the patient stretch prior to taking measurements.
4. Inclinometers straddle the specified landmarks for each region of the spine.
5. After placing the inclinometers on the patient zero them out.
6. Do not zero out the inclinometers in between measurements and do not take them off of the patient.
   a. This includes when going from flexion to extension measurements or left to right side-bending.
7. Always perform three measurements then check for validity. If they are invalid complete three additional measurements or until you have three consecutive valid measurements with a maximum of six measurements per visit. It is also acceptable to complete six total measurements and then check for validity.

**Cervical Range of Motion Measurements**

- **Landmarks**
  - Occiput
  - T1 spinous process (C7 is usually the most prominent spinous process, T1 is found below C7 and does not move with cervical flexion and extension).
- **Positioning:** Patient should be seated with good posture and head in a neutral position for flexion, extension, and lateral flexion. Supine for rotation.

**Cervical flexion:**

1. Zero out the inclinometers and have the patient maximally flex forward to obtain the measurements from the occiput and T1 landmarks.

2. Record the measurement from each of the landmarks on the Cervical Range of Motion Worksheet (Figure 81- found at the end of this chapter).
3. Do not “zero out” the inclinometers between measurements.
4. Subtract the T1 measurement from the occipital measurement to obtain the cervical flexion angle.
5. Repeat at least three measurements.
6. Determine if three consecutive measurements meet the internal validity criteria. If yes, mark the appropriate box on the worksheet. If not, repeat the steps above to obtain three additional measurements.
7. Record the maximum cervical flexion angle on the worksheet.
8. Utilize Table 55, p. 88 of the AMA Guides to determine the cervical flexion range of motion impairment.

**Cervical Extension:**

1. Do not “zero out” the inclinometers from the cervical flexion measurement trials.
2. The T1 inclinometer can be moved slightly to the side in order to keep the inclinometers from hitting each other when the patient extends their neck.
3. Have the patient perform maximum extension to obtain measurements from the occiput and T1 landmarks.
4. Record the measurement from each of the landmarks on the Cervical Range of Motion Worksheet (Figure 81- found at the end of this chapter).
5. Do not “zero out” the inclinometers between measurements.
6. Subtract the T1 measurement from the occipital measurement to obtain the cervical extension angle.
7. Repeat at least three measurements.
8. Determine if three consecutive measurements meet the internal validity criteria. If yes, mark the appropriate box on the worksheet. If not, repeat the steps above to obtain three additional measurements.
9. Record the maximum cervical extension angle on the worksheet.
10. Utilize Table 55, p. 88 of the AMA Guides to determine the cervical extension range of motion impairment.

Cervical Lateral Flexion:
1. Inclinometers lay flat against patient at the landmarks.
2. Zero out the inclinometers
3. Have the patient laterally flex to the right to obtain measurements.
4. Record the measurement from each of the landmarks on the Cervical Range of Motion Worksheet (Figure 81- found at the end of this chapter).
5. Do not “zero out” the inclinometers between measurements.
6. Subtract the T1 measurement from the the occipital measurement to obtain the cervical right lateral flexion angle.
7. Repeat at least three measurements.
8. Determine if three consecutive measurements meet the internal validity criteria. If yes, mark the appropriate box on the worksheet. If not, repeat the steps above to obtain three additional measurements.
9. Record the maximum cervical right lateral flexion angle on the worksheet.
10. Utilize Table 56, p. 90 of the AMA Guides to determine the cervical right lateral flexion angle range of motion impairment.

Repeat the above steps for left lateral flexion angle measurements without zeroing out the inclinometers.

**Cervical Rotation:**

- **Landmark:**
  - Forehead or top of head
- **Positioning:** Patient is positioned supine, teach the patient how to rotate instead of “rolling” the head.

1. Use one inclinometer and place it on the forehead or top of head
2. Zero out the inclinometer
3. Have the patient rotate maximally to the right to obtain measurements.
4. Record the measurement on the Cervical Range of Motion Worksheet (Figure 81- found at the end of this chapter).
5. Do not “zero out” the inclinometers between measurements.
6. Repeat at least three measurements.
7. Determine if three consecutive measurements meet the internal validity criteria. If yes, mark the appropriate box on the worksheet. If not, repeat the steps above to obtain 3 additional measurements.
8. Record the maximum cervical right rotation angle on the worksheet.
9. Utilize Table 57, p. 90 of the AMA Guides to determine the cervical rotation impairment.

Repeat the above steps for left cervical rotation measurements without zeroing out the inclinometers.

**Thoracic Range of Motion Measurements**

- **Landmarks:**
  - T1 spinous process
  - T12 spinous process
- **Positioning:** Patient should stand up straight (military brace position)

**Thoracic Angle of Minimum Kyphosis:** must be recorded on the worksheet in addition to thoracic flexion.

1. Place both inclinometers on the wall and zero them out.
2. With the patient standing, place the inclinometers (do not zero out again) over the landmarks.
3. Have them stand up straight (military brace position) and read the values on the inclinometer.
4. Record these values under “Angle of Minimum Kyphosis” on the Thoracic Range of Motion Worksheet (Figure 82 - found at the end of this chapter).
   ○ Only one measurement is needed.
5. Utilize Table 58, p. 96 (bottom of table) to determine the impairment of angle of minimum kyphosis.

**Thoracic Flexion:**

1. Inclinometers are placed over the landmarks
2. Zero out the inclinometers
3. Have the patient maximally flex the trunk forward to obtain measurements at each landmark.
4. Record the measurements on the Thoracic Range of Motion Worksheet (Figure 82 - found at the end of this chapter).
5. Do not “zero out” the inclinometers between measurements.
6. Subtract the T12 value from the T1 value to obtain the maximum thoracic flexion angle.
7. Repeat at least three measurements.
8. Determine if three consecutive measurements meet the internal validity criteria. If yes, mark the appropriate box on the worksheet. If not, repeat the steps above to obtain 3 additional measurements.
9. Record the maximum thoracic flexion angle on the worksheet.
10. Utilize Table 58, p. 96 to determine the thoracic flexion impairment.

Only the greater of the two impairments between thoracic angle of minimum kyphosis and thoracic flexion is used to calculate thoracic ROM impairment, do not use both impairments.

Thoracic Rotation: Patient is standing (preferred) with trunk flexed (holding onto a chair for support if needed) or seated with trunk flexed and arms crossed at the chest.

1. Inclinometers are placed over the landmarks
2. Zero out the inclinometers
3. Have the patient maximally rotate the trunk to the right to obtain measurements at each landmark.

4. Record the measurements on the Thoracic Range of Motion Worksheet (Figure 82 - found at the end of this chapter).
5. Do not “zero out” the inclinometers between measurements.
6. Subtract the T12 value from the T1 value to obtain the maximum thoracic right rotation angle.
7. Repeat at least three measurements.
8. Determine if three consecutive measurements meet the internal validity criteria. If yes, mark the appropriate box on the worksheet. If not, repeat the steps above to obtain 3 additional measurements.
9. Record the maximum thoracic right rotation angle on the worksheet.
10. Utilize Table 59, p. 96 to determine the thoracic right rotation impairment.

Repeat the above steps for left thoracic rotation measurements without zeroing out the inclinometers.

**Straight leg raise (SLR) validity check** must be performed for all lumbar range of motion impairment ratings. This validates lumbar flexion only. SLR validity testing incorporates SLR ROM and compares it with sacral ROM. The following steps indicate the procedure for obtaining SLR measurements:

- **Landmarks:**
  - Distal tibia
- **Positioning:** Patient lies supine with both legs extended

*An error occurs under straight leg raising in Figure 83, p. 84 of the AMA Guides. It should read “if the tightest SLR ROM exceeds the sum of sacral flexion and extension by more than 10 degrees, lumbar ROM is invalid.” The AMA Guides states 10% instead of 10 degrees.*

1. Patient lies supine
2. Inclinometer is placed on the distal tibia
3. Place other hand on opposite ASIS to monitor movement
4. The patient performs **active** elevation of leg with the knee straight and foot relaxed, not dorsiflexed. Do not assist the patient in lifting the leg.
5. Record maximum value on the Lumbar Range of Motion Worksheet (Figure 83 - found at the end of this chapter) under the appropriate extremity for Straight Leg Raising.

6. Repeat at least three measurements.

7. Determine if three consecutive measurements meet the internal validity criteria. If yes, mark the appropriate box on the worksheet. If not, repeat the steps above to obtain three additional measurements.

8. Repeat on opposite leg and record under the appropriate extremity for Straight Leg Raising on the Lumbar Range of Motion Worksheet.

9. Using the bottom portion of the Lumbar Range of Motion Worksheet (Figure 83), calculate the straight leg raise validity for lumbar flexion as follows:

   1. Maximum SLR Right _______
      Maximum SLR Left _______
   2. Tightest SLR (lower number from #1) _______

For example:
Determine the tightest SLR (lower value): 35 degrees.

<table>
<thead>
<tr>
<th>Straight Leg Raising, Right</th>
<th>Right SLR</th>
<th>32</th>
<th>34</th>
<th>35</th>
</tr>
</thead>
<tbody>
<tr>
<td>10% or 5°?</td>
<td>Yes ☐</td>
<td>No ☐</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum SLR Right</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Straight Leg Raising, Left</th>
<th>Left SLR</th>
<th>50</th>
<th>55</th>
<th>60</th>
</tr>
</thead>
<tbody>
<tr>
<td>10% or 5°?</td>
<td>Yes ☐</td>
<td>No ☐</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum SLR Left</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Sum of best **sacral** flexion and the best **sacral** extension measurements (selected from the worksheet under flexion and extension. Use **Sacral ROM**, not true lumbar flexion/extension angles) _______

*In the following chart*, the best sacral ROM for lumbar flexion is 35 and the best sacral ROM for lumbar extension is 6 for a total sum of 41.
4. Determine the tightest SLR - (Sacral flexion + Sacral extension) measurements

The sum must be ≤ 10 degrees in order for lumbar flexion to be valid.

Determine the tightest SLR (35) - (sacral flexion + sacral extension)(41) = -6
- -6 is less than 10 degrees, so the SLR validity test for lumbar flexion is valid.

If SLR is invalid after two separate days of taking measurements, the lumbar flexion impairment is not included in the ROM impairment.

Note: In some copies of the AMA Guides an error exists in Fig. 83, p.84. Please check your book and correct this now. Under Straight Leg Raising, Right and Left, 10% should read 10°.

Additional Information for Straight Leg Raise Check for Invalidation of Lumbar Flexion from the Division’s Impairment Rating Tips (p.6)
The SLR check applies to lumbar flexion only. If the SLR check is invalid, the patient must be given another visit to repeat the range of motion.
If after 2 visits and 12 sets of straight leg raise measurements determines that lumbar flexion is invalid, the other range of motion impairments may be used to determine the overall range of motion impairment.
Lumbar Range of Motion Measurements

- **Landmarks:**
  - T1 spinous process
  - Sacrum (middle, just above or at the top of the cleft)

- **Positioning:** Patient is standing straight

**Lumbar Flexion:**

1. Inclinometers are placed over the landmarks
2. Have the patient stand up straight and zero out the inclinometers.
3. Have the patient maximally flex the lumbar spine (without bending knees) to obtain measurements at each landmark.
4. Record the measurements on the Lumbar Range of Motion Worksheet (Figure 83 - found at the end of this chapter).
5. Do not “zero out” the inclinometers between measurements.
6. Subtract the sacral range of motion value from the T12 value to obtain the true lumbar flexion angle.
7. Repeat at least three measurements.
8. Determine if three consecutive measurements meet the internal validity criteria. If yes, mark the appropriate box on the worksheet. If not, repeat the steps above to obtain 3 additional measurements.
9. Record the maximum true lumbar flexion angle on the worksheet.
10. Utilize Table 60, p. 98 to determine the lumbar flexion impairment.
    - Column 1 of Table 60 indicates the sacral flexion angle value and Column 2 indicates the true lumbar flexion angle. Match the highest true lumbar flexion angle in Column 2 with the corresponding sacral flexion angle in Column 1 to determine the impairment rating.

**Lumbar Extension:**

1. Inclinometers are placed over the landmarks
2. Have the patient stand up straight and zero out the inclinometers.
3. Have the patient maximally extend the lumbar spine (without bending knees) to obtain measurements at each landmark.

4. Record the measurements on the Lumbar Range of Motion Worksheet (Figure 83 - found at the end of this chapter).
5. Do not “zero out” the inclinometers between measurements.
6. Subtract the sacral range of motion value from the T12 value to obtain the true lumbar extension angle.
7. Repeat at least three measurements.
8. Determine if three consecutive measurements meet the internal validity criteria. If yes, mark the appropriate box on the worksheet. If not, repeat the steps above to obtain 3 additional measurements.
9. Record the maximum true lumbar extension angle on the worksheet.
10. Utilize Table 60, p. 98 to determine the lumbar extension impairment.

**Lumbar Lateral Flexion:**

1. Inclinometers are placed flat on the patient over the landmarks
2. Have the patient stand up straight and zero out the inclinometers.
3. Have the patient maximally laterally flex the lumbar spine to the right (without bending knees, keeping both feet on the floor) to obtain measurements at each landmark.
4. Record the measurements on the Lumbar Range of Motion Worksheet (Figure 83 - found at the end of this chapter).
5. Do not “zero out” the inclinometers between measurements.
6. Subtract the sacral range of motion value from the T12 value to obtain the lumbar right lateral flexion angle.
7. Repeat at least three measurements.
8. Determine if three consecutive measurements meet the internal validity criteria. If yes, mark the appropriate box on the worksheet. If not, repeat the steps above to obtain 3 additional measurements.
9. Record the maximum lumbar right lateral flexion angle on the worksheet.
10. Utilize Table 61, p. 98 to determine the lumbar lateral flexion impairment.

Repeat the above steps for left lateral flexion measurements without zeroing out the inclinometers.

**Additional Information from the Division’s Impairment Rating Tips, p. 4:**

*In order to assign impairment for spine ROM assignment of a specific diagnosis from Table 53 must be present.* However, in unusual cases with established severe shoulder pathology accompanied by treatment of the cervical musculature, an isolated cervical range of motion impairment may be allowed if it is justified by the clinician.

**Pitfalls:**

ROM impairments including flexion, extension, and lateral flexion are added within the same area of the spine.

Total ROM impairment is combined (Combined Values Chart, p. 254) with specific disorders from Table 53.
If another provider’s measurements are used, (including a physical therapist) make sure they comply with the AMA Guides, 3rd edition, revised utilizing inclinometry for obtaining the measurements.

The Spine Impairment Summary Sheet (Figure 84 - found at the end of this chapter) must be completed if assigning impairment for the spine.
### Figure 81. Cervical Range of Motion

<table>
<thead>
<tr>
<th>Movement</th>
<th>Description</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cervical Flexion</td>
<td>Occipital ROM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>T1 ROM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cervical flexion angle ±10% or 5°?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum cervical flexion angle</td>
<td></td>
</tr>
<tr>
<td></td>
<td>% Impairment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Cervical Extension</td>
<td>Occipital ROM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>T1 ROM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cervical flexion angle ±10% or 5°?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum cervical extension angle</td>
<td></td>
</tr>
<tr>
<td></td>
<td>% Impairment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Cervical Ankylosis in Flexion/Extension</td>
<td>Position</td>
<td></td>
</tr>
<tr>
<td></td>
<td>% Impairment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Excludes any impairment for abnormal flexion/extension motion)</td>
<td></td>
</tr>
<tr>
<td>Cervical Right Lateral Flexion</td>
<td>Occipital ROM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>T1 ROM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cervical flexion angle ±10% or 5°?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum cervical right lat flexion angle</td>
<td></td>
</tr>
<tr>
<td></td>
<td>% Impairment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Cervical Left Lateral Flexion</td>
<td>Occipital ROM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>T1 ROM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cervical flexion angle ±10% or 5°?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum cervical left lat flexion angle</td>
<td></td>
</tr>
<tr>
<td></td>
<td>% Impairment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Cervical Ankylosis in Lateral Flexion</td>
<td>Position</td>
<td></td>
</tr>
<tr>
<td></td>
<td>% Impairment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Excludes any impairment for abnormal flexion/extension motion)</td>
<td></td>
</tr>
<tr>
<td>Cervical Right Rotation</td>
<td>Cervical right rotation angle</td>
<td></td>
</tr>
<tr>
<td></td>
<td>±10% or 5°?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum cervical right rotation angle</td>
<td></td>
</tr>
<tr>
<td></td>
<td>% Impairment</td>
<td></td>
</tr>
<tr>
<td></td>
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</tr>
<tr>
<td>Cervical Left Rotation</td>
<td>Cervical left rotation angle</td>
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<tr>
<td></td>
<td>±10% or 5°?</td>
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<tr>
<td></td>
<td>Maximum cervical left rotation angle</td>
<td></td>
</tr>
<tr>
<td></td>
<td>% Impairment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Cervical Ankylosis in Rotation</td>
<td>Position</td>
<td></td>
</tr>
<tr>
<td></td>
<td>% Impairment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Excludes any impairment for abnormal flexion/extension motion)</td>
<td></td>
</tr>
<tr>
<td>Total Cervical Range of Motion Impairment</td>
<td>(add all ROM impairments if no ankylosis; use largest ankylosis impairment value if ankylosis is present)</td>
<td></td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Movement</th>
<th>Description</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angle of Minimum Kyphosis (Thoracic Ankylosis in Extension)</td>
<td>T1 reading</td>
<td>xxxx</td>
</tr>
<tr>
<td></td>
<td>T12 reading</td>
<td>xxxx</td>
</tr>
<tr>
<td></td>
<td>Angle of minimum kyphosis</td>
<td>xxxx</td>
</tr>
<tr>
<td></td>
<td>% Impairment due to thoracic ankylosis</td>
<td>(Use larger of either ankylosis or flexion impairment)</td>
</tr>
<tr>
<td>Thoracic Flexion</td>
<td>T1 ROM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>T12 ROM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Thoracic flexion angle</td>
<td></td>
</tr>
<tr>
<td></td>
<td>±10% or 5°?</td>
<td>Yes No</td>
</tr>
<tr>
<td></td>
<td>Maximum thoracic flexion angle</td>
<td></td>
</tr>
<tr>
<td></td>
<td>% Impairment</td>
<td></td>
</tr>
<tr>
<td>Thoracic Right Rotation</td>
<td>T1 ROM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>T12 ROM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Thoracic right rotation angle</td>
<td></td>
</tr>
<tr>
<td></td>
<td>±10% or 5°?</td>
<td>Yes No</td>
</tr>
<tr>
<td></td>
<td>Maximum thoracic right rotation angle</td>
<td></td>
</tr>
<tr>
<td></td>
<td>% Impairment</td>
<td></td>
</tr>
<tr>
<td>Thoracic Left Rotation</td>
<td>T1 ROM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>T12 ROM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Thoracic left rotation angle</td>
<td></td>
</tr>
<tr>
<td></td>
<td>±10% or 5°?</td>
<td>Yes No</td>
</tr>
<tr>
<td></td>
<td>Maximum thoracic left rotation angle</td>
<td></td>
</tr>
<tr>
<td></td>
<td>% Impairment</td>
<td></td>
</tr>
<tr>
<td>Thoracic Ankylosis in Rotation</td>
<td>Position</td>
<td></td>
</tr>
<tr>
<td></td>
<td>% Impairment</td>
<td></td>
</tr>
<tr>
<td>Total Thoracic Range of Motion Impairment</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Figure 83. Lumbar Range of Motion

<table>
<thead>
<tr>
<th>Movement</th>
<th>Description</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lumbar Flexion</td>
<td>T12 ROM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sacral ROM</td>
<td></td>
</tr>
<tr>
<td>True lumbar flexion angle</td>
<td>±10% or 5°?</td>
<td></td>
</tr>
<tr>
<td>Maximum true lumbar flexion angle</td>
<td>% impairment</td>
<td></td>
</tr>
<tr>
<td>Lumbar Extension</td>
<td>T12 ROM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sacral ROM</td>
<td></td>
</tr>
<tr>
<td>True lumbar extension angle</td>
<td>±10% or 5°?</td>
<td></td>
</tr>
<tr>
<td>Maximum true lumbar extension angle</td>
<td>% impairment</td>
<td></td>
</tr>
<tr>
<td>Straight Leg Raising, Right</td>
<td>Right SLR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>±10% or 5°?</td>
<td></td>
</tr>
<tr>
<td>Maximum SLR Right</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Straight Leg Raising, Left</td>
<td>Left SLR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>±10% or 5°?</td>
<td></td>
</tr>
<tr>
<td>Maximum SLR Left</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lumbar Right Lateral Flexion</td>
<td>T12 ROM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sacral ROM</td>
<td></td>
</tr>
<tr>
<td>Lumbar right lat flexion angle</td>
<td>±10% or 5°?</td>
<td></td>
</tr>
<tr>
<td>Maximum lumbar right lat flexion angle</td>
<td>% impairment</td>
<td></td>
</tr>
<tr>
<td>Lumbar Left Lateral Flexion</td>
<td>T12 ROM</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sacral ROM</td>
<td></td>
</tr>
<tr>
<td>Lumbar left lat flexion angle</td>
<td>±10% or 5°?</td>
<td></td>
</tr>
<tr>
<td>Maximum lumbar left lat flexion angle</td>
<td>% impairment</td>
<td></td>
</tr>
<tr>
<td>Lumbar Ankylosis in Lateral Flexion</td>
<td>Position</td>
<td>% Impairment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Lumbar Range of Motion Impairment</td>
<td>(add all ROM impairments if no ankylosis: use ankylosis impairment value if ankylosis is present)</td>
<td></td>
</tr>
</tbody>
</table>

**Straight-Leg Raise (SLR) Validity Test for Lumbar Flexion**

1. Max SLR Right ______________________
   Max SLR Left ______________________ (Select smallest number from Step 1)
2. Tightest SLR ______________________ (Select smallest number from Step 1)
4. Tightest SLR - (Sacral flexion + Sacral extension)
   (Step 2) __________ - (Step 3) __________ = __________
5. If the above (#4) is greater than 10 degrees, lumbar flexion is invalid
6. **For final invalidation**, claimant must have 2 sets of 3 measurements on 2 separate dates (total of 12).
   - See Level II Accreditation Curriculum (ROM of Spine) (Impairment Rating Tips)
   - DOWC Website: www.colorado.gov/cdle/dwc

---

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# Spine Impairment Summary

1. **Due to Specific Disorders (Table 53 or Table 54)**
   - **Cervical**
   - **Thoracic**
   - **Lumbar**

2. **Range of Motion**
   - **Cervical**
   - **Thoracic**
   - **Lumbar**

3. **Neurologic System: Loss of Sensation With or Without Pain**
   - **Loss of Strength**
   - **Cervical**
   - **Thoracic**
   - **Lumbar**

4. **Other–From Sec. 3.4 p. 101**
   - **Cervical**
   - **Thoracic**
   - **Lumbar**

5. **Regional Impairment Total (Combine impairments in each column using the combined values Chart p. 254)**
   - **Cervical**
   - **Thoracic**
   - **Lumbar**

6. **Spine Impairment Total (Combine all regional totals using the Combined Values Chart)**
   - **Cervical**
   - **Thoracic**
   - **Lumbar**

7. **Impairment(s) of other organ systems: for each impairment list condition, page number in Guides, and percentage of impairment.**

<table>
<thead>
<tr>
<th>Impaired System</th>
<th>% Impairment</th>
<th>Guides Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8. **Impairment of Whole Person–use Combined Values Chart to combine spine impairment with the impairment(s) listed in 7 above. If several impairments are listed, combine spine impairment with the larger or largest value, then combine the resulting percentage with any other value(s), until all the listed impairments have been accounted for.**

   Total whole person impairment: _____________
Lower Extremity Impairment Ratings

AMA Guides, 3rd Edition, revised: Chapter 3 (p.78)

Objectives:
1) Demonstrate the ability to properly utilize diagnostic and ROM tables to calculate lower extremity impairment.
2) Determine a lower extremity impairment rating when an amputation is involved.
3) Utilize the Lower Extremity Impairment Worksheet to record and calculate a lower extremity impairment rating using a workshop case.

Summary/Steps for Determining Lower Extremity Impairment Rating
1) Determine if the injury is an amputation if so, refer to AMA Guides Table 47 (p.73) to rate the injured lower extremity
   a) Document the percent impairment on the Lower Extremity Impairment Worksheet as the whole person impairment rating.
2) Determine the diagnosis-related whole person impairment using AMA Guides Table 40 (p. 69) for the knee or AMA Guides Table 45 (p. 72) for the hip.
   a) Document the diagnosis related impairment on the Lower Extremity Impairment Worksheet in the "List Other Disorders" section.
3) Determine the range of motion impairment by referencing the AMA Guides for instruction on goniometric measurements and measure all involved joints.
   a) Measure all planes of motion for each involved joint, in relation to the "neutral" position, and document on the Lower Extremity Impairment worksheet.
   b) Apply the range of motion measurements to the appropriate Tables in the AMA Guides (pgs 56-70) and record the impairment on the Lower Extremity Impairment worksheet.
   c) If ankylosis is rated, only use the plane of motion yielding the highest impairment.
   d) Add impairment for all planes of motion within that body part.
4) Combine diagnosis impairment from step 2 with total ROM for the joint (toes, ankle, knee, and hip) from step 3 and document in section labeled “combine (1) and (2)" for that joint on the Lower Extremity Impairment worksheet.
5) If multiple joints are involved, Combine the total for each joint from step 4 documenting in Section I. on the Lower Extremity Impairment worksheet.
6) Determine the Peripheral Nervous System Impairment, if applicable
a) If Peripheral Nervous System impairment exists, document the sensory and/or motor lower extremity rating in Section II. on the Lower Extremity Impairment Worksheet

7) Determine the Peripheral Vascular System Impairment, if applicable
   a) If Peripheral Vascular System Impairment exists, document the impairment in Section III. on the Lower Extremity Impairment Worksheet

8) **Combine** the total values from Sections I - III and document in Total Lower Extremity Impairment on the Lower Extremity Impairment Worksheet.

9) **Convert** the Total Lower Extremity Impairment to the Whole Person Impairment Rating using Table 46 (p.72).

10) When the impairment is **bilateral**, each lower extremity is **converted** to **whole person**, and then both ratings are **combined** at the **whole person level** (Combined Values Chart, p. 254) for the final whole person rating.

**References/Links**

Lower Extremity Impairment Worksheet - Part I: Toes (optional worksheet)
Lower Extremity Impairment Worksheet - Part II: Hip, knee, and ankle
Apportionment Calculation Worksheet, if applicable
Medical Treatment Guidelines: Lower Extremity
Impairment Rating Tips

**Core Content:** Lower extremity impairment ratings are predominantly based on range of motion deficits, except the knee and the hip, which have diagnostically related impairments as well. Peripheral nervous system, peripheral vascular system impairments, and amputation impairment are also utilized to rate the lower extremity.

**Lower Extremity Impairment General Principles:** In a workers’ compensation case, a complete physical examination is expected which includes the essential elements:

- Inspection
- Palpation
- Range of Motion Testing
- Sensation
- Muscle Strength
- Reflexes
- Vascular Status

Revised: 2/2018


**Amputation**

Amputation of the Lower Extremity: When an amputation of the lower extremity occurs, the physician is required to calculate the percentage impairment by referring to AMA Guides Table 47 (p.73). This can be combined with other impairments of the lower extremity.

Amputation of the toes: If an amputation occurs at a specific joint of the toe, refer to the range of motion table for that joint. Impairment for amputation is located at the top of each table. These values are expressed at the digit level and should be converted to foot impairment, then lower extremity impairment and then whole person.

If toe amputation does not occur at the joint, please consult the AMA Guides, 3rd edition revised pgs. 56 - 60 to calculate impairment.

Amputation of Multiple Toes: Impairment of each toe is expressed as a percentage of the foot. These values are added to arrive at the total foot impairment. Refer to AMA Guides Table 35 (p.64) - Impairment of Foot Due to Amputation and Ankylosis of Multiple Digits.

**Diagnosis of the Knee and Hip:**

The medical record should clearly state the diagnosis being rated. For lower extremity impairments, AMA Guides Table 40, p.68 (Disorders of the Knee) and AMA Guides Table 45, p.72 (Disorders of the Hip Joint) indicate ratings for diagnostic and surgical impairments. The disorder ratings should then be combined with other ratings for that body part to derive a total impairment rating for that joint.

**Additional Information on Knee Diagnosis Impairment from the Division’s Impairment Rating Tips (p.8)**

- If a partial knee joint replacement is performed, the rating will be for a hemiarthroplasty or 10%. Any additional pathology present in that knee is ratable under Table 40 and combined with the 10%.
**Range of Motion**

Ankylosis, which is defined as “complete absence of motion or planar restriction of motion preventing the subject from reaching the neutral position of motion in that plane” should be considered with ROM impairment.

Each range of motion table has a section for rating the joint due to ankylosis. If the joint is rated for ankylosis, other range of motion measurements for that joint should generally **not** be calculated as part of the impairment. Only the highest rating due to ankylosis is given.

*For example:* if the ankle was ankylosed at 10 degrees of plantar flexion, the ROM impairment for the ankle would be 40% of the lower extremity according to AMA Guides Table 37 (p. 66). No additional impairment should be given for dorsiflexion, inversion or eversion.

Determine the range of motion, amputation and ankylosis impairment of applicable joints using the following ROM Tables in the AMA Guides:

<table>
<thead>
<tr>
<th>Joint/Motion</th>
<th>Table #</th>
<th>Page #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Great toe, Interphalangeal joint</td>
<td>24</td>
<td>56</td>
</tr>
<tr>
<td>Great toe, Dorsiflexion</td>
<td>25</td>
<td>58</td>
</tr>
<tr>
<td>Great toe, Plantarflexion</td>
<td>26</td>
<td>58</td>
</tr>
<tr>
<td>2nd-5th toe, DIP joint dorsi-plantarflexion, and amputation</td>
<td>28</td>
<td>60</td>
</tr>
<tr>
<td>2nd-5th toe, PIP joint dorsi-plantarflexion, and amputation</td>
<td>29</td>
<td>60</td>
</tr>
<tr>
<td>2nd toe, MTP joint dorsi-plantarflexion, and amputation</td>
<td>30</td>
<td>61</td>
</tr>
<tr>
<td>3rd toe, MTP joint dorsi-plantarflexion, and amputation</td>
<td>31</td>
<td>62</td>
</tr>
<tr>
<td>4th toe, MTP joint dorsi-plantarflexion, and amputation</td>
<td>32</td>
<td>62</td>
</tr>
<tr>
<td>5th toe, MTP joint dorsi-plantarflexion, and amputation</td>
<td>33</td>
<td>63</td>
</tr>
<tr>
<td>Hind foot, Dorsi-plantar flexion</td>
<td>37</td>
<td>66</td>
</tr>
<tr>
<td>Hind foot, Inversion-Eversion</td>
<td>38</td>
<td>67</td>
</tr>
</tbody>
</table>
Great Toe: Lower Extremity Worksheet - Part 1 (toes) is optional. If the worksheet is not used, detailed documentation of the below steps must be in the narrative report.

**Measure** range of motion and use the following tables to determine impairment for MTP (AMA Guides Tables 25-26, p.58) and IP joints (Table 24, p.56).

**Calculate** amputation if present

**Add** ROM impairment at each joint.

**Combine** ROM/ankylosis impairment for MTP and IP joints using the Combined Values Chart (p.254).

**Combine** the total ROM deficit with amputation, if applicable

**Convert** the great toe impairment rating to the foot using AMA Guides Table 27, p.59.

**Combine** all toe impairments at the foot level.

**Convert** the total foot impairment rating to lower extremity using AMA Guides Table 36, p.65.

**Combine** all lower extremity impairments for the same (i.e. left foot and left ankle) extremity.

**Convert** the lower extremity rating to whole person using AMA Guides Table 46, p.72.

---

**2nd through 5th Toes**

**Measure** ROM of the MTP joints and ankylosis of the PIP and DIP joints. Use the appropriate tables to determine impairment. There is no value for functional ROM of the PIP and DIP joints.

**Calculate** amputation if present

**Add** ROM impairment for the MTP joint.

**Combine** the MTP ROM/ ankylosis with PIP and DIP ankylosis impairments for each toe.

**Combine** ROM impairment with amputation, if applicable

**Convert** the toe impairment rating to the foot using AMA Guides Table 34, p.64.

---

Revised: 2/2018
Combine all toe impairments at the foot level.
Convert the foot impairment rating to lower extremity using AMA Guides Table 36, p.65.
Combine all lower extremity impairments for the same (i.e. left foot and left ankle) extremity.
Convert the lower extremity rating to whole person using AMA Guides Table 46, p. 72.

Hind Foot/Ankle
Measure ROM and use the following tables to determine impairment for dorsi/plantar flexion (AMA Guides Table 37, p.66) and inversion/eversion (AMA Guides Table 38, p.67).
Add ROM impairment for the ankle.
Combine ROM impairment with other disorders if applicable.
- AMA Guides Table 37 (p.66) also provides a rating for ankle instability due to lateral and medial collateral ligament loss and arthroplasty of the joint. These values should be combined with the ROM impairment.
Combine all lower extremity impairments for the same (i.e. left foot and left ankle) extremity.
Convert the lower extremity rating to whole person using AMA Guides Table 46, p. 72.

Knee
Measure flexion and extension ROM and determine impairment using AMA Guides Table 39 (p.68).
Add ROM impairment for flexion and extension.
Combine ROM impairment with other disorders of the knee from AMA Guides Table 40, p.68 if applicable.
Combine all lower extremity impairments for the same (i.e. left foot and left ankle) extremity.
Convert the lower extremity rating to whole person using AMA Guides Table 46, p. 72.

Hip
Measure all hip ROM and determine impairment using AMA Guides Tables 41-44 (pgs. 69-70).
Add ROM impairment for the hip.
Combine ROM impairment with other Disorders of the Hip from AMA Guides Table 45, p.72 if applicable.
Combine all lower extremity impairments for the same (i.e. left foot and left ankle) extremity.

Convert the lower extremity rating to whole person using AMA Guides Table 46, p. 72.

**Multiple Lower Extremity Impairments**

Combine impairment ratings for the same extremity in order from distal to proximal using the Combined Values Chart (p.254) to determine the lower extremity rating. Convert the total lower extremity impairment to whole person using AMA Guides Table 46, p.72.

Combine impairment of the left whole person with the right whole person to determine the total whole person impairment.

 Always report lower extremity and whole person ratings on worksheets and in the written report.

**Additional Information for Lower Extremity ROM from the Division’s Impairment Rating Tips (p.1 and p.7)**

- Only active range of motion measurements should be used to determine impairment with the examiner NOT assisting the patient. Passive range of motion may be measured to assess the validity of the active range of motion measurements, but not for obtaining measurements for the impairment rating.
- The contralateral joint can be measured to compare both extremities when there are specific conditions which would make the opposite, non-injured extremity serve as a better individual baseline. This process is termed “normalization.” Therefore, when deemed appropriate, the physician may subtract the contralateral joint ROM impairment from the injured joint’s ROM impairment.

**Peripheral Nervous System Disorders for the Lower Extremity**

1. Use the physical examination to identify the affected nerve if there is a motor and/or sensory deficit.
2. Use the appropriate tables within the AMA Guides to determine the total value of the sensory (2nd column) or motor deficit (3rd column) for the affected nerve. These values are expressed in Lower Extremity Units.
   a. Table 49 (p.76) Unilateral Spinal Nerve Root (L3-S1)
   b. Table 50 (p.76) Unilateral Lumbosacral Plexus
   c. Table 51 (p. 77) Unilateral Spinal Nerve affecting the Lower Extremity
3. Determine the percent deficit or grade of the affected nerve using Tables 10 (sensory) and 11 (motor) on p. 42.
4. The total value of the nerve impairment for a sensory deficit from step 2 is multiplied by the percent value from Table 10 in step 3.
5. The total value of the nerve impairment for a motor deficit from step 2 is multiplied by the percent value from Table 11 in step 3.
6. Combine motor and sensory impairment values from steps 4 and 5 using the Combined Values Chart (p.254).
7. Combine with other impairments for the same extremity using the Combined Values Chart (p.254) at the lower extremity level.
8. Convert the total lower extremity impairment to whole person using Table 46, p.72.

Vascular Disorders of the Lower Extremity

Use Table 52 (p.79) to determine Impairment of the Lower Extremity Due to Peripheral Vascular Disease. This table establishes five classes of ratings. Be sure to pay attention to the “and’s” and “or’s” when reading this table.

Combine all lower extremity impairments for the same (i.e. left foot and left ankle) extremity.
Convert the lower extremity rating to whole person using Table 46, p. 72.

Pitfalls

If using normalization for lower extremity ROM, you must provide a worksheet for each lower extremity.

Exclusions/Omissions in the AMA Guides: The sections labeled as “Degrees of Motion Lost and Retained” in the following tables are for information only and are not used to perform any ratings. It is preferable to cross this section out to avoid confusion:

- Tables 24 (p.56)
- Tables 25&26 (p.58)
- Table 30 (p.61)
- Tables 31&32 (p.62)
- Table 33 (p.63)
- Table 37 (p.66)
- Table 38 (p.67)
- Table 41 (p.69)
- Tables 42-44 (p.70)
Workshop Case #1:

G.M. is a 58-year-old male construction worker involved in a freak work-related accident in which his bulldozer inadvertently tumbles into a 70-foot abyss. The patient miraculously avoids any major head or spinal cord injuries but does end up with a compound fracture of the proximal left femur and dislocation of the right knee.

After numerous operations, the left femur fails to heal and the patient develops contractures in the hip joint as follows:

- Flexion: 80°
- Backward extension: 10°
- Abduction: 10°
- Adduction: 20°
- Internal rotation: 10°
- External rotation: 20°

Neurological status is normal for the Left lower extremity.

After failing open repair of the right knee, the patient ultimately has a right total knee arthroplasty performed successfully. He does have some mild to moderate loss of sensation and pain over the anterior medial knee, saphenous branch of the femoral nerve (femoral anterior crural nerve) which will occasionally interfere with activities of daily living, such as transfers from his wheelchair to his bulldozer (which he keeps as a memento). Fortunately, G.M. has been able to rehabilitate his right leg back to normal strength.

Right knee ROM:
- Flexion: 110°
- Extension: 10° (Extension lag)

**QUESTION:** After three years have passed, the patient is now at MMI. What is his lower extremity impairment and whole person impairment?
## Lower Extremity Impairment Record – Part 2 (Hind Foot, Knee & Hip)

**Abnormal Motion**

<table>
<thead>
<tr>
<th>Table</th>
<th>Motion</th>
<th>Plantar</th>
<th>Ankylosis</th>
<th>Impairment %</th>
</tr>
</thead>
<tbody>
<tr>
<td>37</td>
<td>Dorsiflex</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Angle°</th>
<th>Impairment %</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Table</th>
<th>Motion</th>
<th>Eversion</th>
<th>Ankylosis</th>
<th>Impairment %</th>
</tr>
</thead>
<tbody>
<tr>
<td>38</td>
<td>Inversion</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Angle°</th>
<th>Impairment %</th>
</tr>
</thead>
</table>

**Hind Foot**

Add IMP% of ROM or use largest ANK

1. IMP% = __________

**Knee**

<table>
<thead>
<tr>
<th>Table</th>
<th>Motion</th>
<th>Extension</th>
<th>Ankylosis</th>
<th>Impairment %</th>
</tr>
</thead>
<tbody>
<tr>
<td>39</td>
<td>Flexion</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Angle°</th>
<th>Impairment %</th>
</tr>
</thead>
</table>

Add IMP% of ROM or use largest ANK

1. IMP% = __________

**Hip**

<table>
<thead>
<tr>
<th>Table</th>
<th>Motion</th>
<th>Adduction</th>
<th>Ankylosis</th>
<th>Impairment %</th>
</tr>
</thead>
<tbody>
<tr>
<td>43</td>
<td>Abduction</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Angle°</th>
<th>Impairment %</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Table</th>
<th>Motion</th>
<th>Ext Rot</th>
<th>Ankylosis</th>
<th>Impairment %</th>
</tr>
</thead>
<tbody>
<tr>
<td>44</td>
<td>Int Rot</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Angle°</th>
<th>Impairment %</th>
</tr>
</thead>
</table>

Add Impairment% of ROM or use largest Ankylosis

I. Combine all the above Impairments

(Combine Foot % + Hind Foot % + Knee % + Hip %)

**Combined total**

II. Peripheral Nervous System Impairment Computations:

A. Sensation

B. Motor

**Combined** Sensory/Motor

III. Peripheral Vascular System Impairment Computations:

**Total Lower Extremity Impairment:**

**Impairment of Whole Person (Use Table 46)**
# Lower Extremity Impairment Record—Part 2 (Hind Foot, Knee & Hip)

**Name**

**SIDE**  R  L  **Date**

<table>
<thead>
<tr>
<th>Abnormal Motion</th>
<th>List Other Disorders</th>
<th>Regional Impairment%</th>
<th>Amputation % (Table 47)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Table 37</strong></td>
<td>Dorsiflex  Plantar  Ankylosis  Impairment %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Angle°</td>
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<tr>
<td>Impairment %</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Table 38</strong></td>
<td>Inversion  Eversion  Ankylosis  Impairment %</td>
<td></td>
<td></td>
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<td>Angle°</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Impairment %</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Add IMP% of ROM or use largest ANK</td>
<td>[1]</td>
<td>IMP% = _______</td>
<td>Combine [1] and [2] = _______</td>
</tr>
<tr>
<td><strong>Table 39</strong></td>
<td>Flexion  Extension  Ankylosis  Impairment %</td>
<td></td>
<td></td>
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<tr>
<td>Angle°</td>
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<tr>
<td>Impairment %</td>
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<tr>
<td>Add IMP% of ROM or use largest ANK</td>
<td>[1]</td>
<td>IMP% = _______</td>
<td>Combine [1] and [2] = _______</td>
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<tr>
<td><strong>Table 40</strong> Diagnosis:</td>
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</tr>
<tr>
<td><strong>Table 41,42</strong></td>
<td>Flexion  Extension  Ankylosis  Impairment %</td>
<td></td>
<td></td>
</tr>
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<td>Angle°</td>
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<tr>
<td>Impairment %</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Table 43</strong></td>
<td>Abduction  Adduction  Ankylosis  Impairment %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Angle°</td>
<td></td>
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<tr>
<td>Impairment %</td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Table 44</strong></td>
<td>Int Rot  Ext Rot  Ankylosis  Impairment %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Angle°</td>
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<td></td>
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<tr>
<td>Impairment %</td>
<td></td>
<td></td>
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<tr>
<td>Add Impairment% of ROM or use largest Ankylosis</td>
<td>[1]</td>
<td>IMP% = _______</td>
<td>Combine [1] and [2] = _______</td>
</tr>
</tbody>
</table>

I. Combine all the above Impairments

(Combine Foot _____% + Hind Foot _____% + Knee _____% + Hip _____%)

**Combined total**

II. Peripheral Nervous System Impairment Computations:

A. Sensation

B. Motor

**Combined Sensory/Motor**

III. Peripheral Vascular System Impairment Computations:

**Total Lower Extremity Impairment:**

**Impairment of Whole Person (Use Table 46)**

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Revised: 2/2018
Answer:

**Left LE hip rating:**

AMA Guides Table 45 (p.72) diagnostic rating for non-union hip fracture: 30% lower extremity

**ROM: Using AMA Guides tables:**

- Flexion: Table 41 (p. 69)= 4%
- Extension: Table 42 (p. 70)= 4%
- Abduction: Table 43 (p.70) = 12%
- Adduction: Table 43 (p.70)= 0%
- Internal Rotation: Table 44 (p. 70)= 8%
- External Rotation: Table 44 (p.70) = 8%

Add the above for a total lower extremity ROM impairment: 36%

**Combine** (Combined Values Chart, p. 254) the AMA Guides Table 45 Diagnostic rating (30%) and the ROM impairment (36%) = 55% lower extremity rating

**Convert** 55% lower extremity rating to whole person using AMA Guides Table 46 (p. 72) = 22% left lower extremity whole person rating.

**Right LE knee rating:**

AMA Guides Table 40 (p.68) diagnostic rating for total knee arthroplasty= 20% lower extremity rating

**ROM: Using AMA Guides tables:**

- Flexion: Table 39 (p.68) = 14%
- Extension: Table 39 (p.68) = 1%

Add flexion and extension ROM impairment for a total of 15% lower extremity impairment

**Combine** (Combined Values Chart, p. 254) the Table 40 Diagnostic rating (20%) and the ROM impairment (15%)= 32% right lower extremity rating

**Nervous System Disorder: Sensory Impairment**

To determine which sensory nerve is affected use:

- AMA Guides Figure 77 (p.73) “Sensory Nerves of the Lower Extremity and their Roots of Origin”
- AMA Guides Table 48 (p.74) “Origins and Functions of the Peripheral Nerves to the Lower Extremity” saphenous branch of the femoral nerve
AMA Guides Table 51 (p.77) indicates Femoral, anterior crural, below iliacus nerve sensory column = 5%

Sensory Grading via Table 10 (p. 42)= 40% impairment

Multiply the grade (40%) x the sensory nerve rating (5%) = 2% lower extremity rating

Combine (Combined Values Chart, p. 254) the 32% for diagnostic Table 40 rating and ROM rating, with the 2% sensory nerve rating, which equals 33% lower extremity rating.

Convert the 33% right lower extremity rating to whole person using Table 46 (p.72) = 13% whole person

**Total Whole Person Rating:**

**Combine left** lower extremity whole person impairment rating (22%) with **right** lower extremity whole person impairment rating (13%) = 32% total whole person rating
## Lower Extremity Impairment Record—Part 2 (Hind Foot, Knee & Hip)

### Abnormal Motion

<table>
<thead>
<tr>
<th>Abnormal Motion</th>
<th>List Other Disorders</th>
<th>Regional Impairment %</th>
<th>Amputation % (Table 47)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 37</td>
<td>Dorsiflex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Angle°</td>
<td>Plantar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impairment %</td>
<td>Ankylosis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Table 38</td>
<td>Inversion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Angle°</td>
<td>Eversion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impairment %</td>
<td>Ankylosis</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Add IMP% of ROM or use largest ANK

Table 39

<table>
<thead>
<tr>
<th>Angle°</th>
<th>Flexion</th>
<th>Extension</th>
<th>Ankylosis</th>
<th>Impairment %</th>
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</thead>
</table>

Table 40 Diagnosis:

Table 41,42

<table>
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<th>Impairment %</th>
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</table>

Table 43

<table>
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<tr>
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<th>Abduction</th>
<th>Adduction</th>
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<th>Impairment %</th>
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Table 44

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<thead>
<tr>
<th>Angle°</th>
<th>Int Rot</th>
<th>Ext Rot</th>
<th>Ankylosis</th>
<th>Impairment %</th>
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</thead>
</table>

Add Impairment% of ROM or use largest Ankylosis

Table 45.2

<table>
<thead>
<tr>
<th>Angle°</th>
<th>Flexion</th>
<th>Extension</th>
<th>Ankylosis</th>
<th>Impairment %</th>
</tr>
</thead>
</table>

### I. Combine all the above Impairments

(Combine Foot % + Hind Foot % + Knee % + Hip %)

Combined total = 55

### II. Peripheral Nervous System Impairment Computations:

A. Sensation

B. Motor

Combined Sensory/Motor

### III. Peripheral Vascular System Impairment Computations:

Total Lower Extremity Impairment: 55

Impairment of Whole Person (Use Table 46) 22

Revised: 2/2018
### Lower Extremity Impairment Record—Part 2 (Hind Foot, Knee & Hip)

**Name**: Answer Case 1 Knee  
**SIDE**: R  
**L**: L  
**Date**: __________

#### Abnormal Motion

<table>
<thead>
<tr>
<th>Table 37</th>
<th>Abnormal Motion</th>
<th>List Other Disorders</th>
<th>Regional Impairment%</th>
<th>Amputation % (Table 47)</th>
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</thead>
<tbody>
<tr>
<td>Dorsiflex</td>
<td>Plantar</td>
<td>Ankylosis</td>
<td>Impairment %</td>
<td></td>
</tr>
<tr>
<td>Inversion</td>
<td>Eversion</td>
<td>Ankylosis</td>
<td>Impairment %</td>
<td></td>
</tr>
</tbody>
</table>

#### Hind Foot

<table>
<thead>
<tr>
<th>Angle°</th>
<th>Impairment %</th>
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</thead>
</table>

Add IMP% of ROM or use largest ANK  

<table>
<thead>
<tr>
<th>Table 39</th>
<th>Flexion</th>
<th>Extension</th>
<th>Ankylosis</th>
<th>Impairment %</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Angle°</th>
<th>Impairment %</th>
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Table 40 Diagnosis:

**Table 40.3**

#### Knee

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<th>Impairment %</th>
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</table>

Add IMP% of ROM or use largest ANK

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<th>Flexion</th>
<th>Extension</th>
<th>Ankylosis</th>
<th>Impairment %</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Angle°</th>
<th>Impairment %</th>
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</thead>
</table>

Table 45 Diagnosis:

**Table 45.3**

#### Hip

<table>
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</table>

Add IMP% of ROM or use largest Ankylosis

<table>
<thead>
<tr>
<th>Table 43</th>
<th>Abduction</th>
<th>Adduction</th>
<th>Ankylosis</th>
<th>Impairment %</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Angle°</th>
<th>Impairment %</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Table 44</th>
<th>Int Rot</th>
<th>Ext Rot</th>
<th>Ankylosis</th>
<th>Impairment %</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Angle°</th>
<th>Impairment %</th>
</tr>
</thead>
</table>

I. Combine all the above Impairments

(Combine Foot % + Hind Foot % + Knee % + Hip %)

Combined total = 32

II. Peripheral Nervous System Impairment Computations:

A. Sensation 5% x 40% = 2%

B. Motor

Combined Sensory/Motor = 2

III. Peripheral Vascular System Impairment Computations:

-  

Total Lower Extremity Impairment: 33%

Impairment of Whole Person (Use Table 46)

13% & 22% = 32%

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Workshop Case #2:

Patient is a 38-year-old female with severe bilateral lower extremity CRPS, confirmed on both bone scan and stress thermogram, with an initially positive response to sympathetic blocks. Her rehabilitation has been complicated by DVT and she presents as wheelchair bound with a +2 bilateral lower extremity edema to mid-thigh, discolored, cold legs with obvious cyanosis and livedo reticularis, obvious nail changes, and severe allodynia/hyperpathia bilaterally. The patient’s edema has been repeatedly documented to be persistent and she develops increased leg pain when ambulating with a walker or crutches for greater than 200 to 400 feet. She is unsafe on non-level surfaces for ambulation. The pain is diffuse and does not localize to a specific dermatomal or peripheral nerve distribution. Proprioception is significantly impaired in the right more than left toes.

**Question:** Using the lower extremity worksheet, calculate an impairment rating.
## Lower Extremity Impairment Record—Part 2 (Hind Foot, Knee & Hip)

| Abnormal Motion | List Other Disorders | Regional Impairment% | Amputation % 
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hind Foot</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Table 37 Dorsiflex Plantar Ankylosis Impairment %</td>
<td></td>
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<tr>
<td>Angle°</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Impairment %</td>
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</tr>
<tr>
<td>Table 38 Inversion Eversion Ankylosis Impairment %</td>
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<td>Angle°</td>
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<td>Impairment %</td>
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<tr>
<td><strong>Knee</strong></td>
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</tr>
<tr>
<td>Table 41,42 Flexion Extension Ankylosis Impairment %</td>
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<td>Angle°</td>
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<td>Impairment %</td>
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</tr>
<tr>
<td>Table 40 Diagnosis:</td>
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<td></td>
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</tr>
<tr>
<td>Table 45 Diagnosis:</td>
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<tr>
<td><strong>Hip</strong></td>
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<tr>
<td>Table 43 Abduction Adduction Ankylosis Impairment %</td>
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<tr>
<td>Table 44 Int Rot Ext Rot Ankylosis Impairment %</td>
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<tr>
<td>Impairment %</td>
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</tr>
</tbody>
</table>

### I. Combine all the above Impairments

(Combine Foot % + Hind Foot % + Knee % + Hip %)

Combined total

### II. Peripheral Nervous System Impairment Computations:

A. Sensation

B. Motor

Combined Sensory/Motor

### III. Peripheral Vascular System Impairment Computations:

Total Lower Extremity Impairment:

Impairment of Whole Person (Use Table 46)
Answer: This is an example of a “centralized” form of CRPS which is seen in approximately 30% of patients with this condition. Functionally and pathologically, these patients have many similarities with the spinal cord injured population.

- Use AMA Guides Table 1, (p. 109) to rate CRPS
- Based on the above information, Class 2 gait impairment appears to best describe the patient’s situation correlating to 25-35% whole person impairment.
  - 30% whole person impairment due to spinal cord involvement is chosen.
- This patient also presents with a Class 2 Peripheral Vascular Impairment (AMA Guides Table 52, p.79) as a complication of the CRPS, correlating with a 10-35% lower extremity impairment for each leg.
  - 20% impairment of each extremity due to vascular disease is chosen.
  - Convert the 20% lower extremity impairment to whole person using AMA Guides Table 46, p.72 which results in 8% whole person impairment for each leg as a result of vascular complications of CRPS.
  - Combine the above whole person values (30%, 8%, 8%) using the Combined Values Chart = 41% whole person impairment

**NOTE:**

- In cases of diffuse, single lower extremity CRPS not localizing to a specific nerve root or peripheral nerve, and where clinical signs and objective tests argue against a centralized process (i.e., no signs of spasticity or other limb involvement on stress thermography. The lack of any response to sympathetic blockade in spite of obvious clinical signs of CRPS is strongly suspicious for a centralized pathology).
  - Use AMA Guides Table 50, p.76 (Unilateral Lumbosacral Plexus Impairment) in combination with AMA Guides Table 10 (sensory nerve grade) or Table 11 (motor nerve grade) to calculate the lower extremity impairment.
    - Convert the lower extremity impairment to whole person using AMA Guides Table 46, p.72.

- In cases of unilateral, non-centralized CRPS localizing to a specific root distribution. (i.e. cases of CRPS complicating HNP or laminectomy)
• Use AMA Guides Table 49, p.76 (Spinal Nerve Root) in combination with Table 10 (sensory nerve grade) or Table 11 (motor nerve grade) to calculate the lower extremity impairment.
  ○ **Convert** the lower extremity impairment to whole person using AMA Guides Table 46, p.72.

**Worksheets**
Lower Extremity Impairment Worksheet - Part I: Toes (optional worksheet)
Lower Extremity Impairment Worksheet - Part II: Hip, knee, and ankle
Apportionment Calculation Worksheet

Revised: 2/2018
### Lower Extremity Impairment Record—Part 2 (Hind Foot, Knee & Hip)

#### Abnormal Motion

<table>
<thead>
<tr>
<th>Table</th>
<th>Angle</th>
<th>Impairment %</th>
<th>Angle</th>
<th>Impairment %</th>
<th>Angle</th>
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</thead>
<tbody>
<tr>
<td>37</td>
<td>Dorsiflex</td>
<td>Plantar Ankylosis Impairment %</td>
<td>38</td>
<td>Inversion Eversion Ankylosis Impairment %</td>
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<td>Flexion Extension Ankylosis Impairment %</td>
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<td>40</td>
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<td>41,42</td>
<td>Flexion Extension Ankylosis Impairment %</td>
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<td></td>
</tr>
</tbody>
</table>

**Add IMP% of ROM or use largest ANK**

- **Hind Foot**: IMP% =  
- **Knee**: IMP% =  
- **Hip**: IMP% =  

**Combined total**: 

#### Regional Impairment% & Amputation %

- **Table 47**

#### Diagnosis:

**Knee**

**Table 40**

**Hip**

**Table 45**

#### I. Combine all the above Impairments

(Combine Foot % + Hind Foot % + Knee % + Hip %)

#### II. Peripheral Nervous System Impairment Computations:

- **Sensation**
- **Motor**

**Combined Sensory/Motor**

- **CRPS 30%**

#### III. Peripheral Vascular System Impairment Computations:

- **Class 2 20% bilateral**

**Total Lower Extremity Impairment**

- **20&20%**

**Impairment of Whole Person (Use Table 46)**

- **30&8&8 = 41%**

---

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## Lower Extremity Impairment Record

### Part I (Foot)

<table>
<thead>
<tr>
<th>Abnormal Motion</th>
<th>Amputation</th>
<th>Other Disorders</th>
<th>Foot Impairment %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Record Motion, Ankylosis and Impairment %</td>
<td>Mark Level &amp; Impairment %</td>
<td>List Type &amp; Impairment %</td>
<td>Combine Digit IMP%</td>
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**Great Toe**

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<thead>
<tr>
<th>IP</th>
<th>Angle°</th>
<th>IMP%</th>
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Combine Impairment % MP+IP = ___  IMP% = ___  IMP% = ___  **Foot Impairment %** Convert via: Tbl 27, pg 59

**Second Toe**

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<thead>
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<th>DIP</th>
<th>Angle°</th>
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<td>MP</td>
<td>Angle°</td>
<td>45%</td>
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Combine Impairment % MP+PIP+DIP = ___  IMP% = ___  IMP% = ___  **Foot Impairment %** Convert via: Tbl 34, pg 64

**Third Toe**

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<tbody>
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<td>DF: T 31 p 62</td>
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Combine Impairment % MP+PIP+DIP = ___  IMP% = ___  IMP% = ___  **Foot Impairment %** Convert via: Tbl 34, pg 64

**Fourth Toe**

<table>
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Combine Impairment % MP+PIP+DIP = ___  IMP% = ___  IMP% = ___  **Foot Impairment %** Convert via: Tbl 34, pg 64

**Fifth Toe**

<table>
<thead>
<tr>
<th>DIP</th>
<th>Angle°</th>
<th>IMP%</th>
<th>DF: T 32 p 62</th>
<th>ANK</th>
<th>IMP%</th>
</tr>
</thead>
<tbody>
<tr>
<td>MP</td>
<td>Angle°</td>
<td>45%</td>
<td>DF: T 32 p 62</td>
<td>ANK</td>
<td>100%</td>
</tr>
</tbody>
</table>

Combine Impairment % MP+PIP+DIP = ___  IMP% = ___  IMP% = ___  **Foot Impairment %** Convert via: Tbl 34, pg 64

Total Foot Impairment (Add Great Toe ___ % + 2nd Toe ___ % + 3rd Toe ___ % + 4th Toe ___ % + Fifth Toe ___ %) = ___

Lower Extremity Impairment: **Convert Total Foot Impairment % To Lower Extremity Impairment % = ___**

Whole Person Impairment: ***Convert Lower Extremity % to Whole Person % = ___***

---

* Combined Values Chart, pg. 254  ** Use Table 36, pg. 65 (Foot to Lower Extremity)  *** Use Table 46, pg. (Lower Extremity to Whole Person)

Developed by and used with the permission of Ronald J. Swarsen, MD

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<table>
<thead>
<tr>
<th>Abnormal Motion</th>
<th>List Other Disorders</th>
<th>Regional Impairment%</th>
<th>Amputation % (Table 47)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 37</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Angle°</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impairment %</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Table 38</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Angle°</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impairment %</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Add IMP% of ROM or use largest ANK

Table 39
| Angle°          |                          |                      |
| Impairment %    |                          |                      |

Table 40 Diagnosis:

Table 41,42
| Angle°          |                          |                      |
| Impairment %    |                          |                      |

Table 45 Diagnosis:

| Angle°          |                          |                      |
| Impairment %    |                          |                      |

Add Impairment% of ROM or use largest Ankylosis

I. Combine all the above Impairments
   (Combine Foot _______% + Hind Foot _______% + Knee _______% + Hip _______%)

Combined total

H. Peripheral Nervous System Impairment Computations:
   A. Sensation ________
   B. Motor ________

Combined Sensory/Motor

III. Peripheral Vascular System Impairment Computations:

Total Lower Extremity Impairment:

Impairment of Whole Person (Use Table 46)
Apportionment Calculation Worksheet

Patient Name: __________________________

Date of Injury: __________________________

**Step 1:** Is there medical documentation or objective evidence of a previous condition of the same body part which would qualify for a rating?

- [ ] No  ➔ Do NOT apportion
- [ ] Yes  ➔ Proceed to **Step 2**

**Step 2:** The date of the *current injury* is:

- [ ] Before July 1, 2008  ➔ Apportion - proceed to **Step 4**
- [ ] After July 1, 2008  ➔ Proceed to **Step 3**

**Step 3**

- [ ] The previous condition is *work related*  ➔ Apportion - proceed to **Step 4**
- [ ] The previous condition is *non-work related* and is *disabling*  ➔ Apportion - proceed to **Step 4**
- [ ] The previous condition is *non-work related* and is *NOT disabling*  ➔ No apportionment, provide a case specific impairment **rating (includes the current injury only)** - refer to complete impairment report

**Step 4:** Apportion by subtracting the previous impairment rating from the current total rating. The current total rating includes the previous condition and current condition. Preferably subtracting like from like, i.e. ROM from ROM

**Step 5:** Current apportioned rating:

<table>
<thead>
<tr>
<th>Spine</th>
<th>Current Total</th>
<th>Previous</th>
<th>Apportioned</th>
<th>%WP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 53</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nerve (Convert Extremity to WP)</td>
<td>% ext</td>
<td>% ext</td>
<td>% ext</td>
<td>%WP</td>
</tr>
<tr>
<td><strong>Final Combined Apportioned Rating</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Upper Extremity &quot;subtract like from like&quot;</th>
<th>Current Total</th>
<th>Previous</th>
<th>Apportioned</th>
<th>% UE</th>
<th>%WP</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nerve</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Final Combined Apportioned Rating</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Revised: 2/2018
### Lower Extremity

<table>
<thead>
<tr>
<th></th>
<th>Current Total</th>
<th>Previous</th>
<th>Apportioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROM</td>
<td></td>
<td></td>
<td>% LE</td>
</tr>
<tr>
<td>Nerve</td>
<td></td>
<td></td>
<td>% LE</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td>% LE</td>
</tr>
<tr>
<td><strong>Final Combined</strong></td>
<td><strong>Apportioned</strong> Rating</td>
<td></td>
<td>% LE %WP</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Current Total</th>
<th>Previous</th>
<th>Apportioned</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>% ext %WP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>% ext %WP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>% ext %WP</td>
</tr>
<tr>
<td><strong>Final Combined</strong></td>
<td><strong>Apportioned</strong> Rating</td>
<td></td>
<td>% ext %WP</td>
</tr>
</tbody>
</table>

*“Disabled” requires information that the prior injury was identified, treated and independently disabling at the time of the current injury. Disabled includes conditions which adversely impact the patient’s ability to perform their job (work restrictions), or limits the patient’s access to other jobs (permanent work restrictions)*

** The case specific rating includes only the current work related diagnosis. If pre-injury ROM measurements are available, or the opposite pre-injury limb has no pathology, the ROM portion of the case specific rating may be individually adjusted or normalized accordingly, when appropriate.

**Example:**

The patient had a previous lumbar strain/sprain with Table 53 diagnostic rating of 5% and 5% ROM impairment. The current injury involves L4-5 disc herniation, unoperated. Current ROM rating is 10%. Remember for Table 53, Sections II, III and IV, the available sub values cannot be combined. These are sections are meant to be progressive values.

### Spine

<table>
<thead>
<tr>
<th></th>
<th>Current Total</th>
<th>Previous</th>
<th>Apportioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 53</td>
<td>IIC (L4-5 herniated disc): 7%</td>
<td>IIB (sprain L1-3) 5%</td>
<td>2 %WP</td>
</tr>
<tr>
<td>ROM</td>
<td>10%</td>
<td>5%</td>
<td>5 %WP</td>
</tr>
<tr>
<td>Nerve (Convert Extremity to WP)</td>
<td>% ext</td>
<td>% ext</td>
<td>% ext %WP</td>
</tr>
<tr>
<td><strong>Final Combined</strong></td>
<td><strong>Apportioned</strong> Rating</td>
<td></td>
<td>7 %WP</td>
</tr>
</tbody>
</table>

Revised: 2/2018
Normalization and Apportionment

**Objectives:**
1) Determine when normalization or apportionment is used when rating impairment.
2) Identify when to use apportionment for previous work related and non-work related cases.
3) Calculate an apportioned impairment rating for an extremity.
4) Determine the appropriate steps and tools necessary to calculate a spine impairment that includes apportionment.
5) Calculate spine range of motion for a previous work-related injury using the Spinal Apportionment Worksheet.

**Links/Worksheets**
- Apportionment Determination Algorithm
- Apportionment Calculation Worksheet
- Impairment Rating Tips - pages 3-4
- Spinal Apportionment Worksheet/Desk Aid 10
- Spine Impairment Summary: Figure 84

**Core Content:** Normalization and apportionment are two different processes that can be used when determining impairment ratings. Normalization is used for range of motion measurements and apportionment is performed when an injured worker has medical records or other objective evidence that substantiates a pre-existing impairment for the same body part.

**Normalization General Principles**
Normalization or “individual adjustment”, can be applied for any type of rating when range of motion (ROM) measurements are documented prior to employment or when the contralateral extremity is uninjured but has limited ROM due to another condition, such as obesity. In this case, the adjustment to the rating is not apportionment because the impairment is not subtracted out from a previous injury.
When using normalization for ROM, remember to subtract “like from like” in the same plane of motion.
Consider the fact that the employer is not liable for ROM limitations that the employee entered the workplace with, only for those that resulted from the injury. Thus, prior valid
ROM may be used to establish the patient’s baseline from which to calculate the current additional impairment.

**Case Example:** A patient has a left knee meniscectomy due to a work-related injury. The patient has reached MMI and the physician is performing an impairment rating for the left knee. The physician obtains and documents ROM measurements for both knees as the patient is a power weight lifter and has increased muscular girth of both legs. She also documents that the right knee has never been injured so she can normalize the measurements. The ROM measurements are as follows with the percent of impairment indicated per AMA Guides, Table 39, p. 68:

<table>
<thead>
<tr>
<th>Joint</th>
<th>Extension/% impairment</th>
<th>Flexion/% impairment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left knee (affected)</td>
<td>0 degrees/0%</td>
<td>115 degrees/12%</td>
</tr>
<tr>
<td>Right knee (unaffected)</td>
<td>0 degrees/0%</td>
<td>120 degrees/11%</td>
</tr>
</tbody>
</table>

The extension measurements are identical with a zero percent impairment and they do not need to be considered for normalization. The physician normalized ROM measurements, comparing flexion of the left knee to flexion of the right knee with an impairment of 12% (left knee) minus 11% (right knee) = 1% impairment for ROM.

**Additional Information for Normalization from the Division’s Impairment Rating Tips (p.7):**

In some cases, the contralateral joint is a better representation of the patient’s pre-injury state than the AMA Guides population norms. The 3rd Revised Edition has little commentary on this procedure, however, the 5th Edition and the Division consider it reasonable to compare both extremities when there are specific conditions which would make the opposite, non-injured extremity serve as a better individual baseline. (This procedure is **not** an apportionment procedure as it does not reflect a prior pathologic condition with impairment; therefore, avoid using the term “apportionment” when referring to this process. This process can be termed “normalization.”) Therefore, when deemed appropriate, the physician may subtract the contralateral joint ROM impairment from the injured joint’s ROM impairment. (An example would be a patient with limited knee flexion due to obesity.) However, this subtraction should not be done if the contralateral joint has a known previous injury because that joint may not reflect the
‘normal’ ROM for that individual. Make sure that you explain your methodology and your rationale in your report.

**Apportionment General Principles:**
Apportionment is a legal term referring to the division of liability for injuries (pre-existing and current injury) as determined by the workers’ compensation statute. In the medical arena, apportionment is performed by subtracting a previous impairment from the current total impairment rating for the affected body part. This is performed when an injured worker has medical records or other objective evidence that substantiates a pre-existing impairment for the same body part.

Rules for apportionment of a pre-existing injury (Rule 12-3), if:
1) The previous condition is **work related** and there is evidence of an impairment rating → Apportionment can be performed;
2) The previous condition is **non-work related** and is **disabling** → Apportionment can be performed;
3) The previous condition is **non-work related** and is NOT **disabling** → No apportionment can be performed.

* “Disabled” requires information that the prior injury was identified, treated and independently disabling at the time of the current injury. Disabled includes conditions which adversely impact the patient’s ability to perform their job (work restrictions), or limits the patient’s access to other jobs (permanent work restrictions.)

Consider that the entire upper extremity is worth 60% whole person impairment as shown in Figure 2, p. 15 of the AMA Guides:
The total impairment of all workers’ compensation injuries to that arm over time will not exceed 60%. Therefore, if there has been a prior injury with an impairment rating and compensation, that prior impairment rating is deducted from the total current rating. The current employer is only paying for the remaining portion of the arm that has not been previously rated.

**Apportionment Example #1:**
A patient was born without 4th and 5th digits on the right hand, but he is able to function well at his job and perform ADLs without the use of these fingers. He then suffered a 3rd digit amputation at work. Since he had congenitally lost the 4th and 5th digits, these would not be included in the impairment rating as it was not a work-related injury and there is no disability; therefore, there is no apportionment. Thus, only the 3rd digit amputation would receive a rating, which is a “current case specific rating.”
Apportionment Example #2:
A patient suffered a 4th and 5th digit right hand amputation due to a prior workers’ compensation injury. Thus, the patient received a monetary settlement for workers’ compensation for the partial loss of the right hand with the two-digit amputation.
The new work-related injury is an amputation of the right 3rd digit. When computing the impairment rating, all three fingers are included in the “current total” hand rating and then the previous rating for the 4th and 5th digits would be subtracted out at the hand level. The calculated result is the “apportioned rating.”

In Colorado, there is a twist to this problem as a non-work related impairment which impedes employment activities would actually be apportioned. The non-work related impairment must be considered disabling in order to be apportioned.

Medical records or other objective evidence must substantiate a preexisting impairment to the same body part in order for apportionment to be calculated. An explanation of the basis of apportionment must be included in the written report.

Do not apportion if there is insufficient information about the past injury to establish an impairment. If you do not have medical records and do not feel comfortable apportioning a condition or injury, then document this in the medical record.

Apportionment cannot be performed by estimating the percentage attributable to the prior injury or disease. Estimating the impairment without proper documentation is not acceptable. For example, “50% of the prior knee injury is due to a ski accident” cannot be apportioned.

Definitions:
Current Total: Total impairment rating for all involved body parts
Current Case Specific: Impairment rating for the current injury only, rating does not include previous injuries.
Independently Disabling: Includes conditions which adversely impact the patient’s ability to perform their job (work restrictions), or limit the patient’s access to other jobs (permanent work restrictions).

Steps For Determining Apportionment: per Senate Bill 08-241 and Rule 12-3, the following steps are required in order to determine if apportionment is appropriate when calculating an impairment rating. Based on the statute, the date of the work-related injury determines how apportionment is performed.
**Step 1:** Is there medical documentation or objective evidence of a previous condition of the same body part which would qualify for a rating?

No → Do NOT apportion  
Yes → Proceed to **Step 2**

**Step 2:** The date of the *current injury*

**Before** July 1, 2008 → Apportion - proceed to **Step 4**  
**After** July 1, 2008 → Proceed to **Step 3**

**Step 3:**
The previous condition is **work-related**  → Apportion-proceed to **Step 4**
The previous condition is **non-work related** and is **disabling***  → Apportion - proceed to **Step 4**
The previous condition is **non-work related and is NOT disabling***  → No apportionment, provide case-specific impairment **rating**(includes the current injury only)

**Step 4:** Apportion by subtracting the prior impairment rating from the current total rating. The current total rating includes the previous condition and current condition. 
Preferably subtracting like from like, i.e. ROM from ROM

**Step 5:** Combine the values to determine the upper or lower extremity impairment rating and convert from extremity units to whole person, if applicable. For spinal conditions, combine values for a whole person apportioned rating.

**“Disabled” requires information that the prior injury was identified, treated and independently disabling at the time of the current injury. Disabled includes conditions which adversely impact the patient’s ability to perform their job (work restrictions), or limits the patient’s access to other jobs (permanent work restrictions)**

**The case-specific rating includes only the current work-related diagnosis. If prior ROM measurements are available, or the opposite pre-injury limb has no pathology, the ROM portion of the case-specific rating may be individually adjusted or normalized accordingly, when appropriate.**
Refer to the Apportionment Calculation Worksheet. The Division strongly requires the completion of this form for all impairment ratings in which apportionment is being considered. Remember that normalization or individual adjustments are not apportionment.

**Additional Information for Apportionment from the Division’s Impairment Rating Tips, (p. 3-4)**

Asymptomatic conditions cannot be evaluated for prior impairment. Only previously symptomatic conditions should be considered for apportionment. (Reference: Askew v. Industrial Claim Appeals Office, 927 P.2d 1333 (Colo. 1996); Rule 12).

To apportion you must create a rating of the worker’s impairment immediately prior to the current injury or disease using the AMA Guides, 3rd Edition (rev.). Subtract this rating from the current total rating at the appropriate levels.

Age: Because age is considered in the calculation of benefits which the injured worker will receive, there is no additional apportionment for age when awarding impairment ratings (Reference: C.R.S. §8-42-107).

**Case Example:**

**Apportionment for Extremities:** non-work related prior injury

Patient reports an arthroscopic partial medial menisectomy to his right knee in 2013 due to a ski injury while he was on vacation in Utah. (Records are enclosed in the report) He reports returning to work as a carpenter without work restrictions and reports intermittent pain in the knee until his work-related injury January 3, 2016.

On January 3rd, 2016, the patient reports missing the last step while descending a ladder at work, causing his right knee to twist and buckle. Conservative care did not alleviate the pain, so a MRI was obtained, indicating a further medial meniscus tear. A meniscal allograft of the right knee was performed. He reports 80% improvement, is placed at MMI with an impairment rating to be calculated.

*Using the Apportionment Calculation Worksheet, is apportionment indicated?*
Apportionment Calculation Worksheet

Patient Name: ____________________________

Date of Injury: ____________________________

**Step 1:** Is there medical documentation or objective evidence of a previous condition of the same body part which would qualify for a rating?

- [ ] No  →  Do NOT apportion
- [ ] Yes  →  Proceed to **Step 2**

**Step 2:** The date of the *current injury* is:

- [ ] Before July 1, 2008  →  Apportion - proceed to **Step 4**
- [ ] After July 1, 2008  →  Proceed to **Step 3**

**Step 3**

- [ ] The previous condition is *work-related*  →  Apportion - proceed to **Step 4**
- [ ] The previous condition is *non-work related* and is *disabling*  →  Apportion - proceed to **Step 4**
- [ ] The previous condition is *non-work related* and is *NOT disabling*  →  No apportionment, provide a case specific impairment ** rating (includes the current injury only) - refer to complete impairment report

**Step 4:** Apportion by subtracting the previous impairment rating from the current total rating. The current total rating includes the previous condition and current condition. Preferably subtracting like from like, i.e. ROM from ROM

**Step 5:** Current apportioned rating:

<table>
<thead>
<tr>
<th>Spine</th>
<th>Current Total</th>
<th>Previous</th>
<th>Apportioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 53</td>
<td></td>
<td></td>
<td>%WP</td>
</tr>
<tr>
<td>ROM</td>
<td></td>
<td></td>
<td>%WP</td>
</tr>
<tr>
<td>Nerve (Convert Extremity to WP)</td>
<td>% ext</td>
<td>% ext</td>
<td>% ext</td>
</tr>
<tr>
<td><strong>Final Combined Apportioned Rating</strong></td>
<td></td>
<td></td>
<td>%WP</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Upper Extremity</th>
<th>Current Total</th>
<th>Previous</th>
<th>Apportioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROM</td>
<td></td>
<td>% UE</td>
<td>% UE</td>
</tr>
<tr>
<td>Nerve</td>
<td></td>
<td>% UE</td>
<td>% UE</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td>% UE</td>
<td>% UE</td>
</tr>
<tr>
<td><strong>Final Combined Apportioned Rating</strong></td>
<td></td>
<td>% UE</td>
<td>%WP</td>
</tr>
</tbody>
</table>

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### Lower Extremity

<table>
<thead>
<tr>
<th></th>
<th>Current Total</th>
<th>Previous</th>
<th>Apportioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROM</td>
<td></td>
<td></td>
<td>% LE</td>
</tr>
<tr>
<td>Nerve</td>
<td></td>
<td></td>
<td>% LE</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td>% LE</td>
</tr>
<tr>
<td><strong>Final Combined Apportioned Rating</strong></td>
<td></td>
<td></td>
<td>% LE</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Current Total</th>
<th>Previous</th>
<th>Apportioned</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>% ext</td>
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<td>% ext</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>% ext</td>
</tr>
<tr>
<td><strong>Final Combined Apportioned Rating</strong></td>
<td></td>
<td></td>
<td>% ext</td>
</tr>
</tbody>
</table>

* “Disabled” requires information that the prior injury was identified, treated and independently disabling at the time of the current injury. Disabled includes conditions which adversely impact the patient’s ability to perform their job (work restrictions), or limits the patient’s access to other jobs (permanent work restrictions)

** The case specific rating includes only the current work related diagnosis. If pre-injury ROM measurements are available, or the opposite pre-injury limb has no pathology, the ROM portion of the case specific rating may be individually adjusted or normalized accordingly, when appropriate.

**Example:**

The patient had a previous lumbar strain/sprain with Table 53 diagnostic rating of 5% and 5% ROM impairment. The current injury involves L4-5 disc herniation, unoperated. Current ROM rating is 10%. Remember for Table 53, Sections II, III and IV, the available sub values cannot be combined. These are sections are meant to be **progressive** values.

### Spine

<table>
<thead>
<tr>
<th></th>
<th>Current Total</th>
<th>Previous</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Table 53</td>
<td>IIC (L4-5 herniated disc): 7%</td>
<td>IIB (sprain L1-3) 5%</td>
<td>2 % WP</td>
</tr>
<tr>
<td>ROM</td>
<td>10%</td>
<td>5%</td>
<td>5 % WP</td>
</tr>
<tr>
<td>Nerve (Convert Extremity to WP)</td>
<td>% ext</td>
<td>% ext</td>
<td>% ext</td>
</tr>
<tr>
<td><strong>Final Combined Apportioned Rating</strong></td>
<td></td>
<td></td>
<td>7 % WP</td>
</tr>
</tbody>
</table>

Revised: 2/2018
**Answer:** No, the past injury is not work related and not independently disabling due to the patient indicating he returned to work without work restrictions. The impairment rating would be calculated from the current injury only. This is a **case specific** rating.

**Apportionment for Extremities:** work related prior injury

Patient reports an arthroscopic partial medial meniscectomy to his right knee due to a work related injury on February 1, 2013. The patient reports he was working as a carpenter, lifting a load of 50# from floor to waist too quickly and twisted his upper body without pivoting the lower body. He states his right knee twisted and buckled, which caused a meniscus tear. The patient was placed at MMI and given an impairment rating in May 2013. The rating was 5% for the meniscectomy and 4% for ROM, equaling a total 9% lower extremity rating. On January 3rd, 2016, patient reports missing the last step while descending a ladder at work, which caused his right knee to twist and buckle. Conservative care did not alleviate the pain, so a MRI was obtained, indicating a medial meniscus tear. The patient reports that a meniscal allograft to the right knee was performed. He reports 80% improvement, is placed at MMI with an impairment rating to be calculated.

Right knee ROM measurements:
- Flexion: 130 degrees
- Extension: 0 degrees

**Would apportionment be indicated?**

**Answer:** Yes, since the current injury occurred after July 1, 2008, and a past work related impairment rating was performed, apportionment is indicated.

**Using the Apportionment Calculation Worksheet, what is the current impairment rating?**
## Apportionment Calculation Worksheet

**Patient Name:**

**Date of Injury:**

**Step 1:** Is there medical documentation or objective evidence of a previous condition of the same body part which would qualify for a rating?

- No → Do NOT apportion
- Yes → Proceed to **Step 2**

**Step 2:** The date of the *current injury* is:

- Before July 1, 2008 → Apportion - proceed to **Step 4**
- After July 1, 2008 → Proceed to **Step 3**

**Step 3**

- The previous condition is *work-related* → Apportion - proceed to **Step 4**
- The previous condition is *non-work related and is disabling* → Apportion - proceed to **Step 4**
- The previous condition is *non-work related and is NOT disabling* → No apportionment, provide a case specific impairment ** rating (includes the current injury only) - refer to complete impairment report

**Step 4:** Apportion by subtracting the previous impairment rating from the current total rating. The current total rating includes the previous condition and current condition. Preferably subtracting like from like, i.e. ROM from ROM

**Step 5:** Current apportioned rating:

### Spine

<table>
<thead>
<tr>
<th>Current Total</th>
<th>Previous</th>
<th>Apportioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 53</td>
<td></td>
<td>%WP</td>
</tr>
<tr>
<td>ROM</td>
<td></td>
<td>%WP</td>
</tr>
<tr>
<td>Nerve (Convert Extremity to WP)</td>
<td>% ext</td>
<td>% ext</td>
</tr>
<tr>
<td>Final Combined Apportioned Rating</td>
<td></td>
<td>%WP</td>
</tr>
</tbody>
</table>

### Upper Extremity

<table>
<thead>
<tr>
<th>Current Total</th>
<th>Previous</th>
<th>Apportioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROM</td>
<td></td>
<td>% UE</td>
</tr>
<tr>
<td>Nerve</td>
<td></td>
<td>% UE</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td>% UE</td>
</tr>
<tr>
<td>Final Combined Apportioned Rating</td>
<td></td>
<td>% UE</td>
</tr>
</tbody>
</table>
"subtract like from like"

<table>
<thead>
<tr>
<th>Lower Extremity</th>
<th>Current Total</th>
<th>Previous</th>
<th>Apportioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROM</td>
<td></td>
<td></td>
<td>% LE</td>
</tr>
<tr>
<td>Nerve</td>
<td></td>
<td></td>
<td>% LE</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td>% LE</td>
</tr>
<tr>
<td><strong>Final Combined</strong></td>
<td><strong>Apportioned Rating</strong></td>
<td></td>
<td>% LE % WP</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other</th>
<th>Current Total</th>
<th>Previous</th>
<th>Apportioned</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>% ext % WP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>% ext % WP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>% ext % WP</td>
</tr>
<tr>
<td><strong>Final Combined</strong></td>
<td><strong>Apportioned Rating</strong></td>
<td></td>
<td>% ext % WP</td>
</tr>
</tbody>
</table>

* “Disabled” requires information that the prior injury was identified, treated and independently disabling at the time of the current injury. Disabled includes conditions which adversely impact the patient’s ability to perform their job (work restrictions), or limits the patient’s access to other jobs (permanent work restrictions)

** The case specific rating includes only the current work related diagnosis. If pre-injury ROM measurements are available, or the opposite pre-injury limb has no pathology, the ROM portion of the case specific rating may be individually adjusted or normalized accordingly, when appropriate.

Example:

The patient had a previous lumbar strain/sprain with Table 53 diagnostic rating of 5% and 5% ROM impairment. The current injury involves L4-5 disc herniation, unoperated. Current ROM rating is 10%.

Remember for Table 53, Sections II, III and IV, the available sub values cannot be combined. These are sections are meant to be *progressive* values.

<table>
<thead>
<tr>
<th>Spine</th>
<th>Current Total</th>
<th>Previous</th>
<th>Apportioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 53</td>
<td>IIC (L4-5 herniated disc): 7%</td>
<td>IIB (sprain L1-3) 5%</td>
<td>2 % WP</td>
</tr>
<tr>
<td>ROM</td>
<td>10%</td>
<td>5%</td>
<td>5 % WP</td>
</tr>
<tr>
<td>Nerve (Convert Extremity to WP)</td>
<td>% ext</td>
<td>% ext</td>
<td>% ext % WP</td>
</tr>
<tr>
<td><strong>Final Combined</strong></td>
<td><strong>Apportioned Rating</strong></td>
<td></td>
<td>7 % WP</td>
</tr>
</tbody>
</table>

Revised: 2/2018
### Answer: Current Case Specific | Previous | Total Current
--- | --- | ---
ROM: 7% | 4% | 3%
Table 40: 7% | 5% | 2%

Combine ROM impairment and Table 40 impairment = 5% lower extremity impairment, which converts to 2% whole person impairment.

** Note: if the past reported lower extremity impairment rating is not segmented by ROM and Table 40 rating, then subtract the past total lower extremity rating from the current total lower extremity rating.
In this case: past lower extremity impairment rating: 9%, current lower extremity impairment rating: 14% = 5% apportioned lower extremity rating.

### Apportionment of spinal conditions

**Step 1:** If a pre-injury Table 53 rating can be supported with objective evidence, it must be subtracted from the current total Table 53 rating.

- The current TOTAL rating cannot be less than the previous rating.

**Step 2:** Deduct “like from like” past range of motion impairment from *current* ROM impairment

**Step 3:** Combine the Table 53 impairment and ROM impairment rating for the final whole person spine impairment rating.

### Apportionment of spinal conditions when past ROM is NOT available

**Step 1:** If a pre-injury Table 53 rating can be supported with objective evidence, it must be subtracted from the current total Table 53 rating.

- The current TOTAL rating cannot be less than the previous rating.

**Step 2:** Utilize the [Apportionment of Spinal Conditions Worksheet/Desk Aid 10](#) if range of motion measurements are not available or were not taken in accordance with the *AMA Guides, 3rd Edition, revised*.

- The inclusion of Tables A-D from the [Apportionment of Spinal Conditions Worksheet/Desk Aid 10](#) must be submitted with the report
Step 3: *Table A*: Use clinical judgment, history and physical examination findings and other objective evidence to choose the severity category in *Table A* of the Worksheet

- Use *Table A* to indicate the available information prior to the current date of injury and determine the severity category.

The calculation for the pre-injury ROM impairment is found by using methodology similar to rating a peripheral nerve. The severity grading category is calculated, and this value is then multiplied by the maximum ROM available for that diagnosis.

**TABLE A**

Severity Index Worksheet for Evaluation of Range of Motion Deficit from a Previous Spinal Injury

<table>
<thead>
<tr>
<th>Severity:</th>
<th>(None)</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restriction in activity (work and activities of daily living) caused by previous spinal injury</td>
<td>Full Activity (no restrictions)</td>
<td>Temporary episode-related restriction</td>
<td>Some permanent restriction</td>
<td>Limited to sedentary activities</td>
<td></td>
</tr>
<tr>
<td>Number of episodes within the year prior to the current injury causing functional disability</td>
<td>0</td>
<td>1</td>
<td>2-3</td>
<td>&gt;3</td>
<td></td>
</tr>
<tr>
<td>Time lost from work in last 12 months due to the previous injury</td>
<td>0</td>
<td>1-2 days</td>
<td>3-5 days</td>
<td>&gt;5 days</td>
<td></td>
</tr>
<tr>
<td>Medical visits (MD, DO, DC) in the last 12 months due to the previous injury</td>
<td>None</td>
<td>1-2 visits</td>
<td>3-6 visits</td>
<td>&gt;6 visits</td>
<td></td>
</tr>
</tbody>
</table>

| TOTAL | (NONE) | (MILD) | (MODERATE) | (SEVERE) | N/A |

---

1. This table only applies when the injury occurred in the same spinal area—cervical, thoracic or lumbar—as the work-related injury being rated.
2. Frequently, detailed information on a specific category may not be available. If that is the case, check this column.
Step 4: Table B: Based on the severity category in Table A, select the correct category in Table B.
- Any number within the range can be used as the range allows adjustment for outliers from Table A.

**TABLE B**

Severity Category Ranges

<table>
<thead>
<tr>
<th>Range of motion apportionment for previous injury</th>
<th>None</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
<th>Patient’s %</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>1 – 33%</td>
<td>34 - 66%</td>
<td>67 – 100%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Choose the Severity Category and % which best represents the patient:
Step 5: Table C:
- Use the previous Table 53 category
- Apply this to Table C (Maximum Allowable Spinal Deficits for ROM of Prior Injuries)
  - Use the footnotes for diagnosis category descriptions of prior injury at the bottom of the chart

**TABLE C**

Maximum Allowable Spinal Deficits for Range of Motion Apportionment of Prior Injuries

<table>
<thead>
<tr>
<th>Medical Condition (using Table 53 p. 80 as a reference)</th>
<th>Cervical</th>
<th>Thoracic</th>
<th>Lumbar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spinal Fusion(^1)</td>
<td>14%</td>
<td>4%</td>
<td>12%</td>
</tr>
<tr>
<td>Other surgically-treated disc lesions(^2)</td>
<td>6%</td>
<td>2%</td>
<td>5%</td>
</tr>
<tr>
<td>Other disorders rated under Table 53(^3)</td>
<td>3%</td>
<td>1%</td>
<td>3%</td>
</tr>
</tbody>
</table>

\(^1\) For one-level fusion, complete severity category rating (Table B) as directed. For a two or multi-level fusion, use the full 14%, 4% or 12% (as appropriate to the spinal region).

\(^2\) If disectomy is done in conjunction with fusion, use fusion value on the table.

\(^3\) This includes all other Table 53 ratings including diagnosis for fracture, spinal stenosis, spondyloysis, spondylolistheses, or chronic pain with medically documented injury and a minimum of six months medically documented pain and rigidity with or without muscle spasm
Step 6: Table D: Multiply the percentage from Table B times the percentage from Table C to determine the range of motion impairment for the previous condition.
   - Round 0.5% or higher up and less than 0.5% down.

Calculate the ROM % whole person impairment after apportionment by subtracting the previous ROM % impairment from the current ROM % impairment.
* Note: this does NOT account for the Table 53 rating, only ROM. The Table 53 apportionment must be performed separately.

**TABLE D**
Calculation of Apportionable ROM

<table>
<thead>
<tr>
<th>Patient’s Percentage from Table B ______% x WP Apportionable Percentage from Table C ______% = ______% ROM impairment due to previous injury *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Pre-apportionment ROM Impairment ______% - ______% ROM due to previous injury = ______% ROM WP Impairment after apportionment*</td>
</tr>
</tbody>
</table>

*Round 0.5% up to the next whole number, less than 0.5% down to the nearest whole number.

Step 7: Utilize the Spine Summary Sheet (Figure 84) to calculate the final total impairment rating by combining the Table 53 apportioned diagnosis impairment rating value with the *predicted* ROM value from above.
- Cervical Spine: Figure 81
- Thoracic Spine: Figure 82
- Lumbar Spine: Figure 83
- Spine Impairment Summary Sheet with Apportionment (Figure 84)
Case Example:
Patient is a mechanic who reports a work-related injury in May of 2011, with a diagnosis of L4-5 strain. The patient reports rehabilitation for 8 months after the injury and reports minimal residual problems after the treatments. He states he has lost 2-3 days in the last year due to lumbar pain and has sought chiropractic treatment twice last year. Patient states he has been able to work without restrictions when the back pain episodes began. He reports an impairment rating was performed but there are no records to indicate the ROM impairment or final impairment rating.
The patient’s current injury is a work-related L4-5 disc herniation with a discectomy. The patient reports success with the surgery with no residual signs or symptoms. His ROM impairment is calculated as 7%.

Determine the Table 53 impairment rating for the previous injury.
Answer: Table 53 IIB: 5%. Unoperated lumbar strain with more than 6 months of documented treatment and minimal residual problems.

Determine the current total Table 53 impairment rating.
Answer: Table 53 II D: 8%. One level surgically treated disc lesion without residual signs or symptoms. Unlike some other portions of the Guides, it is not appropriate to combine 5% and 8% to arrive at the current total rating. In Table 53, Section II, the current total rating of 8% encompasses both the strain and the surgery by using the higher of the two ratings. Remember, the highest value within each Section of Table 53 must be used.

Using the Worksheet for ROM Spinal Apportionment (Desk Aid 10), what is the % ROM impairment due to the previous injury?
APPORTIONMENT OF SPINAL CONDITIONS / INJURIES

INSTRUCTIONS:

1. Each spinal area is rated separately: cervical, thoracic and lumbar. For example, a previous injury to the cervical spine cannot be used to justify apportionment on a current thoracic spine injury.

2. For injuries that occurred on or after July 1, 2008: If you determine that the previous injury is (1) non-work-related, and (2) was not independently disabling at the time of the current injury, do not continue with this process.

3. The physician must determine whether there is objective evidence to support a pre-injury Table 53 rating. The six-month time period required in Table 53 can be met by cumulative or consecutive episodes. If a pre-injury Table 53 rating can be supported, it must be subtracted from the current Table 53 rating. Remember that the current TOTAL rating cannot be less than the previous rating.

4. If the patient has pre-injury spinal range of motion measurements taken consistent with the AMA Guides 3rd edition (revised), the impairment from those measurements should be subtracted from the ROM impairment calculated for the current spinal injury.

5. If no pre-injury range of motion measurements exist and the patient has a pre-injury condition of diskectomy, fusion, fracture, spinal stenosis, spondylolysis, spondylolistheses, or chronic pain with medically documented injury and a minimum of six months medically documented pain and rigidity with or without muscle spasm, then the ROM category may be evaluated for apportionment.
   a. To apportion ROM, the physician uses clinical judgment, history and physical exam findings, and other objective evidence to choose the severity category (none, mild, moderate or severe) that best represents the preinjury state of the patient. The total number in each severity category on the Severity Index worksheet (Table A) can be used as a guide to help determine the appropriate severity category. In many cases all of the information in Table A may not be available. In that case, indicate the information that is missing on Table A and determine the severity category from the available information.
   b. Each severity category has a range of percentage associated with it (Table B). After you have determined the appropriate severity category use Table B to determine the available percentage for that category that you believe best represents the patient.
   c. Multiply the percentage for the severity category from Table B times the maximum available apportionable percentage for ROM for the patient’s previous diagnosis found in Table C. Round 0.5% or higher up and less than 0.5% down. See Table D.
   d. Subtract the apportionable ROM percentage from the total ROM percentage calculated for the current impairment.
**Worksheet for Range of Motion Spinal Apportionment**

<table>
<thead>
<tr>
<th>Patient:</th>
<th>Patient WC#:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of Injury:</td>
<td>Carrier #:</td>
</tr>
<tr>
<td>Physician:</td>
<td>Patient Record #</td>
</tr>
</tbody>
</table>

**TABLE A**

Severity Index Worksheet for Evaluation of Range of Motion Deficit from a Previous Spinal Injury

<table>
<thead>
<tr>
<th>Severity:</th>
<th>(None)</th>
<th>√</th>
<th>Mild</th>
<th>√</th>
<th>Moderate</th>
<th>√</th>
<th>Severe</th>
<th>√</th>
<th>N/A²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restriction in activity (work and activities of daily living) caused by previous spinal injury</td>
<td>Full Activity (no restrictions)</td>
<td>Temporary episode-related restriction</td>
<td>Some permanent restriction</td>
<td>Limited to sedentary activities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of episodes within the year prior to the current injury causing functional disability</td>
<td>0</td>
<td>1</td>
<td>2 - 3</td>
<td>&gt;3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time lost from work in last 12 months due to the previous injury</td>
<td>0</td>
<td>1-2 days</td>
<td>3-5 days</td>
<td>&gt;5 days</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical visits (MD, DO, DC) in the last 12 months due to the previous injury</td>
<td>None</td>
<td>1-2 visits</td>
<td>3-6 visits</td>
<td>&gt;6 visits</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>(NONE)</td>
<td>(MILD)</td>
<td>(MODERATE)</td>
<td>(SEVERE)</td>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

¹ This table only applies when the injury occurred in the same spinal area--cervical, thoracic or lumbar—as the work-related injury being rated.

² Frequently, detailed information on a specific category may not be available. If that is the case, check this column.
**TABLE B**

Severity Category Ranges

<table>
<thead>
<tr>
<th>Range of motion apportionment for previous injury</th>
<th>None</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
<th>Patient’s %</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>1 – 33%</td>
<td>34 - 66%</td>
<td>67 – 100%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TABLE C**

Maximum Allowable Spinal Deficits for Range of Motion Apportionment of Prior Injuries

<table>
<thead>
<tr>
<th>Medical Condition (using Table 53 p. 80 as a reference)</th>
<th>Total Apportionable Impairment Percentage for Range of Motion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cervical</td>
<td>Thoracic</td>
</tr>
<tr>
<td>Spinal Fusion¹</td>
<td>14%</td>
</tr>
<tr>
<td>Other surgically-treated disc lesions²</td>
<td>6%</td>
</tr>
<tr>
<td>Other disorders rated under Table 53³</td>
<td>3%</td>
</tr>
</tbody>
</table>

¹ For one-level fusion, complete severity category rating (Table B) as directed. For a two or multi-level fusion, use the full 14%, 4% or 12% (as appropriate to the spinal region).

² If disectomy is done in conjunction with fusion, use fusion value on the table.

³ This includes all other Table 53 ratings including diagnosis for fracture, spinal stenosis, spondyloysis, spondylolistheses, or chronic pain with medically documented injury and a minimum of six months medically documented pain and rigidity with or without muscle spasm.
**TABLE D**

**Calculation of Apportionable ROM**

<table>
<thead>
<tr>
<th>Patient’s Percentage from Table B _____ % x  WP Apportionable Percentage from Table C _____ % = _____ % ROM impairment due to previous injury *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Pre-apportionment ROM Impairment _____ % - _____ % ROM due to previous injury = _____ % ROM WP Impairment after apportionment*</td>
</tr>
</tbody>
</table>

*Round 0.5% up to the next whole number, less than 0.5% down to the nearest whole number.

Physician Signature: __________________________ Date: __________________________
Answer:

Table A: mild

Table B: Mild: 1-33% range, picked 20%

Table C: Lumbar (other disorders): 3% (from pre-injury diagnosis): Footnote 3 at bottom of chart: “This includes all other Table 53 ratings including diagnosis for fracture, spinal stenosis, spondylolysis, spondylolisthesis, or chronic pain with medically documented injury and a minimum of six months medically documented pain and rigidity with or without muscle spasm”

Table D: 20% (Table B) x 3% (Table C) = 0.6%, which rounds to 1% ROM impairment from past injury

Using Figure 84 (Spine Impairment Summary Sheet with Apportionment), calculate the final apportioned impairment rating.
## Spine Impairment Summary

<table>
<thead>
<tr>
<th>Impairment</th>
<th>Current</th>
<th>Prior</th>
<th>Apportioned</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cervical</td>
<td>Thoracic</td>
<td>Lumbar</td>
</tr>
<tr>
<td>1. Due to Specific Disorders (Table 53 or Table 54)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Range of Motion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Neurologic System: Loss of Sensation With or Without Pain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loss of Strength</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Other – From Sec. 3.4 p. 101</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Regional Impairment Total (Combine impairments in each column using the combined values Chart p. 254)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Spine Impairment Total (Combine all regional totals using the Combined Values Chart)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Impairment(s) of other organ systems: for each impairment list condition, page number in <em>Guides</em>, and percentage of impairment.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impaired System</td>
<td>Guides</td>
<td>Current Impairment</td>
<td></td>
</tr>
<tr>
<td>a.</td>
<td>Page No.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Impairment of Whole Person – use Combined Values Chart to combine spine impairment with the impairment(s) listed in 7 above. If several impairments are listed, combine spine impairment with the larger or largest value, then combine the resulting percentage with any other value(s), until all the listed impairments have been accounted for.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total whole person impairment:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Answer:

The apportioned rating is:

<table>
<thead>
<tr>
<th></th>
<th>Current Total</th>
<th>Previous Rating</th>
<th>Total Apportioned Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 53</td>
<td>8%</td>
<td>5%</td>
<td>3%</td>
</tr>
<tr>
<td>ROM</td>
<td>7%</td>
<td>1%</td>
<td>6%</td>
</tr>
</tbody>
</table>

3% (Table 53) combines with 6% (ROM) for a total apportioned rating of 9%.

Worksheets
- Apportionment Calculation Worksheet
- Spinal Apportionment Worksheet/Desk Aid 10
- Spine Impairment Summary: Figure 84
**Figure 84. Spine Impairment Summary**

<table>
<thead>
<tr>
<th>Impairment</th>
<th>Current</th>
<th>Prior</th>
<th>Apportioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Due to Specific Disorders (Table 53 or Table 54)</td>
<td>Cervical</td>
<td>Thoracic</td>
<td>Lumbar</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>2. Range of Motion</td>
<td></td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>3. Neurologic System: Loss of Sensation With or Without Pain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loss of Strength</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Other–From Sec. 3.4 p. 101</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Regional Impairment Total (Combine impairments in each column using the combined values Chart p. 254)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Spine Impairment Total (Combine all regional totals using the Combined Values Chart)</td>
<td></td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>7. Impairment(s) of other organ systems: for each impairment list condition, page number in Guides, and percentage of impairment.</td>
<td>Impaired System</td>
<td>Guides</td>
<td>Current Impairment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Page No.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>a.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>b.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>c.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>d.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>e.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Impairment of Whole Person–use Combined Values Chart to combine spine impairment with the impairment(s) listed in 7 above. If several impairments are listed, combine spine impairment with the larger or largest value, then combine the resulting percentage with any other value(s), until all the listed impairments have been accounted for.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total whole person impairment: 9</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Apportionment Calculation Worksheet

Patient Name: __________________________

Date of Injury: __________________________

Step 1: Is there medical documentation or objective evidence of a previous condition of the same body part which would qualify for a rating?

☐ No → Do NOT apportion
☐ Yes → Proceed to Step 2

Step 2: The date of the current injury is:

☐ Before July 1, 2008 → Apportion - proceed to Step 4
☐ After July 1, 2008 → Proceed to Step 3

Step 3

☐ The previous condition is work related → Apportion - proceed to Step 4
☐ The previous condition is non-work related and is disabling* → Apportion - proceed to Step 4
☐ The previous condition is non-work related and is NOT disabling* → No apportionment, provide a case specific impairment ** rating (includes the current injury only) - refer to complete impairment report

Step 4: Apportion by subtracting the previous impairment rating from the current total rating. The current total rating includes the previous condition and current condition. Preferably subtracting like from like, i.e. ROM from ROM

Step 5: Current apportioned rating:

<table>
<thead>
<tr>
<th>Spine</th>
<th>Current Total</th>
<th>Previous</th>
<th>Apportioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 53</td>
<td></td>
<td></td>
<td>%WP</td>
</tr>
<tr>
<td>ROM</td>
<td></td>
<td></td>
<td>%WP</td>
</tr>
<tr>
<td>Nerve (Convert Extremity to WP)</td>
<td>% ext</td>
<td>% ext</td>
<td>% ext</td>
</tr>
<tr>
<td>Final Combined Apportioned Rating</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Upper Extremity &quot;subtract like from like&quot;</th>
<th>Current Total</th>
<th>Previous</th>
<th>Apportioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROM</td>
<td></td>
<td></td>
<td>% UE</td>
</tr>
<tr>
<td>Nerve</td>
<td></td>
<td></td>
<td>% UE</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td>% UE</td>
</tr>
<tr>
<td>Final Combined Apportioned Rating</td>
<td></td>
<td></td>
<td>% UE</td>
</tr>
</tbody>
</table>

Revised: 2/2018
### Lower Extremity

<table>
<thead>
<tr>
<th></th>
<th>Current Total</th>
<th>Previous</th>
<th>Apportioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROM</td>
<td></td>
<td></td>
<td>% LE</td>
</tr>
<tr>
<td>Nerve</td>
<td></td>
<td></td>
<td>% LE</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td>% LE</td>
</tr>
<tr>
<td><strong>Final Combined</strong></td>
<td></td>
<td></td>
<td>% LE</td>
</tr>
<tr>
<td><strong>Apportioned Rating</strong></td>
<td></td>
<td></td>
<td>% WP</td>
</tr>
</tbody>
</table>

### Other

<table>
<thead>
<tr>
<th></th>
<th>Current Total</th>
<th>Previous</th>
<th>Apportioned</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>% ext</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>% WP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>% ext</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>% WP</td>
</tr>
<tr>
<td><strong>Final Combined</strong></td>
<td></td>
<td></td>
<td>% ext</td>
</tr>
<tr>
<td><strong>Apportioned Rating</strong></td>
<td></td>
<td></td>
<td>% WP</td>
</tr>
</tbody>
</table>

* “Disabled” requires information that the prior injury was identified, treated and independently disabling at the time of the current injury. Disabled includes conditions which adversely impact the patient’s ability to perform their job (work restrictions), or limits the patient’s access to other jobs (permanent work restrictions)

** The case specific rating includes only the current work related diagnosis. If pre-injury ROM measurements are available, or the opposite pre-injury limb has no pathology, the ROM portion of the case specific rating may be individually adjusted or normalized accordingly, when appropriate.

**Example:**

The patient had a previous lumbar strain/sprain with Table 53 diagnostic rating of 5% and 5% ROM impairment. The current injury involves L4-5 disc herniation, unoperated. Current ROM rating is 10%. Remember for Table 53, Sections II, III and IV, the available sub values cannot be combined. These are sections are meant to be progressive values.

<table>
<thead>
<tr>
<th>Spine</th>
<th>Current Total</th>
<th>Previous</th>
<th>Apportioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 53</td>
<td>IIC (L4-5 herniated disc): 7%</td>
<td>IIB (sprain L1-3) 5%</td>
<td>2 %WP</td>
</tr>
<tr>
<td>ROM</td>
<td>10%</td>
<td>5%</td>
<td>5 %WP</td>
</tr>
<tr>
<td>Nerve (Convert Extremity to WP)</td>
<td>% ext</td>
<td>% ext</td>
<td>% ext</td>
</tr>
<tr>
<td><strong>Final Combined</strong></td>
<td></td>
<td></td>
<td>7 %WP</td>
</tr>
<tr>
<td><strong>Apportioned Rating</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Revised: 2/2018
DEPARTMENT OF LABOR AND EMPLOYMENT
Division of Workers’ Compensation

APPORTIONMENT OF SPINAL CONDITIONS / INJURIES

INSTRUCTIONS:

1. Each spinal area is rated separately: cervical, thoracic and lumbar. For example, a previous injury to the cervical spine cannot be used to justify apportionment on a current thoracic spine injury.

2. For injuries that occurred on or after July 1, 2008: If you determine that the previous injury is (1) non-work-related, and (2) was not independently disabling at the time of the current injury, do not continue with this process.

3. The physician must determine whether there is objective evidence to support a pre-injury Table 53 rating. The six-month time period required in Table 53 can be met by cumulative or consecutive episodes. If a pre-injury Table 53 rating can be supported, it must be subtracted from the current Table 53 rating. Remember that the current TOTAL rating cannot be less than the previous rating.

4. If the patient has pre-injury spinal range of motion measurements taken consistent with the AMA Guides 3rd edition (revised), the impairment from those measurements should be subtracted from the ROM impairment calculated for the current spinal injury.

5. If no pre-injury range of motion measurements exist and the patient has a pre-injury condition of disectomy, fusion, fracture, spinal stenosis, spondylolysis, spondylolistheses, or chronic pain with medically documented injury and a minimum of six months medically documented pain and rigidity with or without muscle spasm, then the ROM category may be evaluated for apportionment.

   a. To apportion ROM, the physician uses clinical judgment, history and physical exam findings, and other objective evidence to choose the severity category (none, mild, moderate or severe) that best represents the preinjury state of the patient. The total number in each severity category on the Severity Index worksheet (Table A) can be used as a guide to help determine the appropriate severity category. In many cases all of the information in Table A may not be available. In that case, indicate the information that is missing on Table A and determine the severity category from the available information.

   b. Each severity category has a range of percentage associated with it (Table B). After you have determined the appropriate severity category use Table B to determine the available percentage for that category that you believe best represents the patient.

   c. Multiply the percentage for the severity category from Table B times the maximum available apportionable percentage for ROM for the patient’s previous diagnosis found in Table C. Round 0.5% or higher up and less than 0.5% down. See Table D.

   d. Subtract the apportionable ROM percentage from the total ROM percentage calculated for the current impairment.
TABLE A

Severity Index Worksheet for Evaluation of Range of Motion Deficit from a Previous Spinal Injury

<table>
<thead>
<tr>
<th>Severity Description</th>
<th>None</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restriction in activity (work and activities of daily living) caused by previous spinal injury</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full Activity (no restrictions)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temporary episode-related restriction</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some permanent restriction</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Limited to sedentary activities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of episodes within the year prior to the current injury causing functional disability</td>
<td>0</td>
<td>1</td>
<td>2 - 3</td>
<td>&gt;3</td>
<td></td>
</tr>
<tr>
<td>Time lost from work in last 12 months due to the previous injury</td>
<td>0</td>
<td>1-2 days</td>
<td>3-5 days</td>
<td>&gt;5 days</td>
<td></td>
</tr>
<tr>
<td>Medical visits (MD, DO, DC) in the last 12 months due to the previous injury</td>
<td>None</td>
<td>1-2 visits</td>
<td>3-6 visits</td>
<td>&gt;6 visits</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>(NONE)</td>
<td>(MILD)</td>
<td>(MODERATE)</td>
<td>(SEVERE)</td>
<td>N/A</td>
</tr>
</tbody>
</table>

1 This table only applies when the injury occurred in the same spinal area--cervical, thoracic or lumbar—as the work-related injury being rated.

2 Frequently, detailed information on a specific category may not be available. If that is the case, check this column.
### TABLE B

**Severity Category Ranges**

Choose the Severity Category and % which best represents the patient:

<table>
<thead>
<tr>
<th>Range of motion apportionment for previous injury</th>
<th>None</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
<th>Patient’s %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0%</td>
<td>1 – 33%</td>
<td>34 - 66%</td>
<td>67 – 100%</td>
<td></td>
</tr>
</tbody>
</table>

### TABLE C

**Maximum Allowable Spinal Deficits for Range of Motion Apportionment of Prior Injuries**

<table>
<thead>
<tr>
<th>Medical Condition (using Table 53 p. 80 as a reference)</th>
<th>Cervical</th>
<th>Thoracic</th>
<th>Lumbar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spinal Fusion(^1)</td>
<td>14%</td>
<td>4%</td>
<td>12%</td>
</tr>
<tr>
<td>Other surgically-treated disc lesions(^2)</td>
<td>6%</td>
<td>2%</td>
<td>5%</td>
</tr>
<tr>
<td>Other disorders rated under Table 53(^3)</td>
<td>3%</td>
<td>1%</td>
<td>3%</td>
</tr>
</tbody>
</table>

\(^1\) For one-level fusion, complete severity category rating (Table B) as directed. For a two or multi-level fusion, use the full 14%, 4% or 12% (as appropriate to the spinal region).

\(^2\) If discectomy is done in conjunction with fusion, use fusion value on the table.

\(^3\) This includes all other Table 53 ratings including diagnosis for fracture, spinal stenosis, spondylolysis, spondylolistheses, or chronic pain with medically documented injury and a minimum of six months medically documented pain and rigidity with or without muscle spasm.
TABLE D
Calculation of Apportionable ROM

<table>
<thead>
<tr>
<th>Calculation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient’s Percentage from Table B _____ % x WP Apportionable Percentage from Table C _____ % = _____ % ROM impairment due to previous injury *</td>
</tr>
<tr>
<td>Total Pre-apportionment ROM Impairment _____ % - _____ % ROM due to previous injury = _____ % ROM WP Impairment after apportionment*</td>
</tr>
</tbody>
</table>

*Round 0.5% up to the next whole number, less than 0.5% down to the nearest whole number.

Physician Signature: ______________________ Date: ______________________
### Figure 84. Spine Impairment Summary

<table>
<thead>
<tr>
<th>Impairment</th>
<th>Current</th>
<th>Prior</th>
<th>Apportioned</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cervical</td>
<td>Thoracic</td>
<td>Lumbar</td>
</tr>
<tr>
<td>1. Due to Specific Disorders (Table 53 or Table 54)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Range of Motion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Neurologic System: Loss of Sensation With or Without Pain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loss of Strength</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Other–From Sec. 3.4 p. 101</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Regional Impairment Total (Combine impairments in each column using the combined values Chart p. 254)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Spine Impairment Total (Combine all regional totals using the Combined Values Chart)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Impairment(s) of other organ systems: for each impairment list condition, page number in Guides, and percentage of impairment.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impaired System</th>
<th>Guides Page No.</th>
<th>Current Impairment</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8. Impairment of Whole Person–use Combined Values Chart to combine spine impairment with the impairment(s) listed in 7 above. If several impairments are listed, combine spine impairment with the larger or largest value, then combine the resulting percentage with any other value(s), until all the listed impairments have been accounted for.

Total whole person impairment: ______________
Mental and Behavioral Disorders Impairment

Objectives:
1) Identify the information necessary to complete a thorough assessment in order to determine a mental impairment rating.
2) Determine the steps for performing a mental impairment rating, including rating the Areas of Function.
3) Discuss overlapping of psychiatric disorders with other impairments due to physical function or neurologic impairment.

Summary/Steps for Determining Mental Impairment Ratings
2. Confirm the psychiatric diagnosis using the Diagnostic Statistical Manual (DSM) or International Classification of Diseases (ICD) and record the diagnosis on the Mental Impairment Worksheet Section I.
3. Establish maximum medical improvement (MMI).
4. Explain the nature and purpose of the impairment examination to the worker.
5. Interview the patient to determine pre-injury baseline and current level of impairment in the Areas of Function assessment categories below. The mental status of a worker at the time of injury is the baseline from which to evaluate impairment.
   - ADLs
   - Social Functioning
   - Thinking, concentration, and judgment
   - Adaptation to stress
6. Rank the level of impairment for Areas of Function and document in Section III (Areas of Function) on the Mental Impairment Worksheet.
7. If a rating is being considered under the thinking, concentration, and judgment section, make sure there is no overlap with neurological or other chapters of the AMA Guides.
8. Average the highest of the two values from each of the four Areas of Function in Section III on the Mental Impairment Worksheet.
9. Average the two highest ratings from Section III (Areas of Function) and document in Section IV (Final Calculations) on the Mental Impairment Worksheet.

Revised: 2/2018
10. It may be appropriate to add or subtract up to 0.5 from the final calculation due to examination reliability including psychological testing, socio-cultural factors and compliance with treatment. Document on the appropriate line in Section IV (Final Calculations) on the Mental Impairment Worksheet.

11. Use the Category Conversion Table on page 6 of the Mental Impairment Worksheet. Convert the final number to a percentage for the overall permanent impairment rating and document in Section IV (Final Calculations) on the Mental Impairment Worksheet.

12. If the patient has a zero impairment according to the above criteria and requires continuing medication for their DSM diagnosis, an impairment of 1-3% may be assigned and documented in Section V on the Mental Impairment Worksheet.

13. Document the total impairment rating by combining the total whole person physical impairment (if applicable) and mental impairment in Section VI (Total Impairment Rating) on the Mental Impairment Worksheet.

References/Links
Mental Impairment Worksheet
Areas of Function for Assessing and Rating Mental Impairments

Core Content: The workers’ compensation psychiatric examination is more specialized than a general psychiatric examination because the examiner must assess causality, the course of the illness and the response to psychiatric treatment, in addition to a work-related diagnosis. Only those psychiatric diagnoses classified in the latest versions of the Diagnostic Statistical Manual (DSM) or International Classification of Diseases (ICD) can be attributable to a work injury.

Mental Impairment Rating General Principles
The mental status of a worker at the time of the injury is the baseline from which to evaluate impairment for every worker. The first step in providing a mental impairment rating is determining causality, which confirms the injury caused the mental disorder or the need for treatment.

Psychiatric Diagnosis:
A psychiatric diagnosis must be assigned when providing an impairment rating for the injured worker. The medical provider must provide a DSM or ICD diagnosis and avoid using unspecified or other mental disorders due to a medical condition (personality or somatic disorders) or pain disorder diagnosis.
History of Impairment and Psychiatric Treatments:
The provider must take into account the history of psychiatric disorders and treatments when calculating the final impairment. Consider whether the diagnosis is chronic and what treatments will be required to maintain maximum medical improvement. Assume that a permanent psychiatric impairment may require long-term maintenance treatment.

Isolated Psychiatric Impairment:
Under Colorado Law, mental impairment or disability can only be compensated if it occurs under the following three circumstances:

1. With a work-related physical injury, or
2. “As a result of an accidental injury arising out of and in the course of employment when the accidental injury involves no physical injury and consists of a psychologically traumatic event that is generally outside of a worker’s usual experience and would evoke significant symptoms of distress in a worker in similar circumstances” §8-41-301(2)(a), C.R.S.
3. Effective July 1, 2018 under §8-41-301(3)(II), if a worker experiences a psychologically traumatic event, which includes an event that is within a worker’s usual experience only when the worker is diagnosed with post-traumatic stress disorder by a licensed psychiatrist or psychologist after the worker experienced exposure to one or more of the following events:
   - Worker is subject to an attempt by another person to cause serious bodily injury or death through the use of deadly force
   - Worker visually witnesses death or the immediate aftermath of death of one or more people as the result of a violent event
   - Worker repeatedly visually witnesses the serious bodily injury, or the immediate aftermath of the serious bodily injury, of one or more people as the result of the intentional act of another person or an accident

The statute limits the amount of compensation for permanent impairment of mental conditions except in cases of occupational disease with neurological brain damage or victims of violent crime or physical injury §8-41-301(2)(b), C.R.S. Therefore, physicians should specifically address the presence of occupational neurological brain damage in their narrative report.

Revised: 2/2018
The Psychiatric Examination:
The examiner should explain the nature and purpose of the examination to the injured worker at the initial visit. An open-ended interview style is recommended. The rapport essential to conducting an accurate psychiatric rating may be difficult to establish because the worker may presume the clinician is biased about the examination. When the patient is being interviewed, the clinician should note the patient’s general posture and issues of candor, openness, disclosure, defensiveness, and resistance.

The examination includes the following sections:

- Description of causal work event
- History of immediate or ensuing physical injury
- History of immediate emotional impact and ensuing psychiatric disorder (emotional injuries)
- Review the worker’s basic psychological development to establish baseline levels for areas of function (ADLs, social functioning, adaptation to stress, thinking, concentration and judgment) including:
  - Composition of nuclear family including birthplace
  - Relationships with family members or those with significant influence
  - Performance in school including highest level of education
  - Social adjustment growing up
- Alcohol and/or drug use
- History of emotional, physical or sexual abuse
- Past psychiatric history
- Detailed occupational history
- Legal history (previous workers’ compensation claims, motor vehicle accidents and litigations)
- Current adjustment consisting of a detailed description of a typical day from getting up to going to bed
- Detailed descriptions of sleep, sex, and other ADLs
- Detailed description of current enjoyable activities including social relationships and communications during the day.
- Description of how the work injury has affected the worker’s life
- Mental status examination
  - Complete description of appearance, general behavior, and demeanor
  - Assessment of affect, mood, cognition and thought processes
  - Detailed description of how the patient got to the examiner’s office may help in describing cognitive function

Revised: 2/2018
Determination of Maximum Medical Improvement (MMI):
Workers who have not received medically necessary and appropriate treatment are not at MMI. (i.e. assessment of whether maximal doses of medications and psychiatric therapy have been effective to abate symptoms before determination of psychiatric MMI.)

Psychological Tests
Psychological tests may aid in establishing a diagnosis but not for impairment rating. Authorized treating physicians should consider using standardized, screening tools for depression, anxiety, insomnia, and other work-related symptoms for determination of a psychiatric evaluation.
Standardized tests may include:
- **MMPI-2** (Minnesota Multiphasic Personality Inventory - 2nd Ed.)
  - Useful in establishing diagnosis and chronicity
- **BHI** (Battery for Health Improvement, 2nd Ed.) and MBMD (Millon Behavioral Medical Diagnostic)
  - Useful for evaluating coping skills, depression, psychosocial factors affecting pain
- Other tests listed in the Division’s Chronic Pain Medical Treatment Guidelines
  - a) Tests for Psychosis
    - Rorschach
    - Thematic Apperception Test (TAT)
  - b) Tests for Closed Head Injury - to aid in determining brain function deficiencies
    - Halstead-Reitan
    - Luria-Nebraska
    - Other neuropsychological tests in the Division’s Traumatic Brain Injury Medical Treatment Guidelines

Division of Workers’ Compensation Mental Impairment Rating System with Use of the Mental Impairment Rating Worksheet

1. The first step for calculating the mental impairment rating is to utilize the Mental Impairment Worksheet and document the diagnosis in Section I (DSM Diagnosis).

2. The Areas of Function are assessed and documented on the Mental Impairment Worksheet under Section III (Areas of Function)
The Division of Workers' Compensation (DOWC) has adopted the Social Security Assessment Methods for assessing the severity of mental impairments, which have been adopted by the *AMA Guides*. These assessment categories are defined as Areas of Function and include:

- ADLs (sexual function and sleep)
- Social functioning (interpersonal relationships, effective communication with others, recreational activities)
- Thinking, concentration, and judgment
- Adaptation to stress (set realistic short and long-term goals, perform activities on schedule, adapt to job performance requirements)

3. Determine the numerical rating for each of the categories under the four Areas of Function using the “Guidelines for Assessing and Rating Areas of Function found at the end of this chapter and in the preceding pages.

4. Average the highest of the two values from each of the four Areas of Function in Section III on the Mental Impairment Worksheet.

5. Average the two highest ratings from Section III (Areas of Function) and document in Section IV (Final Calculations) on the Mental Impairment Worksheet.

6. It may be appropriate to add or subtract up to 0.5 from the final calculation due to examination reliability including psychological testing, socio-cultural factors and compliance with treatment. Document on the appropriate line in Section IV (Final Calculations) on the Mental Impairment Worksheet.

7. Use the Category Conversion Table on page 6 of the Mental Impairment Worksheet. Convert the final number to a percentage for the overall permanent impairment rating and document in Section IV (Final Calculations) on the Mental Impairment Worksheet.

8. If the patient has a zero impairment according to the above criteria and requires continuing medication for their DSM diagnosis, an impairment of 1-3% may be assigned and documented in Section V on the Mental Impairment Worksheet.

9. Document the *total impairment rating* by **combining** the total whole person *physical* impairment (if applicable) and *mental* impairment in Section VI (Total Impairment Rating) on the Mental Impairment Worksheet. Document this value on the appropriate line under Section IV.

Revised: 2/2018
Rating Areas of Function:
The Areas of Function refer to the following category ratings on a scale of 0-4 or 0-6. It can be useful to think of these categories from the point of view of a causal observer. For example, changes in a patient’s mental well-being may constitute a minimal impairment, which is difficult to observe, while a mild degree of impairment is obvious to most observers. Keep the following chart in mind when computing impairments, especially when subcategories of the Areas of Function are not defined.

- Category 1, minimal degree of impairment, is generally considered a change in a patient, which is not always obvious to casual observers
- Category 2, mild degree of impairment, indicates there is some change in a patient and is obvious to most observers
- Category 3, moderate degree of impairment, indicates that most observers can see a change in function and some modification is needed
- Category 4, marked degree of impairment, indicates that punitive measures have been taken
- Categories 5 and 6, extreme and maximum impairment, are uncommon and rarely used in the workers’ compensation system
# Category Definition Guidelines for Areas of Function on the Mental Impairment Worksheet

<table>
<thead>
<tr>
<th>Category</th>
<th>Degree of Impairment</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No Impairment</td>
<td>Mental symptoms arising from the work-related psychiatric diagnosis have been absent for the past month. ADLs are not affected. Functioning is at pre-injury baseline in social and work activities in all areas; no more than everyday problems.</td>
</tr>
<tr>
<td>1</td>
<td>Minimal</td>
<td>Mental symptoms, arising from the work-related psychiatric diagnosis and not likely to remit despite medical treatment, minimally impair functioning.</td>
</tr>
<tr>
<td>2</td>
<td>Mild</td>
<td>Mental symptoms, arising from the work-related psychiatric diagnosis and not likely to remit despite medical treatment, and are mildly impairing. ADLs are mildly disrupted. Functioning show mild permanent impairment in social or work activities.</td>
</tr>
<tr>
<td>3</td>
<td>Moderate</td>
<td>Mental symptoms, arising from the work-related psychiatric diagnosis and not likely to remit despite medical treatment, are moderately impairing. ADLs are moderately disrupted. Functioning shows moderate permanent impairment. Activities sometimes need direction or supervision.</td>
</tr>
<tr>
<td>4</td>
<td>Marked</td>
<td>Mental symptoms, arising from the work-related psychiatric diagnosis and not likely to remit despite medical treatment, are seriously impairing. ADLs are seriously disrupted. Functioning shows serious difficulties in social or work activities.</td>
</tr>
<tr>
<td>5</td>
<td>Extreme</td>
<td>Mental symptoms, arising from the work-related psychiatric diagnosis and not likely to remit despite medical treatment, are incapacitating. At times, ADLs require structuring. Functioning is quite poor, unsafe in work settings, at times requires hospitalization or full-time supervision. Most activities require directed care.</td>
</tr>
<tr>
<td>6</td>
<td>Maximum</td>
<td>This impairment level precludes useful functioning in all areas. These individuals are generally appropriate for institutionalized settings, if available. All activities require directed care.</td>
</tr>
</tbody>
</table>

Revised: 2/2018
Areas of Function: The tables below outline the Areas of Function in four different subcategories:

- ADLs
- Social Functioning
- Adaptation to Stress

The number column indicates the value associated with the level of impairment, which is documented on the Mental Impairment Worksheet, Section III (Areas of Function).

### Activities of Daily Living

#### Sexual Impairments*

<table>
<thead>
<tr>
<th>Level</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>0</td>
<td>First determine the usual frequency, responsiveness (orgasms, erections, ejaculations) and degree of enjoyment of sex before the injury.</td>
</tr>
<tr>
<td>Minimal</td>
<td>1</td>
<td>Rarely initiates but can usually climax (female)/erection (male). Frequency is equal to slightly less than baseline frequency.</td>
</tr>
<tr>
<td>Mild</td>
<td>2</td>
<td>Has sex once per month (baseline is once per week) in response to partner and can occasionally reach orgasm (female)/usually ejaculate (male). Still derives pleasure/enjoyment from sexual activity.</td>
</tr>
<tr>
<td>Moderate</td>
<td>3</td>
<td>Has sex once every two months or longer (baseline once per week) in response to partner and rarely reaches orgasm (female)/has occasional erectile dysfunction (male). Rarely experiences pleasure/enjoyment.</td>
</tr>
<tr>
<td>Marked</td>
<td>4</td>
<td>Has no interest in sex and is without orgasms (female)/always has difficulty with erections (male) and avoids sex.</td>
</tr>
</tbody>
</table>

*Alterations in the sexual function due to pain is included in the physical impairment rating, and not rated under psychiatric impairment.
Activities of Daily Living

Sleep*

<table>
<thead>
<tr>
<th>Level</th>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>0</td>
<td>First, demonstrate the <em>usual</em> sleep pattern and whether they used medications before the injury.</td>
</tr>
<tr>
<td>Minimal</td>
<td>1</td>
<td>Has trouble falling asleep most nights but can sleep through the night. If now on medication and not before the injury, the individual is at least minimally impaired.</td>
</tr>
<tr>
<td>Mild</td>
<td>2</td>
<td>Awakens twice during the night but can usually fall back to sleep in less than one hour.</td>
</tr>
<tr>
<td>Moderate</td>
<td>3</td>
<td>Has difficulty falling asleep and wakes up one to two times per night but is usually unable to fall back to sleep for several hours.</td>
</tr>
<tr>
<td>Marked</td>
<td>4</td>
<td>Can’t get to sleep for more than two hours at a time and regularly naps during the daytime (disturbed diurnal pattern).</td>
</tr>
</tbody>
</table>

*Alterations in sleep patterns due to pain is included in the physical impairment rating, and not rated under psychiatric impairment.

Revised: 2/2018
# Social Functioning

## Interpersonal Relationships

<table>
<thead>
<tr>
<th>Social Functioning</th>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>0</td>
<td>First, determine the individual’s usual openness to others and how often they greeted others, made new friends, and tolerated disagreements with others without behavioral extremes or adapted to get along with others.</td>
</tr>
<tr>
<td>Minimal</td>
<td>1</td>
<td>Can still initiate and meet new people and behave appropriately but feels uncomfortable and would prefer to be alone. There are less frequent social contacts but they still respond when others initiate or negotiate. Can still adapt to others when they have to. May raise voice or shout in response to interpersonal conflicts more frequently than usual.</td>
</tr>
<tr>
<td>Mild</td>
<td>2</td>
<td>The only social contacts are initiated by others and with some coaxing; rarely initiates social contacts and resents negotiating and compromising but still can adapt; can still enjoy some social experiences but not frequently. Can be verbally abusive when faced with interpersonal conflict.</td>
</tr>
<tr>
<td>Moderate</td>
<td>3</td>
<td>Requires pressure or necessity to have social contacts and rarely enjoys it, difficulty compromising, negotiating, and adapting but still can for very important purposes. Or at least one episode of physically threatening or abusive behavior directed at a person.</td>
</tr>
<tr>
<td>Marked-Extreme</td>
<td>4-5</td>
<td>Has no interest in others and actively avoids interactions. Derives no social pleasure and finds it difficult to adapt to others even when there are dire consequences for not compromising or attending. May have had several incidents of physically abusive behavior directed at a person with possible legal charges.</td>
</tr>
<tr>
<td>Maximum</td>
<td>6</td>
<td>Requires constant supervision to monitor behavior.</td>
</tr>
</tbody>
</table>
## Social Functioning

### Communicate Effectively with Others*

<table>
<thead>
<tr>
<th>Level</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>0</td>
<td>Determine the \textit{usual} ability to get one’s ideas across effectively to others.</td>
</tr>
<tr>
<td>Minimal</td>
<td>1</td>
<td>Complains that it is difficult to clearly and effectively communicate with others but still can.</td>
</tr>
<tr>
<td>Mild</td>
<td>2</td>
<td>Sometimes requires help from others to clearly and effectively communicate with them.</td>
</tr>
<tr>
<td>Moderate</td>
<td>3</td>
<td>Suffered a consequence for not effectively communicating with others. This individual requires the listener to actively interpret the intent of the communication.</td>
</tr>
<tr>
<td>Marked-Extreme</td>
<td>4-5</td>
<td>Experiences serious consequences due to inability to consistently communicate effectively with others. This individual is poorly understood despite active attempts to interpret the intent of the communication.</td>
</tr>
<tr>
<td>Maximum</td>
<td>6</td>
<td>Inability to communicate with others except regarding basic physical needs (i.e. autistic, catatonic)</td>
</tr>
</tbody>
</table>

*Many communication problems are secondary to CNS and/or ENT disorders and require evaluation using those specific guidelines instead. Examples of psychiatric disorders impairing clear and effective communications include symptoms of mood disorders (flight of ideas, loose associations, paucity of thought), symptoms of psychotic disorders (paranoia, delusions, hallucinations), substance abuse.*
### Social Functioning

#### Recreational Activities

<table>
<thead>
<tr>
<th>Stage</th>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>0</td>
<td>Determine the usual sedentary, active physical and spiritual activities they participated in before the injury, how frequently they initiated and participated in them and how pleasurable they were.</td>
</tr>
<tr>
<td>Minimal</td>
<td>1</td>
<td>Still participates in some (any) recreational activities but feels less comfortable. There is decreased frequency of initiation but they can still respond when others initiate and still derive pre-injury pleasure.</td>
</tr>
<tr>
<td>Mild</td>
<td>2</td>
<td>Only participates in response to others with some coaxing and cajoling. Rarely initiates recreational activity but responds when others initiate and can still derive some degree of pleasure.</td>
</tr>
<tr>
<td>Moderate</td>
<td>3</td>
<td>Only participates in a recreational activity under pressure and rarely enjoys it.</td>
</tr>
<tr>
<td>Marked-Extreme</td>
<td>4-5</td>
<td>Has no interest in participating in recreational activities, actively avoids it and experiences no pleasure from it.</td>
</tr>
<tr>
<td>Maximum</td>
<td>6</td>
<td>Participates in no recreational activities.</td>
</tr>
</tbody>
</table>
## Social Functioning

### Manage Conflicts with Others - Negotiate, Compromise

<table>
<thead>
<tr>
<th>Level</th>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>0</td>
<td>Determine the individual’s usual ability to resolve difficulties with others or reach consensus in a conflict before the accident. (The conflict is pathological.)</td>
</tr>
<tr>
<td>Minimal</td>
<td>1</td>
<td>Gets upset and has feelings of resentment which are not expressed. Regains composure by avoiding others and therefore prefers to work alone. Not overtly angry but internally troubled.</td>
</tr>
<tr>
<td>Mild</td>
<td>2</td>
<td>Sometimes gets upset and argumentative and expresses anger with the conflict eventually getting resolved. Can “go with the flow” but with some difficulty.</td>
</tr>
<tr>
<td>Moderate</td>
<td>3</td>
<td>Frequently argues with others when involved with or interacting with others. The conflict remains unresolved (rigid, sulks) until others intervene. The anger and conflict disrupts relationships on a team, in a family or friendship. They have suffered a consequence for inappropriate conflictual behavior.</td>
</tr>
<tr>
<td>Marked-Extreme</td>
<td>4-5</td>
<td>Frequently argues, unwilling to compromise. Gets upset and the anger and conflict are so disruptive that external control, limits, or measures are necessary. The conflict remains unresolved (rigid, sulks) and disrupts relationships. The conflict requires external help and is even then difficult to resolve. They have suffered a serious consequence for inappropriate conflictual behavior such as threatened job loss or other disciplinary action.</td>
</tr>
<tr>
<td>Maximum</td>
<td>6</td>
<td>Incarcerated, confined or hospitalized for aggressive behavior.</td>
</tr>
</tbody>
</table>
## Adaptation to Stress
### Set Realistic Short & Long Term Goals

<table>
<thead>
<tr>
<th>Level</th>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>0</td>
<td>Determine the <strong>usual</strong> level of judgment used to set attainable goals. Does he/she <strong>usually</strong> underestimate, overestimate or achieve what he/she sets out to do? How much assistance is usually needed to set realistic achievable goals?</td>
</tr>
<tr>
<td>Minimal</td>
<td>1</td>
<td>Finds it difficult and/or stressful to determine what he/she can or cannot do but usually doesn’t underestimate or overestimate or require assistance from others.</td>
</tr>
<tr>
<td>Mild</td>
<td>2</td>
<td>Requires and accepts some assistance from others to determine what he/she can or cannot do and occasionally underestimates or overestimates.</td>
</tr>
<tr>
<td>Moderate</td>
<td>3</td>
<td>Frequently underestimates or overestimates what he/she can do which causes mild consequences unless assistance is received from others. Requires some regular external structure but has difficulty accurately determining when assistance is necessary for himself/herself. (Results in increased symptoms, material damage.) When provided, assistance is accepted.</td>
</tr>
<tr>
<td>Marked-Extreme</td>
<td>4-5</td>
<td>Frequently underestimates or overestimates what he/she can do which causes serious consequences. Unaware of need for structure and assistance and either resists or has difficulty utilizing assistance from others. (Results in increased symptoms; potential or actual serious injury to self or others.)</td>
</tr>
<tr>
<td>Maximum</td>
<td>6</td>
<td>Unable to achieve any basic short or long-term goals.</td>
</tr>
</tbody>
</table>
Adaptation to Stress

Perform Activities (including work) on Schedule

<table>
<thead>
<tr>
<th>Baseline</th>
<th>0</th>
<th>Determine the usual punctuality of the individual. How usual is it for them to be late for work or miss important functions?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimal</td>
<td>1</td>
<td>Finds it stressful to be on time and perform at an acceptable pace.</td>
</tr>
<tr>
<td>Mild</td>
<td>2</td>
<td>Requires some assistance from others to be on time and perform at an acceptable pace (reminders, phone calls, physical assistance).</td>
</tr>
<tr>
<td>Moderate</td>
<td>3</td>
<td>Suffered minor consequences for lateness and slow performance (reprimanded, upset others, confronted by others).</td>
</tr>
<tr>
<td>Marked-Extreme</td>
<td>4-5</td>
<td>Suffered serious consequences for lateness or slowness (threat of being fired, late for or missed very important appointment).</td>
</tr>
<tr>
<td>Maximum</td>
<td>6</td>
<td>Cannot be expected to complete a task. (No expected performance)</td>
</tr>
</tbody>
</table>
### Adaptation to Stress

**Adapt to Job Performance Requirements**

<table>
<thead>
<tr>
<th>Baseline</th>
<th>0</th>
<th>Determine the individual’s ability to adapt (be flexible) to a non-negotiable change in rules or follow established procedures (new supervisor, change in shift, required meeting).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimal</td>
<td>1</td>
<td>Resistance, denial, negativity is felt but not overtly expressed.</td>
</tr>
<tr>
<td>Mild</td>
<td>2</td>
<td>Negative reaction to limits and rules is expressed, such as resistance, avoidance, making excuses, attempting to substitute another task for the required one.</td>
</tr>
<tr>
<td>Moderate</td>
<td>3</td>
<td>The behavior of the individual is called to his/her attention and they experienced mild external (corrective) consequences such as written reprimand. The individual demonstrates overt resistance to performing what is expected.</td>
</tr>
<tr>
<td>Marked-Extreme</td>
<td>4-5</td>
<td>They experienced serious disciplinary consequences such as suspension. Their behavior disrupts workplace relationships. The individual frequently does not perform required tasks.</td>
</tr>
<tr>
<td>Maximum</td>
<td>6</td>
<td>Due to inability to accept limits and/or follow rules, they experience dire consequences such as termination of employment, or incarceration.</td>
</tr>
</tbody>
</table>

### Pitfalls

**Pre-injury baseline:** In order to determine impairment for each Areas of Function subcategory, the examiner must determine the worker’s pre-injury baseline performance in that area. The baseline performance descriptions for each subcategory are based on a population “norm.”

If the patient’s pre-injury performance falls below the baseline or norm and into an impaired category, determine whether any additional impairment has occurred from this work-related condition. Subtract the patient’s baseline number from the current number for the final rating. This is similar to normalization, it is not apportionment.

A patient with a pre-injury performance that varies from the population norm may not have a specific DSM diagnosis. The pre-injury performance level is a reflection of that patient’s general level of function. Therefore, a lower than “normal” baseline
performance without a prior DSM diagnosis is not considered a condition that can be apportioned.

*For example:* A person who functioned pre-injury without a significant other, who has no close friends, meaningful relationships or group affiliations, and has a low baseline in interpersonal relationships should not be rated as impaired if their level of function did not change after the injury.

“Double Dipping”: The thinking, concentration, and judgment section (III c) of the Mental Impairment Worksheet does not have a separate category in the Areas of Function because this area can be caused by brain pathology rather than psychiatric disorders. Evaluators must be careful not to “double dip” by rating the same symptoms in this category and the brain impairment table. If the patient is impaired due to a brain injury, the cognitive impairment must be rated in the neurological section and not on the mental impairment worksheet. The other Areas of Function should be used to determine the total mental impairment, which is then combined with the brain impairment rating, if applicable. Occasionally this area can be rated if a patient takes a high dose of medication that affects their cognition due to psychological issues.

*Areas of Function Case Example #1:* Ms. X. has been diagnosed with Generalized Anxiety Disorder related to her work-related injury. Prior to her work-related injury, she could usually balance the responsibilities of home and family. Recently she has had trouble dealing with her children when she comes home in the evening. She also avoids her usual weekend activities with friends unless her husband or others initiate them.

Although before the work-related injury she could generally meet her family’s needs without conflict. Since her injury she doesn’t assert herself and harbors a lot of resentment which builds up inside, resulting in her yelling at others. She had one episode of getting so frustrated that she cursed at her children who were making noise and she threw some dishes on the floor.

*Which Areas of Function are evaluated from the case example?*

*Answer:*

**Social Functioning:** Mild: Category 2, there are three possible areas under social functioning that could be rated in this example: manages conflicts with others, interpersonal relationships, and recreational activities.
• **Managing Conflicts with Others:** The patient fits into the mild, Category 2 impairment because “she harbors a lot of resentment which builds up inside, resulting in yelling at others.”

• **Interpersonal Relationships:** She fits into the mild: Category 2 impairment because she needs coaxing of others to participate in social settings and may raise her voice or shout with interpersonal conflicts more frequently than usual.

• **Recreational Activities:** she also fits into the mild: Category 2 impairment due to avoiding her usual weekend activities with friends, and had a normal baseline prior to the injury.

The patient avoids interpersonal contact with others. Both interpersonal relationships and recreational activities categories could be used to rate this particular impairment. Therefore, to avoid overlap or “double dipping” in these two categories, *either* interpersonal relationships *or* recreational activities is chosen.

**Areas of Function Case Example #2:**

Ms. X. has difficulty sleeping due to her anxiety. She wakes up once or twice a night, however, on her current medication she can usually go back to sleep in an hour or so. Prior to the work-related injury, she woke up after one or two hours of sleep 2-3x/week. She would usually take a medication her physician prescribed to go back to sleep.

**Which Areas of Function are evaluated from the case example?**

*Answer:*

**ADLs** (sleep) This patient has an abnormal sleep pattern as her baseline prior to the work-related injury which is considered Minimal impairment: Category 1. The current injury has placed her a Mild impairment: Category 2. Overall, her grade of impairment would be 2-1=1 or Minimal Impairment.

**Documentation in the Narrative Report**

Documentation in the narrative report should include a discussion of the criteria used to establish each category ranking in the Areas of Function.

Work restrictions due to the psychiatric condition should be clearly stated including type and degree of stress, limitation of hours, etc.

- For example: no graveyard or early morning shifts, limited interpersonal contact or other adjustments due to difficulty in close supervisory relationship, difficulty supervising others, difficulty concentrating on complex tasks, and difficulty with multitasking.
Maintenance care will depend on the need for medications, frequency of laboratory testing and exacerbating factors.

**Pre-injury psychiatric diagnosis**
If a psychiatric diagnosis existed at the time of the injury, medical records from hospitals, clinics, psychiatrists, and psychologists should be used to establish if there is a past psychiatric disorder. Non-medical records from family members and any other sources can be used to document ADLs, social functions, concentration and response to stress for determining a baseline of past psychiatric disorders.

**Chronic Pain Rating**
Rating for chronic pain is controlled by statute 8-42-101 (3.7), and can only be rated when there is a presence of an “anatomic or physiological correlation.” Anatomical correlation must be based on **objective** findings (a physiologic presence of pain). The *AMA Guides* recommends rating pain primarily under the physical impairment rating system. (Refer to the *AMA Guides*, p. 252, for the definition of chronic pain and impairment.)

Psychiatric impairment with consideration of a patient with chronic pain should be restricted to DSM or ICD diagnosis, generally under the following categories:

- Depression
- Adjustment or anxiety disorder
- Mood disorder
- Stressor disorders
- Other appropriate diagnosis

The clinician should **avoid** diagnostic classifications such as:

- Personality Changes or Unspecified Mental Disorder due to another medical condition
- Somatic with predominant pain
- Other specified or unspecified somatic disorders
- Psychological factors affecting other medical conditions

*Example*: A worker’s ability to travel is impaired due to chronic back pain. This impairment is rated as part of the “anatomical or physiological” physical impairment.
Example: A worker is injured in a truck accident who now avoids driving on interstate freeways due to a phobia or post-traumatic stress disorder. This impairment is rated as a psychiatric travel impairment under ADLs.

Medications
A patient taking medication should be rated while using the medication. Patients refusing recommended medication or treatment are rated as they present without the medication or treatment. Patient's who are not compliant with their prescribed medication should be rated as they appear, but no additional points should be allowed for medication use.

Consider the use of Section IV of the mental impairment worksheet to deviate 0.5 from the final calculation if appropriate for non-compliance of medication. Justify your rationale on the worksheet.

A worker with no mental impairment rating, but must take new or additional medication due to the injury in order to function appropriately: 1-3% impairment may be assigned (Section V. of the mental impairment worksheet).

A worker functioning with no impairment, taking new maintenance medication (which they were not taking prior to injury) can have 1-3% applied to the impairment (Section V. of the mental impairment worksheet).

A worker experiencing side effects from maintenance medication can be rated under the psychiatric subcategories or physical impairment as appropriate.

Overlapping/Double Dipping
Some Areas of Function found on the psychiatric worksheet may overlap with other impairments due to physical function.

Example: if a patient has chronic low back pain affecting sleep, the condition would be rated under the physical impairment and not the mental.

Only conditions caused by the DSM established diagnosis can be rated (i.e.: self-care and hygiene, travel, sexual function and sleep.)
Neurological function and other rating sections may overlap with behavioral function (See Brain Impairment, Table 1, p. 109). A patient cannot receive ratings for the same functional impairment from two sections of the *AMA Guides*.

*Example:* A patient may not receive an impairment for loss of thinking, judgment, etc. under the neurological rating and psychiatric rating.

Scars or Disfigurement
A patient may qualify for an impairment rating if the scar or disfigurement causes a psychiatric disorder classified in the DSM. The rating can occur only if demonstrable changes in daily tasks or usual activities due to the psychological effect of the scar are present (not the physiological effects of the scar such as range of motion).

Activities of Daily Living (ADLs)
The majority of self-care and hygiene or travel problems are due to the physical diagnosis (physical ailments or pain) and are not ratable on the mental impairment worksheet. If ADL impairments are secondary to DSM diagnosis or psychological treatment, then a mental impairment rating can be given.

*Example:* Many psychotropic medications cause sexual side effects, which require a psychiatric rating.

Apportionment
Refer to the Normalization and Apportionment chapter in the Level II Curriculum for apportionment determination.

Do not assume that a patient with a past history of a psychiatric disorder requiring hospitalization or treatment was impaired at the time of the injury. Many patients with past psychiatric disorders return to their normal or baseline functioning.

**Workshop Case**
**History of Present Illness:**
Mr. K is a 37-year-old supervisor employed by Tippy Trucks. He was involved in a serious vehicular accident on I-70 during a snowstorm. His truck jack-knifed and the cab crushed the guardrail. The driver of a small sports car was decapitated driving under the truck and two unrestrained children in another vehicle were thrown from the car and pronounced dead at the scene. Numerous other victims suffered injuries. Mr. K had no loss of consciousness or amnesia when first examined in the hospital emergency room. Mr. K suffered a C5 fracture and a dislocated fractured right hip. This required an immediate C5-C6 fusion and an eventual right hip joint replacement. After a lengthy
course of rehabilitation, he was placed at MMI for his physical injuries with a 29% whole person impairment.

Mr. K was unable to return to employment as a driver because of his fear of driving a company vehicle. Initially, he avoided the scene of the accident and reported nightmares, flashbacks, intrusive thoughts, feelings of numbness and dissociation, as well as an exaggerated startle response. Because of his avoidance of driving, Mr. K was reassigned to clerical work which caused anxiety and lowered his self-esteem. He reported feelings of hopelessness and helplessness with suicidal ideation.

Mr. K was treated by a psychiatrist who diagnosed:
- Post-traumatic stress disorder, major depressive disorder without psychosis single episode moderate, chronic pain disorder, occupational problem, marital problem;
- Cervical fracture with fusion, right hip replacement;
- Severe financial stress, marital problems secondary to decreased function, chronic pain, inability to help elderly mother.

Mr. K reported that, before the workers’ compensation injury, he and his wife were usually able to resolve their conflicts without outside help. Because of his irritability, depression, and inability to perform his usual chores, he and his wife are arguing more frequently. He became suicidal when his wife threatened to separate after he became physically abusive for the first time in their marriage.

Mr. K has been treated with Zoloft, 200 mg, Klonopin, 2 mg tid, Oxycontin 20 mg bid, Ambien 15 mg hs, and lithium 300 mg.

**Background Information:**
Mr. K was born and raised on a ranch in Wyoming. He is the youngest of three children. His brother who is 5 years older has remained on the ranch working full time since Mr. K’s father died of a cardiac arrest approximately 5 years ago. Mr. K’s sister who is three years older is a married elementary school teacher living in Boise, Idaho with her husband and three children.

Mr. K reported that his childhood was “normal” and his parents were married 37 years at the time of his father’s death. His mother had moved to Denver to receive medical treatment and assistance from Mr. K and his family just prior to Mr. K’s work injury.
Mr. K denied a history of emotional, physical or sexual abuse. He described himself as a B/C student throughout school. He reported having few friends after school due to the isolation of the ranch. Mr. K reported that at the annual fishing competition in his local high school he usually won the award for best fly fisherman of the year. When he was in high school, however, Mr. K participated in the 4-H club and had a steady girlfriend in his junior and senior years of high school. Mr. K reported that although his speech was usually terse he did not have difficulty communicating with others.

Mr. K graduated from North Laramie High School in 1977 and served in the Army for four years. He was honorably discharged as an E-4.

Mr. K reported that he did not have much experience with group activities or making new friends because of the type of environment he grew up in.

Mr. K returned to the Laramie area where he initially worked as a truck driver for Sears. He had difficulty getting along with two different shift supervisors and quit after 5 years. He then delivered newspapers for the local paper for the following three years while doing farm/ranch labor. During that time Mr. K met his wife who was a waitress in a local café near his parents’ ranch. They got married when she became pregnant after dating for approximately one year.

Mr. K reported that he has usually been a fairly good judge of what he can do and cannot do. He denied having problems getting to work on time in the past. He admitted however that he has been told more than once by several supervisors that he had a negative attitude when asked to perform tasks or work assignments that he did not like.

Mr. K decided to move to Denver approximately 10 years ago because of his wife’s asthma. She has been relatively well and is receiving treatment at National Jewish Hospital.

Mr. K had been employed by RTD as a bus driver for 5 years before going to work for Tippy Truck Company. He had difficulty getting along with his supervisors while at RTD which resulted in his frequently changing his routes in order to decrease his job stress.

Past Psychiatric History:
Mr. K reported that he was treated by a psychiatrist for a general anxiety disorder when he first moved to Denver. He recalled that the medication was probably valium and he denied having full blown panic attacks.
Substance Abuse History:
Mr. K indicated that he experimented with alcohol as a senior in high school. He denied having any DUI's, alcohol-related arrests or problems with drinking, and denied using any illicit drugs.

Medical History:
Mr. K denied having any previous workers’ compensation claims. He was involved in a previous MVA when he hit a deer on a back road, totaling his vehicle. He denied sustaining any injuries from that accident.

Current Adjustment:
Mr. K lives in a three-bedroom 2-bath home in Arvada. His wife works part-time for an insurance company and his 9-year old daughter and 7-year old son attend Arvada Heights Elementary School.

On a typical day, Mr. K reports that he usually arises at 3 am and he then tosses and turns for an hour before getting back to sleep for an additional hour or two. He reported that his wife usually gets up at around 6 am with him and they drink a cup of coffee together before the children arise.

Mr. K reported that he then drives to work. He describes feeling bored and useless because of his inability to perform his full employment duties. He describes “being less of a man” since he is unable to drive his truck.

Mr. K usually eats lunch with a coworker. He returns home at about 5:30 pm. He finds himself exhausted. He describes feeling irritable and not wanting to assist the children with homework. Mr. K reports that his medications caused some confusion, especially in the morning when he is tired. At home he requires his wife to set out his lunch, otherwise he would forget it. He reports feeling increased anxiety in the morning about getting to work on time since his supervisor has reprimanded him verbally on two occasions for tardiness. Mr. K described becoming irate at the supervisor for the admonition because he tries so hard to get to work on time. Mr. K reports that he is very angry with Tippy Trucks for trying to deny him treatment. As a result, he reports that he refuses to go out of his way to do anything other than what is expected from him. He is able to complete his required duties without difficulty, however, on one occasion, he refused to stay late to process a major order which resulted in the loss of some business to the company. When his supervisor found out about it, Mr. K received his first written warning at Tippy Trucks.
Mr. K’s wife usually prepares dinner for the family. After dinner, he does not help with chores and usually watches TV for a few hours before going to bed. He describes having his life adversely affected by the pain because he can no longer work in his wood shop in the garage at home.

Mr. K reports that he has usually gone along with his wife to attend religious services on the weekend and did not mind her hosting a Tupperware party twice a year. Since the work injury, however, Mr. K states that he and his wife argue over his not attending the religious services and he took his medication early to go to bed when his wife recently had a Tupperware party to avoid seeing anybody.

Mr. K reports that he previously got along fairly well with his wife and children. However, since the injury, he has been irritable and depressed because of the pain.

Mr. K reports that he and his wife had satisfactory sexual relations approximately once per week before the injury. He reports that since the injury and use of pain medication he has no libido and agrees to have sex with his wife approximately every 2 ½ months upon her initiation. He has had some difficulty maintaining an erection since the injury and use of Zoloft. His erections have improved with Viagra, however, he still suffers from lack of sexual interest.

Mr. K reports that he speaks to his brother on the telephone about their mother approximately once per week. He reports that he visits his mother on weekends for a few hours and speaks to her once a week. He reports that occasionally he talks to her physician about her health status.

Mr. K states that his visits to his brother on the ranch have stopped completely because of his inability to drive on I-25. In addition, he feels useless with any type of physical ranch work, he reports that on one occasion he attempted to reach the ranch by back roads. However, the trip took 6 hours each way and was physically exhausting. He reports that he became so frustrated that he stopped at the side of the road to weep.

Mr. K admits that since the injury it has been very difficult for him to judge what he can and cannot do. For example, he injured himself while performing woodworking when he was taking Oxycontin. Another time he had to take a nap in the parking lot of Target one hour after taking his medication because he was too tired to go into the store. He was awakened by a police officer who assisted him home.
Mr. K used to be an avid fly fisherman and participated in local Wyoming rodeos. Because of his back pain, he no longer participates in any horseback riding or ranch activities. He has not gone fishing since the work injury. He used to enjoy working in his woodshop in the garage building western chairs and furniture. However, his pain causes him to become too easily distracted. When he takes his pain medication, however, he is afraid to operate his saws and finds that he hurts himself. Mr. K reports that he recently became interested in painting western scenery after watching a Pearl Ross Painting Seminar on television. He reports that he completed six oil paintings since starting 2 months ago and has sold three of them.

**Mental Status Examination:**

Mr. K is casually dressed and arrived 10 minutes late for his interview. His mood was slightly depressed and he requested to sit on a straight back check during the two-hour interview. Mr. K rose from the chair about every ½ hour and paced the room before sitting down.

Mr. K made good eye contact after we established some rapport.

His speech was logical and coherent. There were no loose associations or flights of ideas.

His mood was slightly depressed and he described irritability and anger when frustrated at home or at work.

Mr. K described having frequent nightmares about the truck accident with intrusive thoughts. He reported that he still cannot drive on the interstate and avoids driving the company truck as well as his pickup truck. He reported an exaggerated startle response and feelings of dissociation and numbing.

Mr. K denied symptoms of general anxiety, panic or those that would be suggestive of OCD, obsessive compulsive disorder.

Mr. K described pain in his neck at all times, more severe with any awkward posture, such as leaning down to fill out reports at work. He also experiences pain in his hip when sitting for more than 30 minutes or walking on uneven surfaces.

Mr. K was oriented to time, place and person. His insight and judgment were slightly impaired.
Mr. K had difficulty subtracting by sevens from 100. He made three errors and subtracted slowly. He had difficulty calculating the following problem: If a donut is 26 cents how much change should he receive after buying three donuts with $1.00, excluding taxes.

He denied auditory, visual or tactile hallucinations. Occasionally he reported seeing things peripherally that he cannot make out distinctly.

Conclusions:
Mr. K is suffering from
- Chronic PTSD, Major Depressive Disorder without psychosis in partial remission; occupational problem; marital problem resolving; chronic pain disorder
- Cervical fracture with fusion, right hip replacement
- Severe financial stress, marital problems secondary to decreased function, chronic pain, inability to help elderly mother.
- World Health Organization Disability Assessment Schedule (WHODAS) 2.0: 3 / Moderate in most categories

Assuming that Mr. K has reached psychiatric MMI, and after evaluating Mr. K’s baseline and pre-existing psychiatric status, use the Guidelines for Assessing and Rating Areas of Function (found at the end of this chapter) and the mental impairment rating worksheet to render a psychiatric impairment rating.
Areas of Function

1. Activities of Daily Living

   *Sexual Function:* Scoring categories 5 and 6 are not available because the maximum impairment allowed per the AMA Guides for total loss of sexual function is 30% for a male less than 40 years of age; 20% for a male 40 or older.

   *Sleep:* Scoring categories 5 and 6 are not available because the AMA Guides allow a maximum of 50% impairment for sleep or arousal disorders. To reach a 20% rating the activities of daily living must be affected to the extent that supervision is required in some areas. To reach a 50% rating, supervision by caretakers is required.

2. Social Functioning

   Social functioning refers to an individual’s capacity to interact appropriately and communicate effectively with other individuals. Social functioning includes the ability to get along with others, such as with family members, friends, neighbors, grocery clerks, landlords or bus drivers. Impaired social functioning may be demonstrated by a history of altercations, evictions, firings, fear of strangers, avoidance of interpersonal relationships, social isolation, etc. Strength in social functioning may be documented by an individual’s ability to initiate social contacts with others, communicate clearly with others, interact and participate in group activities, etc. Cooperative behaviors, consideration for others, awareness of others’ feelings, and social maturity also need to be considered. Social functioning in work situations may involve interactions with the public, responding appropriately to persons in authority, such as supervisors, or cooperative behaviors involving co-workers.

   Again, it is not the number of areas in which social functioning is impaired, but the overall degree of interference with a particular functional area or combination of such areas of functioning. For example, a person who is highly antagonistic, uncooperative, or hostile, but is tolerated by local storekeepers may nevertheless have marked restrictions in social functioning because that behavior is not acceptable in other social contexts, such as work. (AMA Guides, 3rd Edition (revised), p. 237)

3. Thinking, Concentration and Judgment

   Thinking, concentration, and judgment refer to the ability to sustain focused attention sufficiently long to permit the timely completion of tasks and to make reasoned or logical decisions as to alternative courses of action. Deficiencies in concentration and judgment are best observed in work and work-like settings. Major impairment in this area can often be assessed through direct psychiatric examination and/or psychological testing, although mental status examination or psychological test data alone should not be used to accurately describe concentration and sustained ability to perform work-like tasks. On mental status examinations, concentration is assessed by tasks requiring short-term memory or through tasks such as having the individual subtract serial sevens from 100. In psychological tests of intelligence or memory, concentration can be assessed through tasks requiring short-term memory or through tasks that must be completed within established time limits. Strengths and weaknesses in areas of concentration can be discussed in terms of frequency of errors, time it takes to complete the task, and extent to which assistance is required to complete the task. (Disability Evaluation Under Social Security, p.88, Social Security Administration Pub. No. 64-039)

4. Adaptation to Stress

   The individual should be able to set realistic and appropriate goals. Given that the work-related injury may have induced various limitations, the individual should demonstrate realistic adaptations to the medical/physical situation. He/she should be able to accommodate changes from pre-injury status to the current status. Adapting to performance standards requires that the individual can adequately cope with job performance and time expectations. Further, the individual should demonstrate the capacity to follow rules and policies, respond appropriately to changes in the work setting, and utilize resources available within the community, medical and family areas.
Permanent Work-Related Mental Impairment Rating Report Worksheet
Category Definition Guidelines

Category 0: **No Permanent Impairment.**

Mental symptoms arising from the work-related psychiatric diagnosis have been absent for the past month. ADLs are not affected. Functioning is at pre-injury baseline in social and work activities in all areas; no more than everyday problems.

Category 1: **Minimal Category of Permanent Impairment.**

Mental symptoms, arising from the work-related psychiatric diagnosis and not likely to remit despite medical treatment, minimally impair functioning.

Category 2: **Mild Category of Permanent Impairment.**

Mental symptoms, arising from the work-related psychiatric diagnosis are not likely to remit despite medical treatment, and are mildly impairing. ADLs are mildly disrupted. Functioning shows mild permanent impairment in social or work activities.

Category 3: **Moderate Category of Permanent Impairment.**

Mental symptoms, arising from the work-related psychiatric diagnosis and not likely to remit despite medical treatment, are moderately impairing. ADLs are moderately disrupted. Functioning shows moderate permanent impairment. Activities sometimes need direction or supervision.

Category 4: **Marked Category of Permanent Impairment.**

Mental symptoms, arising from the work-related psychiatric diagnosis and not likely to remit despite medical treatment, are seriously impairing. ADLs are seriously disrupted. Functioning shows serious difficulties in social or work activities.

Category 5: **Extreme Category of Permanent Impairment.**

Mental symptoms, arising from the work-related psychiatric diagnosis and not likely to remit despite medical treatment, are incapacitating. At times, ADLs require structuring. Functioning is quite poor, unsafe in work settings, at times requires hospitalization or full-time supervision. Most activities require directed care.

Category 6: **Maximum Category of Permanent Impairment.**

This impairment level precludes useful functioning in all areas. These individuals are generally appropriate for institutionalized settings, if available. All activities require directed care.
Since the AMA Guides to the Evaluation of Permanent Impairment, 3rd Edition (Revised) does not provide a quantified method for assigning permanent impairment percentages under Chapter 14, “Mental and Behavioral Disorders,” the provider shall utilize this form.

### Scoring Instructions:

1. This form should only be used to determine an impairment after the case has been found to meet all of the specific criteria for a Diagnostic and Statistical Manual (DSM) diagnosis.

2. The AMA Guides to Permanent Impairment, 3rd Edition (Revised), page 235, should be consulted for guidance in determining these ratings.

3. Determination of a rating of permanent mental or behavioral impairment shall be limited to mental or behavioral disorder impairments not likely to remit with further mental health treatment.

4. Impairment ratings based on chronic pain are not applicable within the mental/behavioral domain, but are restricted to physical examination with evidence of anatomic or physiologic correlation and included within a physical impairment rating.

5. To obtain the final overall impairment rating:
   a. The elements to be rated are divided into four Areas of Function: Activities of Daily Living; Social Functioning; Thinking, Concentration and Judgment; and Adaptation to Stress.
   b. Assign a rating (0-6) to each subcategory of the areas of function based on patient self-report, other sources of information, and the physician’s clinical assessment. (See Category Definitions on Page 2 of this form.)
   c. Average the two highest subcategory ratings within each Area of Function to obtain the overall category rating. For example, if the two highest scores are 2 and 5, the category score is 3.5.
   d. To calculate the overall impairment rating, average the two highest category ratings and then, if appropriate in the case, use clinical judgment to add or subtract up to 0.5 point from the result. If the score is modified in this fashion due to clinical judgment, justification for doing so must be documented. Factors influencing the physician’s discretion may include the following:
      i. Factors influencing the patient’s believability, such as the presence of symptom magnification, or the presence or absence of corroborating information from psychological or neuropsychological testing;
      ii. The extent to which medication ameliorates the effects of the condition;
   e. Use the Category Conversion Table on page 6 to convert the final number to a percentage.

6. Include the DSM diagnosis at the top of the worksheet.

7. If apportionment is applicable, complete the Apportionment Calculation Worksheet (Desk Aid #14), calculating the pre-injury rating to be subtracted from the total current rating.

8. If there is a finding of no impairment, refer to Part V on the worksheet, if appropriate.
Worksheet

Patient Name ____________________ Date of Service ____________________

WC # ____________________ Carrier # ____________________

**Note:** Determination of a rating of permanent mental or behavioral impairment shall be limited to mental or behavioral disorder impairments not likely to remit with further mental health treatment. Further, impairment ratings based on chronic pain are not applicable within the mental/behavioral domain, but are restricted to physical examination with evidence of anatomic or physiologic correlation and included within a physical impairment rating.

I. **DSM Diagnosis:** ____________________

III. **Levels of Permanent Mental Impairment**

   **Category**
   0. No permanent impairment
   1. Minimal Category of Permanent Impairment
   2. Mild Category of Permanent Impairment
   3. Moderate Category of Permanent Impairment
   4. Marked Category of Permanent Impairment
   5. Extreme Category of Permanent Impairment
   6. Maximum Category of Permanent Impairment

III. **Areas of Function**

   a. **Activities of Daily Living.** *Rate only impairments due strictly to the psychiatric condition.*

      (Rate 0-6) ____ Self care and hygiene (dressing, bathing, eating, cooking)
      (Rate 0-6) ____ Travel (driving, riding, flying) i.e. impairments in driving, riding, flying which are generally a result of symptoms of affective or anxiety disorders
      (Rate 0-4) ____ Sexual function (participating in usual sexual activities)
      (Rate 0-4) ____ Sleep (restful sleep pattern)

   b. **Social Functioning**

      (Rate 0-6) ____ Interpersonal relationships
      (Rate 0-6) ____ Communicates effectively with others
      (Rate 0-6) ____ Participation in recreational activities (consider pre-injury activities of the patient)
      (Rate 0-6) ____ Manage conflicts with others--negotiate, compromise

   Overall Category Rating: (average of 2 highest)

---

1 See attached Appendix for further description of all or part of the listed areas of function.
c. Thinking, Concentration & Judgment
   (Rate 0-6) ___ Ability to perform complex or varied tasks
   (Rate 0-6) ___ Judgment
   (Rate 0-6) ___ Problem solving
   (Rate 0-6) ___ Ability to abstract or understand concepts
   (Rate 0-6) ___ Memory, immediate and remote
   (Rate 0-6) ___ Maintain attention, concentration on a specific task
   (Rate 0-6) ___ Perform simple, routine, repetitive tasks
   (Rate 0-6) ___ Comprehend/follow simple instructions

   Overall Category Rating:  
   (average of 2 highest)

   d. Adaptation to Stress
   (Rate 0-6) ___ Set realistic short & long term goals
   (Rate 0-6) ___ Perform activities (including work) on schedule
   (Rate 0-6) ___ Adapt to job performance requirements

   Overall Category Rating:  
   (average of 2 highest)

IV. Final Calculations:

Average the two highest Areas of Function ratings: _________ + _________ divided by 2 = __________

Add or subtract up to 0.5 from the completed calculation above, if appropriate, based on clinical judgment.
Justify this deviation below or attach a separate sheet:

Using the Category Conversion Table on page 6 of this form, convert the final number to a percentage for the overall permanent impairment rating:

   Using the Category Conversion Table...  
   Overall Category Rating: 
   Permanent Impairment Rating
   Rating ______

OR

If Zero %
Psychiatric Rating
Rating ______

VI. Total Impairment Rating (if applicable)

Total Whole Person Physical Impairment = _______

Combined with psychiatric permanent impairment equals:

Physician: ___________________________ Date: __________

Signature
## Category Conversion Table

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**Answer: Mental Impairment Worksheet**

Section I - Diagnosis: Chronic PTSD, Major Depressive Disorder

Section III - Areas of Function (impairment values selected may vary per examiner, but should be generally within 1 point of the established values below) Using the Guidelines for Assessing and Rating Areas of Function with category explanations and averaging the two highest values of the four categories increases the interrater reliability of the overall rating.

**ADLs**
- Self-care and hygiene = 0
- Travel = 4: Marked impairment ("He reported that he still cannot drive on the interstate and avoids driving the company truck as well as his pickup truck. He reported an exaggerated startle response and feelings of dissociation and numbing.")
- Sexual function = 3: Moderate impairment ("He reports that since the injury and use of pain medication he has no libido and agrees to have sex with his wife approximately every 2 ½ months upon her initiation. He has had some difficulty maintaining an erection since the injury and use of Zoloft. His erections have improved with Viagra, however, he still suffers from lack of sexual interest.")
- Sleep = 3: Moderate impairment ("On a typical day, Mr. K reports that he usually arises at 3 am and he then tosses and turns for an hour before getting back to sleep for an additional hour or two.")

Overall Category Rating: (average of 2 highest) = **3.5**

**Social Functioning** - consider the patient’s pre-injury behavior which was at least a "1" in most categories.
- Interpersonal relationships = 3: Moderate impairment ("Because of his irritability, depression, and inability to perform his usual chores, he and his wife are arguing more frequently.")
- Communicates effectively with others = 0: still communicating to get his points across
- Participation in recreational activities = 2: Mild impairment ("he can no longer work in his wood shop in the garage at home.” “he no longer participates in any horseback riding or ranch activities.”
- Manage conflicts with others-negotiate, compromise = 2: Mild impairment (feels irritable, argues with his wife)

Overall Category Rating: (average of 2 highest) = **2.5**

Revised: 2/2018
Thinking, Concentration, and Judgment

- Ability to perform complex or varied tasks = 3: Moderate impairment (requires wife to set out his lunch or he would forget it)
- Judgment = 3: Moderate impairment ("difficult for him to judge what he can and cannot do", insight and judgment slightly impaired)
- Problem Solving = 3: Moderate impairment (difficult for him to judge what he can and cannot do, solve math problem)
- Ability to abstract or understand concepts = 2: Mild impairment (judgment slightly impaired, inability to remember lunch, solve math problem)
- Memory, immediate and remote = 2: Mild impairment (inability to remember lunch)
- Maintain attention, concentration on a specific task = 2: Mild impairment (inability to calculate math problem, pain causes him to become easily distracted)
- Perform simple, routine, repetitive tasks = 1: Minimal impairment (remember to prepare and eat lunch)
- Comprehend/follow simple instructions = 1: Minimal impairment (remember to prepare and eat lunch, difficulty judging what he can and cannot do)

Overall Category Rating: (average of 2 highest) = 3

Adaptation to Stress

- Set realistic short & long term goals = 3: Moderate impairment (thought he could drive to ranch 6 hours each way but was not able to due to pain, ended up frustrated)
- Perform activities (including work) on schedule = 3: Moderate impairment (reprimanded by supervisor for tardiness on two occasions)
- Adapt to job performance requirements = 3: Moderate impairment (became irate with supervisor after being tardy for work because he tries hard to get to work on time, refuses to go out of his way for employer)

Overall Category Rating: (average of 2 highest) = 3

Section IV.- Final Calculations:

Average the 2 highest Area of Function ratings: 3+3.5 = 6.5 divided by 2 = 3.25

No addition or subtraction of 0.5

Revised: 2/2018
Using the Category Conversion Table, the overall Psychiatric Permanent Impairment Rating = **19-21%**

Section V. - an impairment rating exists so an impairment for medication use cannot be added to the rating.

Section VI. - Total Impairment Rating
Total whole person physical impairment = **29%** (per history of present illness documentation for the cervical and right hip impairment)

**Combine** the physical impairment of 29% with the psychiatric impairment of 19-21% = **42-44%**

**Worksheets:**
Mental Impairment Worksheet
Areas of Function

1. **Activities of Daily Living**

   *Sexual Function:* Scoring categories 5 and 6 are not available because the maximum impairment allowed per the AMA Guides for total loss of sexual function is 30% for a male less than 40 years of age; 20% for a male 40 or older.

   *Sleep:* Scoring categories 5 and 6 are not available because the AMA Guides allow a maximum of 50% impairment for sleep or arousal disorders. To reach a 20% rating the activities of daily living must be affected to the extent that supervision is required in some areas. To reach a 50% rating, supervision by caretakers is required.

2. **Social Functioning**

   Social functioning refers to an individual’s capacity to interact appropriately and communicate effectively with other individuals. Social functioning includes the ability to get along with others, such as with family members, friends, neighbors, grocery clerks, landlords or bus drivers. Impaired social functioning may be demonstrated by a history of altercations, evictions, firings, fear of strangers, avoidance of interpersonal relationships, social isolation, etc. Strength in social functioning may be documented by an individual’s ability to initiate social contacts with others, communicate clearly with others, interact and participate in group activities, etc. Cooperative behaviors, consideration for others, awareness of others’ feelings, and social maturity also need to be considered. Social functioning in work situations may involve interactions with the public, responding appropriately to persons in authority, such as supervisors, or cooperative behaviors involving co-workers.

   Again, it is not the number of areas in which social functioning is impaired, but the overall degree of interference with a particular functional area or combination of such areas of functioning. For example, a person who is highly antagonistic, uncooperative, or hostile, but is tolerated by local storekeepers may nevertheless have marked restrictions in social functioning because that behavior is not acceptable in other social contexts, such as work. (AMA Guides, 3rd Edition (revised), p. 237)

3. **Thinking, Concentration and Judgment**

   Thinking, concentration, and judgment refer to the ability to sustain focused attention sufficiently long to permit the timely completion of tasks and to make reasoned or logical decisions as to alternative courses of action. Deficiencies in concentration and judgment are best observed in work and work-like settings. Major impairment in this area can often be assessed through direct psychiatric examination and/or psychological testing, although mental status examination or psychological test data alone should not be used to accurately describe concentration and sustained ability to perform work-like tasks. On mental status examinations, concentration is assessed by tasks requiring shortterm memory or through tasks such as having the individual subtract serial sevens from 100. In psychological tests of intelligence or memory, concentration can be assessed through tasks requiring short-term memory or through tasks that must be completed within established time limits. Strengths and weaknesses in areas of concentration can be discussed in terms of frequency of errors, time it takes to complete the task, and extent to which assistance is required to complete the task. (Disability Evaluation Under Social Security, p.88, Social Security Administration Pub. No. 64-039)

4. **Adaptation to Stress**

   The individual should be able to set realistic and appropriate goals. Given that the work-related injury may have induced various limitations, the individual should demonstrate realistic adaptations to the medical/physical situation. He/she should be able to accommodate changes from pre-injury status to the current status. Adapting to performance standards requires that the individual can adequately cope with job performance and time expectations. Further, the individual should demonstrate the capacity to follow rules and policies, respond appropriately to changes in the work setting, and utilize resources available within the community, medical and family areas.
Permanent Work-Related Mental Impairment Rating Report Worksheet
Category Definition Guidelines

Category 0: **No Permanent Impairment.**

Mental symptoms arising from the work-related psychiatric diagnosis have been absent for the past month. ADLs are not affected. Functioning is at pre-injury baseline in social and work activities in all areas; no more than everyday problems.

Category 1: **Minimal Category of Permanent Impairment.**

Mental symptoms, arising from the work-related psychiatric diagnosis and not likely to remit despite medical treatment, minimally impair functioning.

Category 2: **Mild Category of Permanent Impairment.**

Mental symptoms, arising from the work-related psychiatric diagnosis are not likely to remit despite medical treatment, and are mildly impairing. ADLs are mildly disrupted. Functioning shows mild permanent impairment in social or work activities.

Category 3: **Moderate Category of Permanent Impairment.**

Mental symptoms, arising from the work-related psychiatric diagnosis and not likely to remit despite medical treatment, are moderately impairing. ADLs are moderately disrupted. Functioning shows moderate permanent impairment. Activities sometimes need direction or supervision.

Category 4: **Marked Category of Permanent Impairment.**

Mental symptoms, arising from the work-related psychiatric diagnosis and not likely to remit despite medical treatment, are seriously impairing. ADLs are seriously disrupted. Functioning shows serious difficulties in social or work activities.

Category 5: **Extreme Category of Permanent Impairment.**

Mental symptoms, arising from the work-related psychiatric diagnosis and not likely to remit despite medical treatment, are incapacitating. At times, ADLs require structuring. Functioning is quite poor, unsafe in work settings, at times requires hospitalization or full-time supervision. Most activities require directed care.

Category 6: **Maximum Category of Permanent Impairment.**

This impairment level precludes useful functioning in all areas. These individuals are generally appropriate for institutionalized settings, if available. All activities require directed care.
Permanent Work-Related Mental Impairment Rating
Report Worksheet

Since the AMA Guides to the Evaluation of Permanent Impairment, 3rd Edition (Revised) does not provide a quantified method for assigning permanent impairment percentages under Chapter 14, “Mental and Behavioral Disorders,” the provider shall utilize this form.

Patient Name  Mr. K.  Date of Service
WC #  Carrier #

Scoring Instructions:
1. This form should only be used to determine an impairment after the case has been found to meet all of the specific criteria for a Diagnostic and Statistical Manual (DSM) diagnosis.
2. The AMA Guides to Permanent Impairment, 3rd Edition (Revised), page 235, should be consulted for guidance in determining these ratings.
3. Determination of a rating of permanent mental or behavioral impairment shall be limited to mental or behavioral disorder impairments not likely to remit with further mental health treatment.
4. Impairment ratings based on chronic pain are not applicable within the mental/behavioral domain, but are restricted to physical examination with evidence of anatomic or physiologic correlation and included within a physical impairment rating.
5. To obtain the final overall impairment rating:
   a. The elements to be rated are divided into four Areas of Function: Activities of Daily Living; Social Functioning; Thinking, Concentration and Judgment; and Adaptation to Stress.
   b. Assign a rating (0-6) to each subcategory of the areas of function based on patient self-report, other sources of information, and the physician’s clinical assessment. (See Category Definitions on Page 2 of this form.) Given the heavy reliance on the patient’s subjective report for information in some of the ratings, the physician should give careful consideration to any corroborating evidence that might be available.
   c. Average the two highest subcategory ratings within each Area of Function to obtain the overall category rating. For example, if the two highest scores are 2 and 5, the category score is 3.5.
   d. To calculate the overall impairment rating, average the two highest category ratings and then, if appropriate in the case, use clinical judgment to add or subtract up to 0.5 point from the result. If the score is modified in this fashion due to clinical judgment, justification for doing so must be documented. Factors influencing the physician’s discretion may include the following:
      i. Factors influencing the patient’s believability, such as the presence of symptom magnification, or the presence or absence of corroborating information from psychological or neuropsychological testing;
      ii. The extent to which medication ameliorates the effects of the condition;
   e. Use the Category Conversion Table on page 6 to convert the final number to a percentage.
6. Include the DSM diagnosis at the top of the worksheet.
7. If apportionment is applicable, complete the Apportionment Calculation Worksheet (Desk Aid #14), calculating the pre-injury rating to be subtracted from the total current rating.
8. If there is a finding of no impairment, refer to Part V on the worksheet, if appropriate.
Worksheet

Patient Name: Mr. K.  Date of Service: 

Group #  Carrier #: 

**Note:** Determination of a rating of permanent mental or behavioral impairment shall be limited to mental or behavioral disorder impairments not likely to remit with further mental health treatment. Further, impairment ratings based on chronic pain are not applicable within the mental/behavioral domain, but are restricted to physical examination with evidence of anatomic or physiologic correlation and included within a physical impairment rating.

I. **DSM Diagnosis:** Chronic PTSD, Major Depressive Disorder

III. **Levels of Permanent Mental Impairment**

<table>
<thead>
<tr>
<th>Category</th>
<th>Permanent Impairment</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.</td>
<td>No permanent impairment</td>
</tr>
<tr>
<td>1.</td>
<td>Minimal Category of Permanent Impairment</td>
</tr>
<tr>
<td>2.</td>
<td>Mild Category of Permanent Impairment</td>
</tr>
<tr>
<td>3.</td>
<td>Moderate Category of Permanent Impairment</td>
</tr>
<tr>
<td>4.</td>
<td>Marked Category of Permanent Impairment</td>
</tr>
<tr>
<td>5.</td>
<td>Extreme Category of Permanent Impairment</td>
</tr>
<tr>
<td>6.</td>
<td>Maximum Category of Permanent Impairment</td>
</tr>
</tbody>
</table>

III. **Areas of Function**

a. **Activities of Daily Living.** *Rate only impairments due strictly to the psychiatric condition.*

<table>
<thead>
<tr>
<th>Rate (0-6)</th>
<th>Area Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Self care and hygiene (dressing, bathing, eating, cooking)</td>
</tr>
<tr>
<td>4</td>
<td>Travel (driving, riding, flying) i.e. impairments in driving, riding, flying which are generally a result of symptoms of affective or anxiety disorders</td>
</tr>
<tr>
<td>3</td>
<td>Sexual function (participating in usual sexual activities)</td>
</tr>
<tr>
<td>3</td>
<td>Sleep (restful sleep pattern)</td>
</tr>
</tbody>
</table>

**Overall Category Rating:** (average of 2 highest) 3.5

b. **Social Functioning**

<table>
<thead>
<tr>
<th>Rate (0-6)</th>
<th>Area Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Interpersonal relationships</td>
</tr>
<tr>
<td>0</td>
<td>Communicates effectively with others</td>
</tr>
<tr>
<td>2</td>
<td>Participation in recreational activities (consider pre-injury activities of the patient)</td>
</tr>
<tr>
<td>2</td>
<td>Manage conflicts with others--negotiate, compromise</td>
</tr>
</tbody>
</table>

**Overall Category Rating:** (average of 2 highest) 2.5

---

1 See attached Appendix for further description of all or part of the listed areas of function.
c. Thinking, Concentration & Judgment

(Rate 0-6) 3 Ability to perform complex or varied tasks
(Rate 0-6) 3 Judgment
(Rate 0-6) 3 Problem solving
(Rate 0-6) 2 Ability to abstract or understand concepts
(Rate 0-6) 2 Memory, immediate and remote
(Rate 0-6) 2 Maintain attention, concentration on a specific task
(Rate 0-6) 1 Perform simple, routine, repetitive tasks
(Rate 0-6) 1 Comprehend/follow simple instructions

Overall Category Rating: 3

---
d. Adaptation to Stress

(Rate 0-6) 3 Set realistic short & long term goals
(Rate 0-6) 3 Perform activities (including work) on schedule
(Rate 0-6) 3 Adapt to job performance requirements

Overall Category Rating: 3

---
IV. Final Calculations:

Average the two highest Areas of Function ratings: 3 + 3.5 divided by 2 = 3.25

Add or subtract up to 0.5 from the completed calculation above, if appropriate, based on clinical judgment.
Justify this deviation below or attach a separate sheet:

---
Using the Category Conversion Table on page 6 of this form, convert the final number to a percentage for the overall permanent impairment rating:

Overall Category Rating: 20%

OR

If Zero % Psychiatric Rating
Rating _____%

VI. Total Impairment Rating (if applicable)

Total Whole Person Physical Impairment = 29%

Combined with psychiatric permanent impairment equals:

Physician: ___________________________ Date: ____________

Signature

Total Whole Person Impairment (including psychiatric impairment) = 43%
# Category Conversion Table

<table>
<thead>
<tr>
<th>Final Score</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>0.25</td>
<td>0</td>
</tr>
<tr>
<td>0.5</td>
<td>1</td>
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<td>10 to 12</td>
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<td>16 to 18</td>
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<td>3.25</td>
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<td>22 to 23</td>
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<td>51 to 56</td>
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<td>57 to 62</td>
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<td>5.75</td>
<td>69 to 75</td>
</tr>
<tr>
<td>6</td>
<td>76 to 83</td>
</tr>
<tr>
<td>6.25</td>
<td>84 to 91</td>
</tr>
<tr>
<td>6.5</td>
<td>92 to 100</td>
</tr>
</tbody>
</table>
Areas of Function

1. Activities of Daily Living

*Sexual Function:* Scoring categories 5 and 6 are not available because the maximum impairment allowed per the AMA Guides for total loss of sexual function is 30% for a male less than 40 years of age; 20% for a male 40 or older.

*Sleep:* Scoring categories 5 and 6 are not available because the AMA Guides allow a maximum of 50% impairment for sleep or arousal disorders. To reach a 20% rating the activities of daily living must be affected to the extent that supervision is required in some areas. To reach a 50% rating, supervision by caretakers is required.

2. Social Functioning

Social functioning refers to an individual’s capacity to interact appropriately and communicate effectively with other individuals. Social functioning includes the ability to get along with others, such as with family members, friends, neighbors, grocery clerks, landlords or bus drivers. Impaired social functioning may be demonstrated by a history of altercations, evictions, firings, fear of strangers, avoidance of interpersonal relationships, social isolation, etc. Strength in social functioning may be documented by an individual’s ability to initiate social contacts with others, communicate clearly with others, interact and participate in group activities, etc. Cooperative behaviors, consideration for others, awareness of others’ feelings, and social maturity also need to be considered. Social functioning in work situations may involve interactions with the public, responding appropriately to persons in authority, such as supervisors, or cooperative behaviors involving co-workers.

Again, it is not the number of areas in which social functioning is impaired, but the overall degree of interference with a particular functional area or combination of such areas of functioning. For example, a person who is highly antagonistic, uncooperative, or hostile, but is tolerated by local storekeepers may nevertheless have marked restrictions in social functioning because that behavior is not acceptable in other social contexts, such as work. (AMA Guides, 3rd Edition (revised), p. 237)

3. Thinking, Concentration and Judgment

Thinking, concentration, and judgment refer to the ability to sustain focused attention sufficiently long to permit the timely completion of tasks and to make reasoned or logical decisions as to alternative courses of action. Deficiencies in concentration and judgment are best observed in work and work-like settings. Major impairment in this area can often be assessed through direct psychiatric examination and/or psychological testing, although mental status examination or psychological test data alone should not be used to accurately describe concentration and sustained ability to perform work-like tasks. On mental status examinations, concentration is assessed by tasks requiring short-term memory or through tasks such as having the individual subtract serial sevens from 100. In psychological tests of intelligence or memory, concentration can be assessed through tasks requiring short-term memory or through tasks that must be completed within established time limits. Strengths and weaknesses in areas of concentration can be discussed in terms of frequency of errors, time it takes to complete the task, and extent to which assistance is required to complete the task. (Disability Evaluation Under Social Security, p.88, Social Security Administration Pub. No. 64-039)

4. Adaptation to Stress

The individual should be able to set realistic and appropriate goals. Given that the work-related injury may have induced various limitations, the individual should demonstrate realistic adaptations to the medical/physical situation. He/she should be able to accommodate changes from pre-injury status to the current status. Adapting to performance standards requires that the individual can adequately cope with job performance and time expectations. Further, the individual should demonstrate the capacity to follow rules and policies, respond appropriately to changes in the work setting, and utilize resources available within the community, medical and family areas.
Permanent Work-Related Mental Impairment Rating Report Worksheet
Category Definition Guidelines

Category 0:  **No Permanent Impairment.**
Mental symptoms arising from the work-related psychiatric diagnosis have been absent for the past month. ADLs are not affected. Functioning is at pre-injury baseline in social and work activities in all areas; no more than everyday problems.

Category 1:  **Minimal Category of Permanent Impairment.**
Mental symptoms, arising from the work-related psychiatric diagnosis and not likely to remit despite medical treatment, minimally impair functioning.

Category 2:  **Mild Category of Permanent Impairment.**
Mental symptoms, arising from the work-related psychiatric diagnosis are not likely to remit despite medical treatment, and are mildly impairing. ADLs are mildly disrupted. Functioning shows mild permanent impairment in social or work activities.

Category 3:  **Moderate Category of Permanent Impairment.**
Mental symptoms, arising from the work-related psychiatric diagnosis and not likely to remit despite medical treatment, are moderately impairing. ADLs are moderately disrupted. Functioning shows moderate permanent impairment. Activities sometimes need direction or supervision.

Category 4:  **Marked Category of Permanent Impairment.**
Mental symptoms, arising from the work-related psychiatric diagnosis and not likely to remit despite medical treatment, are seriously impairing. ADLs are seriously disrupted. Functioning shows serious difficulties in social or work activities.

Category 5:  **Extreme Category of Permanent Impairment.**
Mental symptoms, arising from the work-related psychiatric diagnosis and not likely to remit despite medical treatment, are incapacitating. At times, ADLs require structuring. Functioning is quite poor, unsafe in work settings, at times requires hospitalization or full-time supervision. Most activities require directed care.

Category 6:  **Maximum Category of Permanent Impairment.**
This impairment level precludes useful functioning in all areas. These individuals are generally appropriate for institutionalized settings, if available. All activities require directed care.
Permanent Work-Related Mental Impairment Rating

Report Worksheet

Since the AMA Guides to the Evaluation of Permanent Impairment, 3rd Edition (Revised) does not provide a quantified method for assigning permanent impairment percentages under Chapter 14, “Mental and Behavioral Disorders,” the provider shall utilize this form.

Patient Name ___________________________ Date of Service ___________________________

WC # ___________________________ Carrier # ___________________________

Scoring Instructions:

1. This form should only be used to determine an impairment after the case has been found to meet all of the specific criteria for a Diagnostic and Statistical Manual (DSM) diagnosis.

2. The AMA Guides to Permanent Impairment, 3rd Edition (Revised), page 235, should be consulted for guidance in determining these ratings.

3. Determination of a rating of permanent mental or behavioral impairment shall be limited to mental or behavioral disorder impairments not likely to remit with further mental health treatment.

4. Impairment ratings based on chronic pain are not applicable within the mental/behavioral domain, but are restricted to physical examination with evidence of anatomic or physiologic correlation and included within a physical impairment rating.

5. To obtain the final overall impairment rating:
   a. The elements to be rated are divided into four Areas of Function: Activities of Daily Living; Social Functioning; Thinking, Concentration and Judgment; and Adaptation to Stress.
   b. Assign a rating (0-6) to each subcategory of the areas of function based on patient self-report, other sources of information, and the physician’s clinical assessment. (See Category Definitions on Page 2 of this form.) Given the heavy reliance on the patient’s subjective report for information in some of the ratings, the physician should give careful consideration to any corroborating evidence that might be available.
   c. Average the two highest subcategory ratings within each Area of Function to obtain the overall category rating. For example, if the two highest scores are 2 and 5, the category score is 3.5.
   d. To calculate the overall impairment rating, average the two highest category ratings and then, if appropriate in the case, use clinical judgment to add or subtract up to 0.5 point from the result. If the score is modified in this fashion due to clinical judgment, justification for doing so must be documented. Factors influencing the physician’s discretion may include the following:
      i. Factors influencing the patient’s believability, such as the presence of symptom magnification, or the presence or absence of corroborating information from psychological or neuropsychological testing;
      ii. The extent to which medication ameliorates the effects of the condition;
   e. Use the Category Conversion Table on page 6 to convert the final number to a percentage.

6. Include the DSM diagnosis at the top of the worksheet.

7. If apportionment is applicable, complete the Apportionment Calculation Worksheet (Desk Aid #14), calculating the pre-injury rating to be subtracted from the total current rating.

8. If there is a finding of no impairment, refer to Part V on the worksheet, if appropriate.
Worksheet

Patient Name ___________________________ Date of Service _______________________

WC # ___________________________ Carrier # ___________________________

**Note:** Determination of a rating of permanent mental or behavioral impairment shall be limited to mental or behavioral disorder impairments not likely to remit with further mental health treatment. Further, impairment ratings based on chronic pain are not applicable within the mental/behavioral domain, but are restricted to physical examination with evidence of anatomic or physiologic correlation and included within a physical impairment rating.

I. **DSM Diagnosis:** __________________________________________

III. **Levels of Permanent Mental Impairment**

   **Category**
   0. No permanent impairment
   1. Minimal Category of Permanent Impairment
   2. Mild Category of Permanent Impairment
   3. Moderate Category of Permanent Impairment
   4. Marked Category of Permanent Impairment
   5. Extreme Category of Permanent Impairment
   6. Maximum Category of Permanent Impairment

III. **Areas of Function**

   a. **Activities of Daily Living.** *Rate only impairments due strictly to the psychiatric condition.*

      (Rate 0-6) ___ Self care and hygiene (dressing, bathing, eating, cooking)
      (Rate 0-6) ___ Travel (driving, riding, flying) i.e. impairments in driving, riding, flying which are generally a result of symptoms of affective or anxiety disorders
      (Rate 0-4) ___ Sexual function (participating in usual sexual activities)
      (Rate 0-4) ___ Sleep (restful sleep pattern)

   b. **Social Functioning**

      (Rate 0-6) ___ Interpersonal relationships
      (Rate 0-6) ___ Communicates effectively with others
      (Rate 0-6) ___ Participation in recreational activities (consider pre-injury activities of the patient)
      (Rate 0-6) ___ Manage conflicts with others--negotiate, compromise

---

1 See attached Appendix for further description of all or part of the listed areas of function.

Revised: 2/2018
c. **Thinking, Concentration & Judgment**
   - (Rate 0-6) Ability to perform complex or varied tasks
   - (Rate 0-6) Judgment
   - (Rate 0-6) Problem solving
   - (Rate 0-6) Ability to abstract or understand concepts
   - (Rate 0-6) Memory, immediate and remote
   - (Rate 0-6) Maintain attention, concentration on a specific task
   - (Rate 0-6) Perform simple, routine, repetitive tasks
   - (Rate 0-6) Comprehend/follow simple instructions

   Overall Category Rating: (average of 2 highest)

   ___________

d. **Adaptation to Stress**
   - (Rate 0-6) Set realistic short & long term goals
   - (Rate 0-6) Perform activities (including work) on schedule
   - (Rate 0-6) Adapt to job performance requirements

   Overall Category Rating: (average of 2 highest)

   ___________

### IV. Final Calculations:

Average the two highest Areas of Function ratings: ________ + ________ divided by 2 = __________

Add or subtract up to 0.5 from the completed calculation above, if appropriate, based on clinical judgment.
Justify this deviation below or attach a separate sheet:

---

Using the Category Conversion Table on page 6 of this form, convert the final number to a percentage for the overall permanent impairment rating:

---

**Overall Category Rating: Permanent Impairment**

Rating _____%

OR

**If Zero %**

**Psychiatric Rating**

Rating _____%

---

**VI. Total Impairment Rating (if applicable)**

Total Whole Person Physical Impairment = _____%

Combined with psychiatric permanent impairment equals:

Physician: __________________________ Date: __________

Total Whole Person Impairment (including psychiatric impairment) = _____%

Rating _____%
## Category Conversion Table

<table>
<thead>
<tr>
<th>Final Score</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>0.25</td>
<td>0</td>
</tr>
<tr>
<td>0.5</td>
<td>1</td>
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<tr>
<td>0.75</td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
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<tr>
<td>1.25</td>
<td>2</td>
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<tr>
<td>1.5</td>
<td>3 to 4</td>
</tr>
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<td>1.75</td>
<td>5</td>
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<td>2</td>
<td>6 to 7</td>
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<td>8 to 9</td>
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<td>10 to 12</td>
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<tr>
<td>6</td>
<td>76 to 83</td>
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<tr>
<td>6.25</td>
<td>84 to 91</td>
</tr>
<tr>
<td>6.5</td>
<td>92 to 100</td>
</tr>
</tbody>
</table>
# Guidelines for Assessing and Rating Areas of Function on the Mental Impairment Rating Worksheet

## Activities of Daily Living

### Sexual Impairments*

<table>
<thead>
<tr>
<th>Baseline</th>
<th>0</th>
<th>First, determine the usual frequency, responsiveness (orgasms, erections, ejaculations) and degree of enjoyment of sex before the injury.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimal</td>
<td>1</td>
<td>Rarely initiates but can usually climax (female)/erection (male). Frequency is equal to slightly less than baseline frequency.</td>
</tr>
<tr>
<td>Mild</td>
<td>2</td>
<td>Has sex once per month (baseline is once per week) in response to partner and can occasionally reach orgasm (female)/usually ejaculate (male). Still derives pleasure/enjoyment from sexual activity.</td>
</tr>
<tr>
<td>Moderate</td>
<td>3</td>
<td>Has sex once every two months or longer (baseline once per week) in response to partner and rarely reaches orgasm (female)/has occasional erectile dysfunction (male). Rarely experiences pleasure/enjoyment.</td>
</tr>
<tr>
<td>Marked</td>
<td>4</td>
<td>Has no interest in sex and is without orgasms (female)/always has difficulty with erections (male) and avoids sex.</td>
</tr>
</tbody>
</table>

*Alterations in the sexual function due to pain is included in the physical impairment rating, and not rated under psychiatric impairment.

## Activities of Daily Living

### Sleep*

<table>
<thead>
<tr>
<th>Baseline</th>
<th>0</th>
<th>First, demonstrate the usual sleep pattern and whether they used medications before the injury.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimal</td>
<td>1</td>
<td>Has trouble falling asleep most nights but can sleep through the night. If now on medication and not before the injury, the individual is at least minimally impaired.</td>
</tr>
<tr>
<td>Mild</td>
<td>2</td>
<td>Awakens twice during the night but can usually fall back to sleep in less than one hour.</td>
</tr>
<tr>
<td>Moderate</td>
<td>3</td>
<td>Has difficulty falling asleep and wakes up one to two times per night but is usually unable to fall back to sleep for several hours.</td>
</tr>
<tr>
<td>Marked</td>
<td>4</td>
<td>Can’t get to sleep for more than two hours at a time and regularly naps during the daytime (disturbed diurnal pattern).</td>
</tr>
</tbody>
</table>

Revised: 2/2018
*Alterations in sleep patterns due to pain is included in the physical impairment rating, and not rated under psychiatric impairment.

### Social Functioning
#### Interpersonal Relationships

<table>
<thead>
<tr>
<th>Baseline</th>
<th>0</th>
<th>First determine the individual’s usual openness to others and how often they greeted others, made new friends, and tolerated disagreements with others without behavioral extremes or adapted to get along with others.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimal</td>
<td>1</td>
<td>Can still initiate and meet new people and behave appropriately but feels uncomfortable and would prefer to be alone. There are less frequent social contacts but they still respond when others initiate or negotiate. Can still adapt to others when they have to. May raise voice or shout in response to interpersonal conflicts more frequently than usual.</td>
</tr>
<tr>
<td>Mild</td>
<td>2</td>
<td>The only social contacts are initiated by others and with some coaxing; rarely initiates social contacts and resents negotiating and compromising but still can adapt; can still enjoy some social experiences but not frequently. Can be verbally abusive when faced with interpersonal conflict.</td>
</tr>
<tr>
<td>Moderate</td>
<td>3</td>
<td>Requires pressure or necessity to have social contacts and rarely enjoys it, difficulty compromising, negotiating, and adapting but still can for very important purposes. Or at least one episode of physically threatening or abusive behavior directed at a person.</td>
</tr>
<tr>
<td>Marked-Extreme</td>
<td>4-5</td>
<td>Has no interest in others and actively avoids interactions. Derives no social pleasure and finds it difficult to adapt to others even when there are dire consequences for not compromising or attending. May have had several incidents of physically abusive behavior directed at a person with possible legal charges.</td>
</tr>
<tr>
<td>Maximum</td>
<td>6</td>
<td>Requires constant supervision to monitor behavior.</td>
</tr>
</tbody>
</table>
## Social Functioning

### Communicate Effectively with Others

<table>
<thead>
<tr>
<th>Level</th>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>0</td>
<td>Determine the usual ability to get one’s ideas across effectively to others.</td>
</tr>
<tr>
<td>Minimal</td>
<td>1</td>
<td>Complains that it is difficult to clearly and effectively communicate with others but still can.</td>
</tr>
<tr>
<td>Mild</td>
<td>2</td>
<td>Sometimes requires help from others to clearly and effectively communicate with them.</td>
</tr>
<tr>
<td>Moderate</td>
<td>3</td>
<td>Suffered a consequence for not effectively communicating with others. This individual requires the listener to actively interpret the intent of the communication.</td>
</tr>
<tr>
<td>Marked-Extreme</td>
<td>4-5</td>
<td>Experiences serious consequences due to inability to consistently communicate effectively with others. This individual is poorly understood despite active attempts to interpret the intent of the communication.</td>
</tr>
<tr>
<td>Maximum</td>
<td>6</td>
<td>Inability to communicate with others except regarding basic physical needs (i.e. autistic, catatonic)</td>
</tr>
</tbody>
</table>

*Many communication problems are secondary to CNS and/or ENT disorders and require evaluation using those specific guidelines instead. Examples of psychiatric disorders impairing clear and effective communications include symptoms of mood disorders (flight of ideas, loose associations, paucity of thought), symptoms of psychotic disorders (paranoia, delusions, hallucinations), substance abuse.*
### Social Functioning
#### Recreational Activities

<table>
<thead>
<tr>
<th>Level</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>0</td>
<td>Determine the <strong>usual</strong> sedentary, active physical and spiritual activities they participated in before the injury, how frequently they initiated and participated in them and how pleasurable they were.</td>
</tr>
<tr>
<td>Minimal</td>
<td>1</td>
<td>Still participates in some (any) recreational activities but feels less comfortable. There is decreased frequency of initiation but they can still respond when others initiate and still derive pre-injury pleasure.</td>
</tr>
<tr>
<td>Mild</td>
<td>2</td>
<td>Only participates in response to others with some coaxing and cajoling. Rarely initiates recreational activity but responds when others initiate and can still derive some degree of pleasure.</td>
</tr>
<tr>
<td>Moderate</td>
<td>3</td>
<td>Only participates in a recreational activity under pressure and rarely enjoys it.</td>
</tr>
<tr>
<td>Marked-Extreme</td>
<td>4-5</td>
<td>Has no interest in participating in recreational activities, actively avoids it and experiences no pleasure from it.</td>
</tr>
<tr>
<td>Maximum</td>
<td>6</td>
<td>Participates in no recreational activities.</td>
</tr>
</tbody>
</table>
### Social Functioning

#### Manage Conflicts with Others - Negotiate, Compromise

<table>
<thead>
<tr>
<th>Level</th>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>0</td>
<td>Determine the individual's usual ability to resolve difficulties with others or reach consensus in a conflict before the accident. (The conflict is pathological.)</td>
</tr>
<tr>
<td>Minimal</td>
<td>1</td>
<td>Gets upset and has feelings of resentment which are not expressed. Regains composure by avoiding others and therefore prefers to work alone. Not overtly angry but internally troubled.</td>
</tr>
<tr>
<td>Mild</td>
<td>2</td>
<td>Sometimes gets upset and argumentative and expresses anger with the conflict eventually getting resolved. Can “go with the flow” but with some difficulty.</td>
</tr>
<tr>
<td>Moderate</td>
<td>3</td>
<td>Frequently argues with others when involved with or interacting with others. The conflict remains unresolved (rigid, sulks) until others intervene. The anger and conflict disrupts relationships on a team, in a family or friendship. They have suffered a consequence for inappropriate conflictual behavior.</td>
</tr>
<tr>
<td>Marked-Extreme</td>
<td>4-5</td>
<td>Frequently argues, unwilling to compromise. Gets upset and the anger and conflict are so disruptive that external control, limits, or measures are necessary. The conflict remains unresolved (rigid, sulks) and disrupts relationships. The conflict requires external help and is even then difficult to resolve. They have suffered a serious consequence for inappropriate conflictual behavior such as threatened job loss or other disciplinary action.</td>
</tr>
<tr>
<td>Maximum</td>
<td>6</td>
<td>Incarcerated, confined or hospitalized for aggressive behavior.</td>
</tr>
</tbody>
</table>
## Adaptation to Stress
### Set Realistic Short & Long Term Goals

<table>
<thead>
<tr>
<th>Baseline</th>
<th>0</th>
<th>Determine the usual level of judgment used to set attainable goals. Does he/she usually underestimate, overestimate or achieve what he/she sets out to do? How much assistance is usually needed to set realistic achievable goals?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimal</td>
<td>1</td>
<td>Finds it difficult and/or stressful to determine what he/she can or cannot do but usually doesn’t underestimate or overestimate or require assistance from others.</td>
</tr>
<tr>
<td>Mild</td>
<td>2</td>
<td>Requires and accepts some assistance from others to determine what he/she can or cannot do and occasionally underestimates or overestimates.</td>
</tr>
<tr>
<td>Moderate</td>
<td>3</td>
<td>Frequently underestimates or overestimates what he/she can do which causes mild consequences unless assistance is received from others. Requires some regular external structure but has difficulty accurately determining when assistance is necessary for himself/herself. (Results in increased symptoms, material damage.) When provided, assistance is accepted.</td>
</tr>
<tr>
<td>Marked-Extreme</td>
<td>4-5</td>
<td>Frequently underestimates or overestimates what he/she can do which causes serious consequences. Unaware of need for structure and assistance and either resists or has difficulty utilizing assistance from others. (Results in increased symptoms; potential or actual serious injury to self or others.)</td>
</tr>
<tr>
<td>Maximum</td>
<td>6</td>
<td>Unable to achieve any basic short or long-term goals.</td>
</tr>
</tbody>
</table>
### Adaptation to Stress

Perform Activities (including work) on Schedule

<table>
<thead>
<tr>
<th>Baseline</th>
<th>0</th>
<th>Determine the usual punctuality of the individual. How usual is it for them to be late for work or miss important functions?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimal</td>
<td>1</td>
<td>Finds it stressful to be on time and perform at an acceptable pace.</td>
</tr>
<tr>
<td>Mild</td>
<td>2</td>
<td>Requires some assistance from others to be on time and perform at an acceptable pace (reminders, phone calls, physical assistance).</td>
</tr>
<tr>
<td>Moderate</td>
<td>3</td>
<td>Suffered minor consequences for lateness and slow performance (reprimanded, upset others, confronted by others).</td>
</tr>
<tr>
<td>Marked-Extreme</td>
<td>4-5</td>
<td>Suffered serious consequences for lateness or slowness (threat of being fired, late for or missed very important appointment).</td>
</tr>
<tr>
<td>Maximum</td>
<td>6</td>
<td>Cannot be expected to complete a task. (No expected performance)</td>
</tr>
</tbody>
</table>
# Adaptation to Stress

## Adapt to Job Performance Requirements

<table>
<thead>
<tr>
<th>Baseline</th>
<th>0</th>
<th>Determine the individual’s ability to adapt (be flexible) to a non-negotiable change in rules or follow established procedures (new supervisor, change in shift, required meeting).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimal</td>
<td>1</td>
<td>Resistance, denial, negativity is felt but not overtly expressed.</td>
</tr>
<tr>
<td>Mild</td>
<td>2</td>
<td>Negative reaction to limits and rules is expressed, such as resistance, avoidance, making excuses, attempting to substitute another task for the required one.</td>
</tr>
<tr>
<td>Moderate</td>
<td>3</td>
<td>The behavior of the individual is called to his/her attention and they experienced mild external (corrective) consequences such as written reprimand. The individual demonstrates overt resistance to performing what is expected.</td>
</tr>
<tr>
<td>Marked-Extreme</td>
<td>4-5</td>
<td>They experienced serious disciplinary consequences such as suspension. Their behavior disrupts workplace relationships. The individual frequently does not perform required tasks.</td>
</tr>
<tr>
<td>Maximum</td>
<td>6</td>
<td>Due to inability to accept limits and/or follow rules, they experience dire consequences such as termination from employment, or incarceration.</td>
</tr>
</tbody>
</table>

Revised: 2/2018
Vision Impairment Rating
AMA Guides, 3rd Edition, revised - Chapter 8, p.161

Objectives:
1) Determine the assessment standards for evaluating a patient with a vision impairment.
2) Calculate a vision impairment rating using a case example.

*Vision impairment is usually performed by rating both right and left visual fields, while binocular visual field impairment is uncommonly performed.

Summary/Steps for Determining Vision Impairment Ratings
Monocular Visual Impairment Using Monocular Visual Fields

1) Determine corrected near and far central visual acuity in each eye
   ● The total impairment for corrected acuity for each eye is determined by using AMA Guides Table 2, p.163 (use upper value). Enter the values on the Monocular Visual Fields Worksheet under the “Central Acuity” section.
   ● The lower figure on the chart should be taken if monocular aphakia or monocular pseudophakia are present.

2) Determine the loss of visual fields for each eye. If using binocular visual field measurements, a separate system is used, as described in the Summary/Steps for Binocular Visual Impairment (page 2 of this chapter).
   ● Measure the total degrees of visual field retained.
   ● Refer to Table 4 (p.167) for the percent loss of monocular visual fields and document the value on the Monocular Visual Fields Worksheet under the “Visual Fields” section.

3) If diplopia is present due to an ocular motility dysfunction, the loss of ocular motility is assigned to the eye with the worse vision.
   ● Determine the percentage/loss of ocular motility assigned to the worse eye in diplopia fields by using AMA Guides Figure 3, p.168. Enter the value on the Monocular Visual Fields Worksheet under the “Motility” section.

4) An additional 5-10% for “other ocular impairments” of the involved eye can be combined if it affects overall vision. If applicable, document the value on the Monocular Visual Fields Worksheet for the affected eye. Ocular impairments include:
   ○ Vitreous opacities
5) Calculate total eye loss for each eye separately by using the Combined Values Chart (AMA Guides p.254) by combining:
   - Total impairment for corrected acuity
   - Total impairment for visual fields
   - Percentage/loss of ocular motility to worse eye
   - Additional impairment for ocular impairments if applicable
6) Calculate total visual system impairment by using AMA Guides Table 5, p.169-171.
   - Read impairment of worse eye on the vertical axis of the chart and better eye on the horizontal axis.
   - If bilateral aphakia is present and corrected central visual acuity is used in the calculations, an additional 25% is added to the remaining impairment.
   - Document the value on the Monocular Visual Fields Worksheet under “Total Visual System.”
7) Calculate the visual system total whole person impairment by using AMA Guides Table 6, p.172 and document the value on the Monocular Visual Fields Worksheet under “Total Whole Person.”

**Binocular Visual Impairment without Motility Loss**

Binocular visual field testing should not be performed when an ocular motility impairment is present.

1) Determine near and far central visual acuity in each eye.
2) Determine the total impairment for corrected acuity for each eye using AMA Guides Table 2, p.163 and document on the Binocular Visual Fields without Motility Loss Worksheet under “Central Acuity.”
3) An additional 5-10% impairment can be combined for other ocular impairments of the involved eye if it affects overall vision. If applicable, document the value on the Binocular Visual Fields Worksheet for the affected eye. Ocular impairments include:
   - Vitreous opacities
   - Non-reactive pupil
   - Light scattering disturbances
4) Calculate total visual system impairment by using AMA Guides Table 5, p.169-171 and document on the Binocular Visual Fields without Motility Loss Worksheet.
● Read impairment of worse eye on the vertical axis of the chart and better eye on the horizontal axis. Calculate binocular visual field if appropriate.

5) Calculate binocular visual field, if appropriate, and document on the Binocular Visual Fields without Motility Loss Worksheet under “Binocular Visual Field.”

6) Combine the visual field impairment with the acuity impairment using the Combined Values Chart on p. 254 and document the value on the Binocular Visual Fields without Motility Loss Worksheet under “Total Visual Impairment.”

7) Calculate the total whole person binocular visual impairment using AMA Guides Table 6, p.172 and document on the Binocular Visual Fields without Motility Loss Worksheet under “Total Whole Person.”

References/Links
Vision Impairment Worksheets: the use of the worksheets is optional. If worksheets are not used, the impairment rating calculations must be thoroughly explained in the narrative report.

Core Content: The evaluation of the visual system for impairment is based on three functions: corrected visual acuity for objects near and far, visual fields, and ocular motility.

Vision Impairment General Principles: In a workers’ compensation case, the visual evaluation consists of corrected visual acuity, visual fields, and ocular motility.

Corrected Visual Acuity: for objects near and far
The physician must determine near and far central visual acuity in each eye

- Measure corrected and uncorrected vision, but use corrected for ratings.

The chart should be illuminated at a level of at least 5 foot-candles with far vision tested with the Snelling chart, Illiterate E chart or Landolt’s broken-ring chart. Near vision should be tested at 14 inches, following the Revised Jaeger Standard.

Use AMA Guides Table 2, p.163 to determine the percent impairment of central vision loss for each eye. The upper number is the percent loss of central vision
without allowance for monocular aphakia or monocular pseudophakia. The lower number is the percent loss of central vision with allowance for monocular aphakia or monocular pseudophakia.

**Visual fields**
The AMA Guides explains binocular field visual impairment first, however, monocular visual field impairment is the most frequently reported test.

When a field defect is suspected, *binocular visual fields* should be tested using:
- The Goldman kinetic outer isopter of the III/4e stimulus or
- The arc perimeter exam using a 3 mm white test target at a radius of 330 mm.

Utilize Esterman grid (AMA Guides Figure 2A, p.165) for determination of binocular field and transfer readings from field instrument to Grid.
- Count the dots outside or on the visual field line (AMA Guides Figure 2A, p.165)
- Multiply the number of dots x % to determine the percentage of field loss

Utilize *monocular field measurements*
- Measure total degrees of visual field retained.
- Use AMA Guides Table 4, p.167 to determine percentage of monocular field loss.

**Ocular motility**
If there is profound amblyopia or profound loss of visual acuity in one eye, clinical evaluation of motility should be used to determine impairment.
- Plot the presence of diplopia along the meridians of the visual field.
- Use AMA Guides Figure 3, p.168 to determine percentage loss.

**Pitfalls**
Permanent deformities of the orbit, scars and other cosmetic deformities that do not otherwise alter ocular function can receive up to an additional 10% rating of the whole person.
This rating is then **combined** with the total whole person impairment rating for the final rating.

**Workshop Case:**

Monocular Visual Fields: The following measurements are recorded for *central acuity* on the attached worksheet:

<table>
<thead>
<tr>
<th></th>
<th>OD Right</th>
<th>OS Left</th>
</tr>
</thead>
<tbody>
<tr>
<td>Near Corrected</td>
<td>14/60</td>
<td>14/40</td>
</tr>
<tr>
<td>Far Corrected</td>
<td>20/40</td>
<td>20/30</td>
</tr>
</tbody>
</table>

**Using the vision impairment worksheet, what is the total impairment for corrected acuity for each eye?**
Vision Impairment Form
Monocular Visual Fields

Central Acuity:

<table>
<thead>
<tr>
<th></th>
<th>OD Right</th>
<th>OS Left</th>
</tr>
</thead>
<tbody>
<tr>
<td>Near Uncorrected</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Near Corrected</td>
<td>14/60</td>
<td>14/40</td>
</tr>
<tr>
<td>Far Uncorrected</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Far Corrected</td>
<td>20/40</td>
<td>20/30</td>
</tr>
<tr>
<td>Total Impairment for Corrected Acuity (Table 2, p. 163)</td>
<td>1.</td>
<td>1.</td>
</tr>
</tbody>
</table>

Visual Fields: Field Sector and Degrees Lost

<table>
<thead>
<tr>
<th>Field Sector</th>
<th>OD Right</th>
<th>OS Left</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temporal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Down Temporal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct Down</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Down Nasal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nasal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up Nasal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct Up</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up Temporal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Degrees Lost</td>
<td>150</td>
<td>50</td>
</tr>
<tr>
<td>Total Impairment (Table 4, p. 167)</td>
<td>2.</td>
<td>2.</td>
</tr>
</tbody>
</table>

Motility:

<table>
<thead>
<tr>
<th></th>
<th>OD Right</th>
<th>OS Left</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage loss assigned to worse eye (Fig. 3, p. 168)</td>
<td>3.</td>
<td>3.</td>
</tr>
<tr>
<td>If appropriate 5-10% of involved eye for other ocular impairments (e.g. vitreous opacities, non-reactive pupil, light scattering disturbances)</td>
<td>4.</td>
<td>4.</td>
</tr>
</tbody>
</table>

Total Eye Loss: (1, 2, 3 and 4 combined) (combined values chart p. 254)

<table>
<thead>
<tr>
<th></th>
<th>OD Right</th>
<th>OS Left</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Visual System: (Table 5, p. 169)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Whole Person: (Table 6, p. 172)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Revised: 2/2018
Answer: Use AMA Guides Table 2, p. 163- taking the top number
Central Visual Acuity Impairment:  48   32

Visual Fields:  Field sector and degrees lost

<table>
<thead>
<tr>
<th></th>
<th>OD Right</th>
<th>OS Left</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total degrees lost</td>
<td>150 degrees</td>
<td>50 degrees</td>
</tr>
</tbody>
</table>

What is the total impairment for visual fields for each eye?

Answer: Use AMA Guides Table 4, p.167

<table>
<thead>
<tr>
<th>Total Impairment for monocular visual field loss</th>
<th>OD Right</th>
<th>OS Left</th>
</tr>
</thead>
<tbody>
<tr>
<td>30%</td>
<td></td>
<td>10%</td>
</tr>
</tbody>
</table>

Ocular Motility:

What is the percentage loss assigned to worse eye?

Answer: Use AMA Guides Figure 3 (p.168) for the worst eye in diplopia fields.

This would be the right eye:

Percentage/loss of ocular motility: 10%

Total Eye Loss:

What is the total eye loss?

Answer:

OD Right: Using the Combined Values Chart (p.254-255), combine 48 (central acuity), 30% (visual fields) and 10% (ocular motility) = 68

OS Left: Using the Combined Values Chart (p.254-255), combine 32 (central acuity) and 10 (visual fields) = 39

Total Visual System:

What is the total visual system impairment?
**Answer:** Using AMA Guides Table 5 (p.169) = **46%**

**Total Whole Person Impairment:**

What is the total whole person impairment?

**Answer:** Using AMA Guides Table 6 (p.172)
15% Total Visual System = **43%**
Vision Impairment Form  
Monocular Visual Fields

Central Acuity:

<table>
<thead>
<tr>
<th></th>
<th>OD Right</th>
<th>OS Left</th>
</tr>
</thead>
<tbody>
<tr>
<td>Near Uncorrected</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Near Corrected</td>
<td>14/60</td>
<td>14/40</td>
</tr>
<tr>
<td>Far Uncorrected</td>
<td>20/40</td>
<td>20/30</td>
</tr>
<tr>
<td>Far Corrected</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Impairment for Corrected Acuity (Table 2, p. 163)</td>
<td>1. 48</td>
<td>1. 32</td>
</tr>
</tbody>
</table>

Visual Fields: Field Sector and Degrees Lost

<table>
<thead>
<tr>
<th></th>
<th>OD Right</th>
<th>OS Left</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temporal</td>
<td></td>
<td></td>
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<tr>
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<tr>
<td>Direct Down</td>
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<td></td>
</tr>
<tr>
<td>Nasal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up Nasal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct Up</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up Temporal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Degrees Lost</td>
<td>150</td>
<td>50</td>
</tr>
<tr>
<td>Total Impairment (Table 4, p. 167)</td>
<td>2. 30%</td>
<td>2. 10%</td>
</tr>
</tbody>
</table>

Motility:

<table>
<thead>
<tr>
<th></th>
<th>OD Right</th>
<th>OS Left</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage loss assigned to worse eye (Fig. 3, p. 168)</td>
<td>3. 10%</td>
<td>3.</td>
</tr>
<tr>
<td>If appropriate 5-10% of involved eye for other ocular impairments (e.g. vitreous opacities, non-reactive pupil, light scattering disturbances)</td>
<td>4. 0</td>
<td>4. 0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>OD Right</th>
<th>OS Left</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Eye Loss: (1, 2, 3 and 4 combined) (combined values chart p. 254)</td>
<td>68</td>
<td>39</td>
</tr>
<tr>
<td>Total Visual System: (Table 5, p. 169)</td>
<td>46%</td>
<td></td>
</tr>
<tr>
<td>Total Whole Person: (Table 6, p. 172)</td>
<td>43%</td>
<td></td>
</tr>
</tbody>
</table>

Revised: 2/2018
Vision Impairment Form
Monocular Visual Fields

Central Acuity:

<table>
<thead>
<tr>
<th></th>
<th>OD Right</th>
<th>OS Left</th>
</tr>
</thead>
<tbody>
<tr>
<td>Near Uncorrected</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Near Corrected</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Far Uncorrected</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Far Corrected</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Impairment for Corrected Acuity (Table 2, p. 163)</td>
<td>1.</td>
<td>1.</td>
</tr>
</tbody>
</table>

Visual Fields: Field Sector and Degrees Lost

<table>
<thead>
<tr>
<th></th>
<th>OD Right</th>
<th>OS Left</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temporal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Down Temporal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct Down</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Down Nasal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nasal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up Nasal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct Up</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up Temporal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Degrees Lost</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Impairment (Table 4, p. 167)</td>
<td>2.</td>
<td>2.</td>
</tr>
</tbody>
</table>

Motility:

<table>
<thead>
<tr>
<th></th>
<th>OD Right</th>
<th>OS Left</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage loss assigned to worse eye (Fig. 3, p. 168)</td>
<td>3.</td>
<td>3.</td>
</tr>
</tbody>
</table>

If appropriate 5-10% of involved eye for other ocular impairments (e.g. vitreous opacities, non-reactive pupil, light scattering disturbances) | 4. | 4. |

<table>
<thead>
<tr>
<th></th>
<th>OD Right</th>
<th>OS Left</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Eye Loss: (1, 2, 3 and 4 combined) (combined values chart p. 254)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Visual System: (Table 5, p. 169)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Whole Person: (Table 6, p. 172)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Vision Impairment Form

**Binocular Visual Fields without Motility Loss**

#### Central Acuity:

<table>
<thead>
<tr>
<th></th>
<th>OD Right</th>
<th>OS Left</th>
</tr>
</thead>
<tbody>
<tr>
<td>Near Uncorrected</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Near Corrected</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Far Uncorrected</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Far Corrected</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total Impairment for Corrected Acuity (Table 2, p. 163)**

1. 1.

If appropriate, 5-10% of involved eye for other ocular impairments (e.g. vitreous opacities, non-reactive pupil, light scattering disturbances)

<table>
<thead>
<tr>
<th></th>
<th>OD Right</th>
<th>OS Left</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Acuity (1) combined with % for ocular impairment (2)</td>
<td>2.</td>
<td>2.</td>
</tr>
</tbody>
</table>

3. 3.

Combine OD and OS central acuity values (3) using Table 5 (p. 169-171) to determine impairment of total visual system

4.

#### Binocular Visual Field Value:

(Refer to Figure 2A&2B, p. 165) 5. ____________________________

#### Total Visual Impairment

Combine acuity impairment (4) with binocular visual field value (5) using the Combined Values Chart (p.254)

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Whole Person: (Table 6, p. 172)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Revised: 2/2018
Ear, Nose, and Throat
AMA Guides 3rd Edition, revised - Chapter 9 (p. 173)

Objectives:
1) Locate the sections in the AMA Guides used to rate impairment for hearing, nasopharyngeal, mastication and deglutition, olfaction and taste, speech and facial disfigurement.
2) Determine the steps for performing a binaural and monaural hearing impairment, nose, throat and facial disfigurement impairment ratings.
3) Identify the parameters for rating tinnitus according to the AMA Guides and the Impairment Rating Tips.

Summary/Steps for Determining Hearing Impairment
1. Use audiometers (calibrated to ANSI specifications S3.6-1969) to determine decibels of hearing at 500, 1000, 2000 and 3000 Hertz.
   - Impairment rating is taken without hearing aids
   - If the hearing loss is less than 25 dB at these frequencies, there is no impairment. If it is greater than 91.7 dB, then the impairment is 100%.
2. Add the decibels determined at the four frequencies for each ear separately.
3. Determine the binaural impairment by plotting the worst ear loss against the better ear using AMA Guides Table 3, p.176
4. If tinnitus is rated: 3-5% may be added to the hearing loss.
   - Tinnitus can only be given when a hearing impairment is documented (AMA Guides, p.110)
   - The hearing impairment need not be from the current injury (Impairment Rating Tips - Desk Aid #11, page 3)
5. Convert hearing loss to whole person by using AMA Guides Table 4, p.178.
6. When appropriate, determine the monaural hearing impairment using the decibel sum of the hearing threshold levels using AMA Guides Table 2, p.175.

Summary/Steps for Determining Equilibrium and Vestibular Impairments
1. Document the objective findings to determine the class of impairment using AMA Guides pages 178-179.
2. Describe the interference of activities of daily living (ADLs), (eg: difficulty bike riding versus the inability to ambulate without assistance)
**Summary/Steps for Determining Facial Disfigurement Impairment**

1. Refer to AMA Guides Section 9.2, p.179 in the *AMA Guides* to determine the Classes of Impairment.
2. Specific prominent facial disfigurements should be deemed to have the following maximum whole person impairment:

<table>
<thead>
<tr>
<th>Disfigurement</th>
<th>% Whole Person Impairment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unilateral Total Facial Paralysis</td>
<td>5</td>
</tr>
<tr>
<td>Bilateral Total Facial Paralysis</td>
<td>8</td>
</tr>
<tr>
<td>Loss or Deformity of Outer Ear</td>
<td>2</td>
</tr>
<tr>
<td>Loss of the Entire Nose</td>
<td>25</td>
</tr>
<tr>
<td>Nasal Distortions in Physical Appearance</td>
<td>5</td>
</tr>
</tbody>
</table>

**Summary/Steps for Determining Nasopharyngeal Impairments**

1. Determine the whole person impairment by using the classifications of Air Passage Defects found in AMA Guides Table 5, p.181.

**Summary/Steps for Determining Mastication and Deglutition Impairment**

1. Determine the diet restriction and percentage impairment in whole person by referring to the chart in AMA Guides Chapter 9.3b, p.180.

**Summary/Steps for Determining Olfaction and Taste Impairment**

1. Determine if the patient has a complete bilateral loss of smell or taste. If so, a 3% whole person rating is given (AMA Guides Chapter 9.3c, p.180.)

**Summary/Steps for Determining Speech Impairment**

1. While interviewing the patient, observe the patient’s speech in ordinary conversation while obtaining pertinent history.
2. Patient should read the Oral Reading Paragraph entitled “The Smith House” on page 181 of the *AMA Guides*.
3. Examiner must have normal hearing.
4. Patient should be 8 feet from examiner with back towards the examiner.
5. Use AMA Guides Table 6, p.182 to determine the Speech Classification for Audibility, Intelligibility, and Functional Efficiency.
6. Convert the **worst rating** of the three impairments to whole person impairment using AMA Guides Table 7, p.183.
7. Associated behavioral changes may also be rated in Mental and Behavioral Disorders, AMA Guides Chapter 14, p.235.
8. If the patient has the inability to read English or English is not a first language, use the assistance of a speech pathologist.

**References/Links**

Impairment Rating Tips p.3: tinnitus
Hearing Impairment Worksheet

**HearingImpairmentGeneralPrinciples:**
Impairment is based on audiometry. Since hearing impairment is based on hearing within the speech range, only 500,1000, 2000 and 3000 Hz are included.

**Additional Information for Hearing Impairment from the Division’s Impairment Rating Tips (p.3)**
Tinnitus: a 3-5% impairment may be added to the hearing impairment for tinnitus, but it can only be **added** if a hearing impairment is documented. The hearing impairment need not be from the current injury.

**Workshop Case:**
The patient is a 65-year-old power plant worker who inconsistently used hearing protection during his 20 years of employment. He has no history of hunting, sharp shooting, military service or riding motorcycles. The following worksheet indicates his findings from your hearing examination.

**Calculate the impairment**
**Hearing Impairment Form**

### Section 1

<table>
<thead>
<tr>
<th>Frequency (Hz)</th>
<th>Right Ear</th>
<th>Left Ear</th>
</tr>
</thead>
<tbody>
<tr>
<td>500</td>
<td>20 db</td>
<td>25 db</td>
</tr>
<tr>
<td>1000</td>
<td>25 db</td>
<td>30 db</td>
</tr>
<tr>
<td>2000</td>
<td>30 db</td>
<td>45 db</td>
</tr>
<tr>
<td>3000</td>
<td>40 db</td>
<td>60 db</td>
</tr>
<tr>
<td>Total (Sum)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Section 2 - Binaural Impairment

Apply the db totals from Section 1 (sum of 500, 1000, 2000 and 3000 Hz) to Table 3 on p. 176-177. Apply the worse ear to vertical axis and better ear to horizontal axis. If totals are less than 100db, use the 100 on appropriate axis.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total of worse ear from Section 1 (vertical axis)</td>
<td></td>
</tr>
<tr>
<td>Total of better ear from Section 1 (horizontal axis)</td>
<td></td>
</tr>
<tr>
<td><strong>Total Binaural Hearing Impairment %</strong> (Table 3, p. 176-177)</td>
<td></td>
</tr>
<tr>
<td>Tinnitus (added, pg. 110)</td>
<td></td>
</tr>
<tr>
<td>Total Hearing Impairment</td>
<td></td>
</tr>
</tbody>
</table>

### Section 3 - Whole Person Impairment

Convert total % hearing impairment from **Section 2 to % whole person** (Table 4, p. 178)

### Section 4 - Monaural Impairment

Convert total db from Section 1 for each ear (Table 2, p 175)

<table>
<thead>
<tr>
<th></th>
<th>Right Ear</th>
<th>Left Ear</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Revised: 2/2018
Answer:

**Step 1:** add the decibels for each ear: (Decibel sum of the hearing threshold (DSHL))

<table>
<thead>
<tr>
<th>Right Ear</th>
<th>Left Ear</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 500 Hz</td>
<td>25</td>
</tr>
<tr>
<td>25 1000 Hz</td>
<td>30</td>
</tr>
<tr>
<td>30 2000 Hz</td>
<td>45</td>
</tr>
<tr>
<td>40 3000 Hz</td>
<td>60</td>
</tr>
</tbody>
</table>

115 DSHL 160 DSHL

**Step 2:** Determine the binaural impairment by plotting the worse ear loss against the better ear using AMA Guides Table 3, p.176

Answer: 8.4% binaural impairment

**Step 3:** No tinnitus

**Step 4:** Convert hearing loss to whole person by using AMA Guides Table 4, p.178.

Answer: 3% whole person

**Step 5:** Determine the monaural hearing impairment using the decibel sum of the hearing threshold levels using AMA Guides Table 2, p. 175.

Answer: Right ear: 115 DSHL = 5.6% monaural hearing impairment
              Left ear: 160 DSHL = 22.5 % monaural hearing impairment
Hearing Impairment Form

Section 1

<table>
<thead>
<tr>
<th></th>
<th>Right Ear</th>
<th></th>
<th>Left Ear</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>500 Hz</td>
<td>20</td>
<td>db</td>
<td>25</td>
<td>db</td>
</tr>
<tr>
<td>1000 Hz</td>
<td>25</td>
<td>db</td>
<td>30</td>
<td>db</td>
</tr>
<tr>
<td>2000 Hz</td>
<td>30</td>
<td>db</td>
<td>45</td>
<td>db</td>
</tr>
<tr>
<td>3000 Hz</td>
<td>40</td>
<td>db</td>
<td>60</td>
<td>db</td>
</tr>
<tr>
<td><strong>Total</strong> (Sum)</td>
<td><strong>115</strong></td>
<td>db</td>
<td><strong>160</strong></td>
<td>db</td>
</tr>
</tbody>
</table>

Section 2 - Binaural Impairment

Apply the db totals from Section 1 (sum of 500, 1000, 2000 and 3000 Hz) to Table 3 on p. 176-177. Apply the worse ear to vertical axis and better ear to horizontal axis. If totals are less than 100db, use the 100 on appropriate axis.

| Total of worse ear from Section 1 (vertical axis) | 160 |
| Total of better ear from Section 1 (horizontal axis) | 115 |
| **Total Binaural Hearing Impairment** % (Table 3, p. 176-177) | 8.4 |
| Tinnitus (added, pg. 110) | 0 |
| Total Hearing Impairment | 8.4 |

Section 3 - Whole Person Impairment

Convert total % hearing impairment from **Section 2 to % whole person** (Table 4, p. 178) | 3 |

Section 4 - Monaural Impairment

<table>
<thead>
<tr>
<th>Convert total db from Section 1 for each ear (Table 2, p 175)</th>
<th>Right Ear</th>
<th>Left Ear</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.6=6</td>
<td>22.5=23</td>
<td></td>
</tr>
</tbody>
</table>
**Equilibrium and Vestibular Impairment General Principles**

Dizziness can be subjective and may have multiple etiologies. It is not ratable unless there are objective findings. The AMA Guides provides five (5) classes of impairment from disturbances of vestibular function which are found on p.178-179. The classes of impairment are based on changes in ADLs and objective test findings.

- Class 1 provides 0% impairment as no objective findings are present.
- Classes 2-4 require objective findings for rating and are determined by the interference of ADLs. For example, the inability to ride a bike would be a Class 2 impairment.

**Facial Disfigurement Impairment General Principles**

The classes of facial disfigurement are defined by:

- Disorders of cutaneous structures
- Loss of support tissues
- Absence of anatomical areas
- Preclusion of social acceptance

The impairment percentages are meant to reflect interference with social and vocational activities. Refer to AMA Guides page 179 for rating instructions. Class 1-4 use loss of support tissues and social acceptance as criteria for rating.

In addition, the following chart from AMA Guides Section 9.2, p.179 details the impairment for various disfigurements:

<table>
<thead>
<tr>
<th>Disfigurement</th>
<th>% Whole Person Impairment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unilateral Total Facial Paralysis</td>
<td>5</td>
</tr>
<tr>
<td>Bilateral Total Facial Paralysis</td>
<td>8</td>
</tr>
<tr>
<td>Loss or Deformity of Outer Ear</td>
<td>2</td>
</tr>
<tr>
<td>Loss of Entire Nose</td>
<td>25</td>
</tr>
<tr>
<td>Nasal Distortions in Physical Appearance</td>
<td>5</td>
</tr>
</tbody>
</table>

If psychological behavioral changes occur due to facial disfigurement, see AMA Guides Chapter 14: Mental and Behavioral Disorders for an impairment rating.

**Additional Information for Facial Disfigurement vs Scar Impairment Rating from the Division’s Impairment Rating Tips (p.2)**
Facial disfigurement should be rated using AMA Guides Section 9.2, p.179 in the AMA Guides.
Other scars should be rated using AMA Guides Section 13.6, p.225. If the physician deems there is no impairment of activities according to the AMA Guides, the patient may go to the Administrative Law Judge (ALJ) to request further settlement specifically for the scar. Providers should be aware that not all scars qualify for an impairment rating.

**Nasopharyngeal Impairment General Principles**
Nasopharyngeal obstruction causing dyspnea is rated by four (4) classifications depending on the shortness of breath on exertion and various anatomical defects of the following:

- Oropharynx
- Laryngopharynx
- Trachea
- Nose
- Bronchi

This is the only area that allergic rhinitis can be rated using Class 1 (0-10%), AMA Guides Table 5, p.181. This may be appropriate when a patient requires intermittent use of medication due to a work-related injury.

**Mastication and Deglutition Impairment General Principles**
Mastication and deglutition impairment is based on dietary limitations, for example, soft food, liquids or tube feedings. Physiologic findings should justify the need for dietary limitations.
This is the only section in the AMA Guides that can be used to rate the temporomandibular joint impairment or dietary problems secondary to dental issues.

The following chart on AMA Guides page 180 determines the whole person impairment:

<table>
<thead>
<tr>
<th>Restriction</th>
<th>% Whole Person Impairment</th>
</tr>
</thead>
<tbody>
<tr>
<td>The diet is limited to semi-solid or soft foods</td>
<td>5-10%</td>
</tr>
<tr>
<td>The diet is limited to liquid foods</td>
<td>20-30%</td>
</tr>
<tr>
<td>Ingestion of food requires tube feeding or gastrostomy</td>
<td>40-60%</td>
</tr>
</tbody>
</table>
Olfaction and Taste Impairment General Principles
Impairment is based on complete bilateral loss of either sense due to peripheral lesion. It is rare that the complete loss of the senses of olfaction and taste seriously affect an individual’s ADLs.
3% whole person impairment is suggested for complete bilateral loss of olfaction or taste (AMA Guides Chapter 9.3c, p.180.)

Speech Impairment General Principles
Impairment consideration is given only to the degree of impairment relating to the individual’s efficiency in using speech to make himself or herself understood in daily living. Impairment of speech due to central nervous system pathology is rated in the Neurologic Chapter of the AMA Guides.
Only the highest of these components are chosen for impairment rating:

- **Audibility** - ability to speak at a level sufficient to be heard.
- **Intelligibility** - ability to articulate and to link the phonetic units of speech with sufficient accuracy to be understood.
- **Functional efficiency** - ability to produce a serviceably fast rate of speech output, and to sustain this output over a period of time.

Refer to the Summary/Steps for Determining Speech Impairment in this chapter of the Level II Accreditation Curriculum.

Worksheets

Hearing Impairment Worksheet

Revised: 2/2018
## Hearing Impairment Form

### Section 1

<table>
<thead>
<tr>
<th></th>
<th>Right Ear</th>
<th>Left Ear</th>
</tr>
</thead>
<tbody>
<tr>
<td>500 Hz</td>
<td>db</td>
<td>db</td>
</tr>
<tr>
<td>1000 Hz</td>
<td>db</td>
<td>db</td>
</tr>
<tr>
<td>2000 Hz</td>
<td>db</td>
<td>db</td>
</tr>
<tr>
<td>3000 Hz</td>
<td>db</td>
<td>db</td>
</tr>
<tr>
<td><strong>Total (Sum)</strong></td>
<td><strong>db</strong></td>
<td><strong>db</strong></td>
</tr>
</tbody>
</table>

### Section 2 - Binaural Impairment

Apply the db totals from Section 1 (sum of 500, 1000, 2000 and 3000 Hz) to Table 3 on p. 176-177. Apply the worse ear to vertical axis and better ear to horizontal axis. If totals are less than 100db, use the 100 on appropriate axis.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total of worse ear from Section 1 (vertical axis)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Total of better ear from Section 1 (horizontal axis)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Total Binaural Hearing Impairment %</strong> (Table 3, p. 176-177)</td>
<td></td>
</tr>
<tr>
<td>Tinnitus (added, pg. 110)</td>
<td></td>
</tr>
<tr>
<td><strong>Total Hearing Impairment</strong></td>
<td><strong>Total Hearing Impairment</strong></td>
</tr>
</tbody>
</table>

### Section 3 - Whole Person Impairment

**Convert** total % hearing impairment from **Section 2 to % whole person** (Table 4, p. 178)

### Section 4 - Monaural Impairment

**Convert total db from Section 1 for each ear** (Table 2, p 175)
Digestive System Impairment, Urinary and Reproductive System Impairments, Endocrine System Impairment and Hematopoietic Impairments

AMA Guides, 3rd Edition, revised - Chapter 10 (p.185), Chapter 11 (p.197), Chapter 12 (p.212), Chapter 7 (p.153)

Objectives:
1) Identify the classifications of digestive system, urinary and reproductive system, endocrine and hematopoietic impairments.
2) List common elements used to determine impairment and its effect on function within the above chapters.
3) Identify areas in the AMA Guides to rate the following: impairment rating of digestive system, urinary and reproductive system, endocrine and hematopoietic systems.
4) Demonstrate the ability to perform an impairment rating for hernias.

Summary/Steps for Determining Digestive System Impairment:
All categories are determined by first establishing a diagnosis based on objective test findings.

Upper Digestive Tract Impairment
1. Determine desirable weight from previous medical records and patient history intake to identify if the weight before the onset of the patient’s digestive illness is one that they consider “usual.”
2. If the examiner is not able to determine by history or previous medical records a pre-illness “usual” weight, or if the patient is obese, AMA Guides Table 1, p.186, is used to determine desirable weight.
3. Determine the classification and impairment of Upper Digestive Tract Impairments (esophagus, stomach, and duodenum, small intestine and pancreas) by using AMA Guides Table 2, p.189.

Colon and Rectal Impairment
1. Determine if an impairment is ratable by reviewing the objective tests and anatomical loss, persistent bowel disturbance, restriction of daily activity, requirement for special diet and medication, and constitutional symptoms such as weight loss, fever, and anemia.
2. Determine the impairment by using AMA Guides Table 3, p. 191: Four (4) classifications for impairment.
Anal Impairment
- Determine the class of anal incontinence and utilize AMA Guides Table 4, p.193 to rate the impairment.

Liver and Biliary Impairment
- After establishing objective evidence of the disease, consider nutrition and strength, and biochemical studies. Determine the impairment by referring to AMA Guides Table 5, p.194.

Pancreas
- Determine the digestive effects of the pancreas and determine the class of impairment by referring to AMA Guides Table 2, p.189.

Hernias
- Determine the impairment rating by referring to AMA Guides Table 6, p.196. A rating can only be given when there is a palpable defect. Pay close attention to the “and’s” and “or’s” in Table 6.

Summary/Steps for Determining Urinary and Reproductive Systems Impairment:

Upper urinary tract
- Determine the class of impairment by referring to AMA Guides Table 1, p.201.

Urinary Diversion
- Determine the impairment by referring to the Urinary Diversion Section of AMA Guides page 201.

Bladder

Urethra
- Determine the impairment by referring to AMA Guides Chapter 11.3, p.203.

Male reproductive organs
- Determine the impairment by referring to AMA Guides Chapter 11.4, p.204-206.
- Inability to reproduce constitutes a 20% impairment, however, this may be increased by 50% for males under 40 years old or decreased by 50% for males above 65 years old.

Female reproductive organs
- Determine the impairment by referring to AMA Guides Chapter 11.5, p. 206-209.
- Inability to reproduce constitutes a 30-35% impairment.

Summary/Steps for Determining Endocrine System Impairment:

Hypothalamic Pituitary Axis
- Determine the class of impairment by referring to AMA Guides Chapter 12.1, p.212-215.

Thyroid
- Determine the class of impairment by referring to AMA Guides Chapter 12.2, p. 215-216.

**Parathyroids** (hyperparathyroidism and hypoparathyroidism)
- Determine the class of impairment by referring to AMA Guides Chapter 12.3, p.216.

**Adrenal Cortex** (hypoadrenalism and hyperadrenocorticism)
- Determine the impairment by referring to AMA Guides Chapter 12.4, p.216-217.

**Adrenal medulla**
- Determine the impairment by referring to AMA Guides Chapter 12.5, p.217-218.

**Pancreas** (insulin and glycogen production only)
- Determine the impairment by referring to AMA Guides Chapter 12.6, p.218-221.

**Gonads** (effects of hormonal changes only)
- Determine the impairment by referring to AMA Guides Chapter 12.7, p.221-222.

**Mammary Glands**
- Determine the impairment by referring to AMA Guides Chapter 12.8, p.222.

**Metabolic Bone Disease**
- Determine the impairment by referring to AMA Guides Chapter 12.9, p.222.

**Summary/Steps for Determining Hematopoietic Impairment**

**Anemia** - related to hemoglobin level and need for transfusions
- Determine the impairment by using AMA Guides Table 1, p.154.

**Polycythemia**
- Determine the impairment by referring to AMA Guides Chapter 7.2, p.154-155.

**White Blood Cell Disease or Abnormalities**
- Determine the impairment by referring to the four (4) classes of impairment in AMA Guides Chapter 7.3, 7.4, p.155-158.

**Hemorrhagic Disorders and Platelets**
- Determine the impairment by referring to AMA Guides Chapter 7.5, p.158-159.

**References:**

*Impairment Rating Tips*

**Core Content:** All impairment rating criteria differ depending on the specific deficit the patient may have. See specific sections in the AMA Guides for rating each impairment.

**Digestive System Impairment General Principles**

**Upper Digestive Tract:** Use objective tests for determining the diagnosis. There are four classifications of impairment (AMA Guides Table 2, p. 189) and they are determined by considering:
- Loss of weight
- Dietary restrictions and drug use required
- Signs and symptoms of organic disease or anatomical loss

Colon and Rectal Impairment: Four classifications are found in AMA Guides Table 3, p. 191 when determining colon and rectal impairment. These classifications are determined by:
- Objective tests and anatomical loss
- Persistent bowel disturbance
- Restriction of daily activity
- Requirement for special diet and medication
- Constitutional symptoms such as weight loss, fever, and anemia

Anal Impairment: Three classifications for anal impairment are found in AMA Guides Table 4, p. 193 and depend on the degree of anal incontinence.

Liver and Biliary Impairment: Four classes of liver and biliary impairment are found in AMA Guides Table 5, p. 194 and depend on:
- Objective evidence of disease
- Nutrition and strength
- Biochemical studies

Pancreas: Four classes of impairment to rate for the digestive effects of the pancreas are found in AMA Guides Table 2, p. 189.
To rate the endocrine effect, consult AMA Guides Chapter 12, p.211 - The Endocrine System.

Hernias: Three classifications for hernia impairment are found in AMA Guides Table 6, p.196. Impairment is based on persistence and reducibility of the hernia and activity limitations.
- Incisional hernias are rarely painful or complicated and will not exceed Class 1.
- Inguinal and femoral hernias entail a greater risk with the impairment rating performed only after appropriate surgical repair, unless surgical intervention is not recommended for the patient.
- If a patient has surgery and no palpable defect is evident, then no impairment rating is given.
Additional Information for Rating Hernias from the Division’s Impairment Rating

**Tips (p. 3)**
- There must be a palpable defect in supporting structures of the abdominal wall for an impairment rating
  - *If there is continuing pain after surgery due to nerve impingement, this can be rated using AMA Guides Table 7, p.114 in conjunction with Table 3, p.112.*

**Urinary and Reproductive Systems Impairment:**
**Upper urinary tract:** Four classes of impairment are found in AMA Guides Table 1, p.201. Impairment is based on:
- Creatinine clearance
- The 15 minute IV phenolsulfonphthalein (psp) test
- The need for medical treatment

**Urinary Diversion:** Impairment ratings for these surgical procedures are found in AMA Guides page 201. They are evaluated as a part of, and in conjunction with, the assessment of the involved portion of the urinary tract and are combined with other urinary ratings.

**Other subsections:** Specific objective testing should be performed, when applicable, to determine the impairment of the following urinary and reproductive systems. Consult the following AMA Guides subsections to determine ratings:
- Bladder - Chapter 11.2, p.202
- Urethra - Chapter 11.3, p.203
- Male reproductive organs - Chapter 11.4, p.204-206
- Female reproductive organs - Chapter 11.5, p.206-209
- *To rate hormonal effects:* see Chapter 12 - the Endocrine system

**Endocrine System Impairment:**
**Hypothalamic pituitary axis:** three classes for impairment can be found in AMA Guides Chapter 12.1, p.212-215.
**Thyroid:** two classes for impairment can be found in AMA Guides Chapter 12.2, p.215-216.
**Parathyroids:** hyperparathyroidism and hypoparathyroidism impairment can be found in AMA Guides Chapter 12.3, p.216.
**Adrenal cortex:** hypoadrenalism and hyperadrenocorticism impairment can be found in AMA Guides Chapter 12.4, p.216-217.
Adrenal medulla: pheochromocytoma impairment can be found in AMA Guides Chapter 12.5, p.217-218.

Pancreas: There are 2 classification systems: one for diabetes mellitus and a second for hypoglycemia, which can be found in AMA Guides Chapter 12.6, p.218-221.
  ○ These are determined by insulin use and the secondary effects of diabetes.
Gonads: for effects of hormonal changes only impairment can be found in AMA Guides Chapter 12.7, p.221-222.
Mammary Glands: impairment information found in AMA Guides Chapter 12.8, p.222.
Metabolic Bone Disease: impairment information found in AMA Guides Chapter 12.9, p.222.

Hematopoietic Impairment
Anemia: impairment related to hemoglobin level and need for transfusions can be found in AMA Guides Chapter 7.1, p.154 with the use of Table 1, p.154.
Polycythemia: impairment is based on leukocyte abnormality, medical treatment, and ADL interference and can be found in AMA Guides Chapter 7.3, 7.4, p.155-158.
Hemorrhagic Disorders and Platelets: impairment information can be found in AMA Guides Chapter 7.5, p.158-159.

Human Immunodeficiency Virus (HIV)
HIV does not have a specific chart for rating impairment in the AMA Guides. Refer to the white cell classification system in AMA Guides p. 156-157.
Remember that all complications are rated separately. Thus, a patient with progressive HIV is likely to have impairment in multiple systems, which should be combined at the whole person level using the Combined Values Chart in AMA Guides p. 254.
Respiratory Impairments
AMA Guides, 3rd Edition, revised - Chapter 5, p.115

Objectives:
1) Determine the four pulmonary components used for assessing respiratory impairment.
2) Define the steps for performing a respiratory impairment rating.
3) Explain exercise capacity testing with VO₂ max and arterial blood gas determination for calculating respiratory impairment.
4) Describe how to perform a respiratory impairment rating with a patient who has asthma.

Summary/Steps for Determining Respiratory Impairment Ratings
1. Obtain the patient’s age, gender, and height in centimeters
2. Determine the predicted normal FVC, FEV₁, and D_CO values using AMA Guides pages 118-123:
   - Men: AMA Guides Table 2 (FVC), Table 4 (FEV₁) and Table 6 (D_CO)
   - Women: AMA Guides Table 3 (FVC), Table 5 (FEV₁) and Table 7 (D_CO)
   - For non-caucasian populations, predicted spirometry norms should be estimated at 0.9 of those shown in AMA Guides Tables 2-5.
3. Determine the patient’s best effort values of FVC, FEV₁, and D_CO obtained from the spirometry results.
4. Calculate the patient’s predicted percentage of:
   - FVC: Patient’s best effort value/predicted x 100
   - FEV₁: Patient’s best effort value/predicted x 100
   - FEV₁/FVC ratio
   - D_CO: Patient’s best effort value/predicted x 100
     ○ At least one of these four values must be abnormal to consider an impairment.
5. Using the four values, identify the highest impairment rating class from AMA Guides Table 8, p.125 to determine the whole person impairment rating.
6. Exercise testing is rarely necessary, however, if this best reflects the patient’s function, the maximum oxygen consumption (VO₂ max) data can be used when calculating the whole person impairment rating.
**References/Links**
Now worksheet needed, please provide details of impairment rating in the narrative report.

**Core Content:** Respiratory impairment incorporates a combination of pulmonary functional test values. The AMA Guides rely mainly on pulmonary test results as a percent of predicted normal values and the respiratory symptom severity.

**Respiratory Impairment General Principles**
The principle components for assessing impairment include the medical history, physical examination, and measurements of pulmonary physiology.

**Medical history**
The physician should confirm the disease diagnosis and inquire about:
- Dyspnea (see AMA Guides Table 1, p.116 for classification of severity)
  - A specific example of activities that cause dyspnea should be noted, such as the ability to climb stairs, walk distances and tolerance of activity at higher altitudes.
- Cough/sputum
- Wheezing
- Environmental/occupational exposures
- Tobacco Use
- Job chronology (specific exposures to inhaled dust, fumes, gases and vapors)
- Hobbies with such exposures

**Physical examination**
The examination should focus on both the cardiac and respiratory systems as well as the following key peripheral signs:
- Breathing rate and pattern
- Lung sounds (wheezes, rales, rhonchi)
- Signs of cor pulmonale (increased $P_2$ component of $S_2$, tricuspid regurgitation, parasternal lift, jugular venous distention)
- Edema
- Cyanosis
- Clubbing
Pulmonary physiology testing
Spirometry (FEV₁, FEV, FEV₁/FVC ratio) and diffusing capacity are the main tests used to determine the impairment rating. Arterial blood gases and exercise capacity testing can also be utilized.
Spirometry and diffusing capacity must be performed in accordance with the American Thoracic Society (ATS) standards.

Spirometry should be performed both pre- and post-bronchodilator with best effort from the patient. The following data should be obtained for estimating impairment:

- Forced vital capacity (FVC)
- Forced expiratory volume at 1 second (FEV₁)
- FEV₁/FVC ratio

Diffusing capacity of Carbon Monoxide (D_{CO}) is an indirect measure of pulmonary gas exchange and can be helpful in estimating impairment related to interstitial lung diseases. This test may be insensitive compared to more direct measurements of gas exchange during exercise, however, it is less invasive.

Interpretation of simple spirometry and D_{CO}
Obstructive diseases produce low FEV₁ and low FEV₁/FVC ratio. In asthma, D_{CO} is preserved; in emphysema it is decreased.

Restrictive diseases (coal worker’s pneumoconioses, silicosis, and asbestosis) produce a low FVC and low D_{CO} but the FEV₁ and FEV₁/FVC ratio are normal.

In significant emphysema, the FVC may appear low because of lung hyperinflation. Note that high residual volume is not measured by simple spirometry.

Disorders that produce a “mixed” obstructive and restrictive pattern (hypersensitivity pneumonitis and some cases of pneumoconiosis) are difficult to interpret with spirometry alone, because the FEV₁ and FVC may both be low with \( \pm D_{CO} \) low.

Chest radiograph
The chest radiograph and/or pulmonary imaging are important in diagnosing and assessing onset and progression of disease, but it does not correlate well with lung physiology in many circumstances and with an individual’s ability to work.
The International LaborOrganization (ILO) Classification of Radiographs of Pneumoconioses is a standard system for the assessment of chest radiograph severity, but it is not used in the estimation of impairment.
Example Case: 52-year-old white male with berylliosis, 180 cm tall. His current job is a supervisor without work limitations. He is able to climb two flights of stairs and walk up to one mile at a slow pace with his friends. After a mile, he needs to slow his pace but can continue walking. He is not taking any medications.

His best effort spirometry values:

- $\text{FVC} = 3.6 \text{ L}$
- $\text{FEV}_1 = 2.8 \text{ L}$
- $D_{CO} = 24.4 \text{ ml/min/mm Hg}$

**Calculate the impairment**
Answer:
1. **FVC**: Apply AMA Guides Table 2, p.118:
   \[
   \frac{3.6 \text{ L (patient's best value)}}{5.04 \text{ L (predicted)}} \times 100 = 71\%
   \]
2. **FEV1**: Apply AMA Guides Table 4, p.120:
   \[
   \frac{2.8 \text{ L (patient's best value)}}{3.99 \text{ L (predicted)}} \times 100 = 70\%
   \]
3. **FEV1/FVC** = \(\frac{2.8 \text{ L}}{3.6 \text{ L}}\) = 78%
4. **D_\text{CO}**: Apply AMA Guides Table 6, p.122:
   \[
   \frac{25.5 \text{ ml/min/mm Hg (patient's best value)}}{36.6 \text{ ml/min/mm Hg (predicted)}} \times 100 = 70\%
   \]
5. Using AMA Guides Table 8, p. 125: Class 2, mild impairment with values between 10-25% for whole person impairment. The FVC, FEV1 and D_\text{CO} values fall into Class 2. Given this patient’s history, he would probably be in the mid-category range or 18-20% impairment.

**Pitfalls**
Disorders that produce a “mixed” obstructive and restrictive pattern (such as hypersensitivity pneumonitis and some cases of pneumoconiosis) are difficult to interpret using spirometry alone. Therefore, exercise testing may provide useful information about a patient’s work capacity and can help identify limitation due to respiratory or cardiovascular disease, or both.

**Exercise Testing**:  
The AMA Guides do not specify a single protocol for exercise capacity testing (e.g. bicycle versus treadmill).  
The exercise testing result used to rate respiratory impairment is the work load achievable. It is expressed as the maximum oxygen consumption (VO_2 max) or as METS (1 MET=3.5 ml/kg•min VO_2) - See AMA Guides Table 2, p.129.
If the exercise test is performed with pre- and end-exercise arterial blood gases (ABG) (preferably with an indwelling arterial catheter), information about gas exchange can be obtained. However, the ABG determination is not part of the exercise capacity protocol outlined in the AMA Guides.

Not every patient with respiratory disease will require assessment of exercise capacity.

**Indications** for exercise testing include:
- Dyspnea symptoms that are greater than what spirometry or $D_{CO}$ would indicate
- Patient reports inability to perform specific job due to breathlessness
- Submaximal or incorrect performance of spirometry or $D_{CO}$

**Contraindications** for Exercise Testing
- Severe impairment already found by spirometry and $D_{CO}$
- Medical contraindications to exercise, such as heart disease, arrhythmias
- Other physical limitations that preclude accurate testing

**Interpretation of Exercise Capacity Testing**
Interpretation of the data should be performed by a physician with experience in exercise physiology because results can be greatly affected by a patient’s effort, metabolic state, level of conditioning, and by heart, lung, neurologic, neuromuscular and orthopedic disorders.

$VO_2$ max may be used to determine the impairment. (See AMA Guides Table 8, p.125). A $VO_2$ max <15 ml/kg min is not the only criteria for severe impairment. It must be taken in context with other information about the patient’s disease and other contributing diseases.

As a general rule, if working at his or her own pace, a person can work 8 hours per day if they do not exceed 40% of their $VO_2$ max.

**Example Case:**
Patient with asbestosis reports severe, “incapacitating” dyspnea on exertion which seems out of proportion to his spirometry and $D_{CO}$. Exercise capacity testing shows good effort, normal cardiovascular response, and decreased exercise capacity. He was limited by ventilatory and gas exchange abnormalities, consistent with the asbestosis diagnosis. He works in shipping and receiving, which requires him to lift 20-50 pound boxes frequently and reports extreme dyspnea after 1-2 minutes of this activity. He is currently off work.
The patient’s values are indicated below:

- FVC = 61%
- FEV\(_1\) = 70%
- FEV\(_1\)/FVC = 88% or D\(_{CO}\) = 67%
- VO\(_2\) = 15.9 ml/kg min

Using *AMA Guides Table 8, p. 125*, the measurements would place this patient in the following categories:
- FVC = 61%: placing patient in Class 2
- FEV\(_1\) = 70%: placing patient in Class 2
- FEV\(_1\)/FVC = 88% or D\(_{CO}\) = 67%: placing patient in Class 2
- VO\(_2\) = 15.9 ml/kg min: placing patient in Class 3

**Which Class of impairment would you place this patient?**
Answer: In this case, based on the exercise testing result of VO\textsubscript{2} measurements, the patient would be placed in Class 3 respiratory impairment (30-45% whole person impairment.) If the patient is rated with 40% impairment, his current job requires him to work in excess of 40% of his predicted VO\textsubscript{2 max}, making it unlikely that he is suitable for such strenuous work.

A VO\textsubscript{2} max of 15.9 ml/kg\textcdot min, corresponds with approximately 4.6 METS. Based on AMA Guides Table 2 (p.129), we estimate this to be in the range of METS seen in symptomatic patients and not in physically active individuals. AMA Guides Table 2 (p.129) can be useful when determining the category of work the patient can tolerate.

**Arterial Blood Gas (ABG)**

Arterial blood gas can be measured at rest and during maximal exercise. ABG determination at rest is not a routine part of impairment assessment per the AMA Guides. ABG determination is based on clinical judgment and reserved for selected cases or if hypoxemia is suspected.

The AMA Guides suggest documenting hypoxemia twice, four weeks apart, prior to using the data in estimating impairment to establish validity.

The AMA Guides do not make a statement about the value of serial ABG’s obtained during exercise testing, except that they can be performed if hypoxemia is suspected.

**Interpretation of ABG**

Per the AMA Guides, ABG indicates severe impairment when:

- Resting pO\textsubscript{2} < 60 mm Hg on room air and
- The patient is stable on optimal therapy and
- The patient has one or more of the following secondary conditions:
  - Pulmonary hypertension
  - Cor pulmonale
  - Erythrocytosis
  - Worsening hypoxemia during exercise
  
  OR

- Resting pO\textsubscript{2} < 50 mm Hg on room air by itself is a criterion for severe impairment
The *AMA Guides* do not take into account the alveolar-arterial oxygen gradient (A-a)DO$_2$ nor do they make an adjustment for altitude. The normal range for pO$_2$ is lower at Colorado’s elevations and the normal range for pO$_2$ in Denver (5,280 feet) is 65-75 mm Hg.

**Asthma** - Asthma is not addressed in the AMA Guides, 3rd edition, revised so the American Thoracic Society Standards are utilized when calculating impairment ratings. The following steps are used when assessing impairment ratings due to asthma:

- Assess when optimally treated
- Use post-bronchodilator spirometry values
- Three successive tests, at least one week apart
- Thoroughly document asthma, precipitating exposure and reports from coworkers/supervisors to help determine employability. May require removal from exposure.
- Use American Thoracic Society (ATS) Standards: See “Guidelines for the Evaluation of Impairment/Disability in Patients with Asthma” article at the end of the Respiratory chapter in this curriculum to determine the ATS impairment class determination.
  - ATS Standards Table 1: post-bronchodilator FEV$_1$ (Scored 0-4)
  - ATS Standards Table 2: percent change in FEV$_1$ ORPC20 FEV$_1$ mg/ml (Scored 0-3)
  - ATS Standards Table 3: minimum medication needs (Scored 0-4)
  - ATS Standards Table 4: summary impairment rating based on sum of scores of Tables 1-3.
- Translate the total score from ATS Standards Table 4 to the AMA table below to determine the whole person impairment rating.

**Translating ATS to American Medical Association (AMA)**

<table>
<thead>
<tr>
<th>ATS Asthma Score</th>
<th>Impairment Class</th>
<th>Whole Person Impairment</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>0%</td>
</tr>
<tr>
<td>1-5</td>
<td>2</td>
<td>10-25%</td>
</tr>
<tr>
<td>6-9</td>
<td>3</td>
<td>26-50%</td>
</tr>
<tr>
<td>10-11</td>
<td>4</td>
<td>51-100%</td>
</tr>
</tbody>
</table>

(FEV$_1$ < 50% on 20 mg/d/prednisone)
Respiratory Ailments not Directly Related to Lung Function:
Certain respiratory conditions may cause impairment that is not quantifiable by spirometry, diffusing capacity or measured exercise testing. These include:

- Asthma
- Hypersensitivity pneumonitis
- Pneumoconiosis
- Sleep disorders
- Lung cancers

The evaluations of these conditions should be performed by physicians with experience in lung disease with final impairment rating determined by the physician’s judgment. AMA Guides Table 9, p. 126 highlights these conditions with general comments as below:

**Hypersensitivity pneumonitis**
- Requires removal from exposure to avoid recurrence and chronic disease

**Pneumoconioses**
- May not cause impairment but usually requires removal from exposure to the dust that caused the condition

**Sleep disorders**
- Obstructive sleep apnea, central sleep apnea, and Cheyne-Stokes respiration can result in impairment through hypsomnolence, hypoxia, hemodynamic changes, or personality disorders.
- Impairment due to sleep disorders should be evaluated according to criteria in AMA Guides Chapters 4 (nervous system), 6 (cardiovascular system), and 14 (mental/behavioral). These values are combined using the Combined Values Chart, p.254.

**Lung cancers**
- Consider severity impaired at time of diagnosis and how long the patient has had the disease.
- If the patient is disease free at one year after the diagnosis, then the impairment rating should be performed according to physiologic parameters in AMA Guides Table 8, p. 125.
- If recurrence, immediately consider patient severely impaired.
Neurologic disorders

- Respiratory impairment due to neurologic disorders is rated in under AMA Guides Table 1, p. 109 - Column B: Brain (consciousness disturbances)

Workshop Case

Mr. H.R. is a 50-year-old white male automotive mechanic who presents with a chief complaint of dyspnea on exertion.

Dyspnea has been present for approximately five years and is gradually progressing. He now gets short of breath climbing one flight of stairs and had to quit mowing the lawn due to dyspnea. He denies cough, sputum production, hemoptysis, wheezing, chest pain, fever, or weight loss. He reports no orthopnea, paroxysmal nocturnal dyspnea or pedal edema. He has no history of chronic bronchitis, emphysema, asthma, pneumonia, chest trauma or chest surgeries, heart diseases. No rheumatologic complaints.

He is a former 25 pack-year cigarette smoker who quit ten years ago at the encouragement of his children. Hobbies include hunting, fishing, and television. No pets. No illicit drug use. Family history is noncontributory.

From 1980 to the present time he has worked as an automotive mechanic for three different companies. He specialized in brake repair until 1986, when he took over as manager of the business. He reports that up until then, he had almost daily exposure to airborne dust generated when he would remove old brake shoes and air-hose the brakes before replacing them. He wore no respiratory protection. The garages were usually poorly ventilated “except in the summer when we would open a garage door.” He has never worked in or near a body shop and he did no spray painting of vehicles. He has never served in the armed forces, worked in a mine or in the textiles industry. In his managerial job, he spends 80% of his day behind a desk or counter and no longer does “hands-on” automotive work.

His family physician obtained a chest radiograph when he told her about his shortness of breath. It showed bilateral calcified pleural plaques and reticulonodular interstitial infiltrates mainly in the lower and mid lung fields. No bullous changes or hyperinflation. No masses. Normal heart size. No adenopathy. His physician advised him that he has “interstitial lung disease” that probably was caused by working in a dusty environment and that he should file for workers’ compensation.
Examination:
Positive findings:
Bibasilar “velcro” rales
Nodigital clubbing or cyanosis
Stool guaiac was negative of blood

Chest radiograph:
Bilateral calcified pleural plaques seen in profile on PA film along the lateral aspects of the mid-chest and along the diaphragm. Irregularly-shaped opacities were seen in mid- and lower lung fields, bilaterally, which (by International Labor Organization Classification) were read by a B reader as “consistent with pneumoconiosis: opacity shape/size s/t, profusion ½”

Questions:

1. What is the probable diagnosis?

   Answer: Asbestosis and asbestos-related pleural plaques
   The history of asbestos exposure (brake lining materials), the latency between time of first exposure and onset of clinical illness, the typical radiographic, physiologic and clinical signs make it medically probable that he has asbestosis. Most clinicians require no further diagnostic testing to make this diagnosis.

2. What treatment is indicated?

   Answer:
   There is no effective, curative treatment available. Pulmonary rehabilitation would help him maintain some functional capacities and improve his ability to perform activities of daily living. He needs careful follow up for evidence of pulmonary hypertension, cor pulmonale, cancers of respiratory tract, pleura, gastrointestinal tract.

3. Has the patient reached a point of maximal medical treatment?

   Answer:
Yes, he is at a point of maximal medical improvement. With such chronic progressive diseases that are not responsive to therapy, there is no reason to anticipate spontaneous improvement. It is more likely that he will progress to greater impairment over time.

Additional Information:

Pulmonary physiology:  
- Age - 50 years old
- Height – 178 cm
- Weight – 85 Kg
- Altitude – 5,280 feet

Spirometry:  
- FEV\textsubscript{1} 2.80 L
- FVC 3.10 L
- FEV\textsubscript{1}/FVC 90%
- D\textsubscript{co} (ml/min/mm Hg): 24.9

Questions:

4. Assuming he has reached the point of maximal medical improvement, calculate his permanent impairment of the whole person due to his lung disease, using the AMA guides, 3\textsuperscript{rd} Ed. Revised.

Answer: Calculation of impairment is performed using AMA Guides:
- Table 2, p. 118 to find the predicted value for FVC
- Table 4, p. 120 to find the predicted value for FEV\textsubscript{1}
- Table 6, p. 122 to find the predicted value for D\textsubscript{co}

The percent predicted for each category is calculated by dividing the observed value from the predicted value.

<table>
<thead>
<tr>
<th>Spirometry</th>
<th>Observed</th>
<th>Predicted</th>
<th>% Predicted</th>
</tr>
</thead>
<tbody>
<tr>
<td>FVC</td>
<td>3.10 L</td>
<td>4.96 L</td>
<td>63%</td>
</tr>
<tr>
<td>FEV\textsubscript{1}</td>
<td>2.80 L</td>
<td>3.96 L</td>
<td>71%</td>
</tr>
<tr>
<td>FEV\textsubscript{1}/FVC</td>
<td>90%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D\textsubscript{co}</td>
<td>24.9</td>
<td>36.2</td>
<td>69%</td>
</tr>
</tbody>
</table>

Utilizing AMA Guides Table 8, p. 125 determine the class of respiratory impairment from the data established.
These tests show restrictive physiology and low diffusing capacity which, taken alone (without results of exercise testing) suggest Class 2 (10-25%) mild impairment of the whole person.

5. The patient’s symptoms seem out of proportion to this observed spirometry and $D_{\text{co}}$. Are there other tests that should be performed to help explain this paradox?

In some patients with interstitial lung diseases, such as asbestosis, simple spirometry, $D_{\text{co}}$, and x-ray may be insensitive and often correlate poorly with the degree of dyspnea and other symptoms. Under such circumstances, the AMA Guides recommend that the patient’s exercise capacity be assessed, using one of several available techniques. Testing should be interpreted by a physician experienced in the use of this tool, with particular attention given to the patient’s effort, cooperation, and ability to perform exercise.

In this case, the patient’s test was performed using a cycle ergometer. Although not required for purposes of impairment rating, it was felt to be medically important to know his arterial blood gases at rest and during exercise. Patients with asbestosis-related exercise limitation typically have ventilatory abnormality and their gas exchange worsens with increasing workload.

Additional Information

Exercise capacity testing was performed. He achieved 85% of predicted maximal heart rate and the physician was satisfied that the patient gave his maximal effort. The following data were obtained:

$\text{VO}_2$ maximum (ml/kg min): 18.0 (approximately 5 METS)

EKG at rest and exercise: normal

ABG at rest: (room air)

<table>
<thead>
<tr>
<th></th>
<th>pH</th>
<th>pCO$_2$</th>
<th>pO$_2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>7.40</td>
<td>33 mm Hg</td>
<td>60 mm Hg</td>
</tr>
</tbody>
</table>

ABG at max exercise:

<table>
<thead>
<tr>
<th></th>
<th>pH</th>
<th>pCO$_2$</th>
<th>pO$_2$</th>
</tr>
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<tbody>
<tr>
<td>pH</td>
<td>7.34</td>
<td>28 mm Hg</td>
<td>48 mm Hg</td>
</tr>
</tbody>
</table>

Revised: 2/2018
Additional data from this test indicated that the patient’s cardiovascular response to exercise was normal, but that he had a ventilatory abnormality, with difficulty increasing his tidal volume (as is seen in patients with stiff, non-compliant lungs due to interstitial lung disease).

6. What table in the AMA Guides should be used to help incorporate the results of this exercise test into your impairment rating? What class of impairment would the patient be in, based on the exercise test alone?

AMA Guides Table 8, p. 125. VO₂ max of 18.0 is consistent with class 3 (30-45%) moderate impairment of the whole person.

7. How does the patient’s arterial blood gas analysis affect your impairment rating?

The arterial blood gases are abnormal. There is mild hypoxemia at rest (for the altitude at which it was measured). There is severe hypoxemia with exercise. These data are consistent with the diagnosis of interstitial lung disease and help explain the patient’s dyspnea with exertion. Because of this result, the patient was placed on supplemental oxygen therapy.

With regard to the impairment rating, the arterial blood gases support what we already know from this VO₂ max – that the patient is moderately impaired. The AMA Guides are not clear in their recommendations about how to use ABG data.

8. What do you estimate this patient’s permanent impairment of the whole person to be due to his respiratory disease?

According to Table 8, p. 125, the impairment rating can be a high Class 2 or a low Class 3 (25-35%). The variability depends largely on the extent to which the raters weighed the exercise data/symptoms against spirometry and DCO₂.
Guidelines for the Evaluation of Impairment/Disability in Patients with Asthma

BACKGROUND
The 1982 and 1986 American Thoracic Society (ATS) statements (1, 2) on the evaluation of impairment and disability caused by respiratory disorders were primarily of relevance for patients with respiratory disorders associated with irreversible damage. Asthma was dealt with only as a modifying condition. Patients with asthma have features that differ from other respiratory disorders, including: (1) The condition is characterized by variable airflow obstruction and the individual's clinical status varies from time to time; (2) the airflow limitation is partially or completely reversible with appropriate therapy; (3) the condition is associated with airway hyperreactivity to irritants such as dusts, fumes, gases, or smoke; (4) in many cases, environmental or occupational exposure to specific sensitizers provokes airway inflammation, which, on repeated exposure may become chronic and irreversible. Specific guidelines for patients with asthma are necessary because of these features.

PURPOSE
The purpose of this statement is to provide specific guidelines for the determination of impairment and disability in subjects with asthma for use by health professionals and disability boards. It takes into consideration not only impairment related to reduced lung function but other parameters, such as the degree of airway hyperreactivity and the type and amount of medication required to control symptoms, which are important reflections of the severity of asthma (3). This statement does not address the methods of identification of the cause of asthma.

DEFINITIONS
The definitions used by the previous ATS statement (2) will be used here.

Impairment is defined as a functional abnormality resulting from a medical condition. It may or may not be stable at the time the evaluation is made, and may be temporary or permanent. Impairment that persists after appropriate therapy, with no prospect of future improvement, is permanent. Some impairments are not dependent on lung function, but are related to the prognosis (e.g., unresectable lung cancer) or to public health considerations (e.g., tuberculosis) or inability to work in the same environment that causes asthma (e.g., occupational asthma).

Disability is a term used to indicate the total effect of impairment on the patient's life. It is affected by diverse factors such as age, sex, education, economic and social environment, and the energy requirement of the occupation.

Two people with identical impairment may be differently affected in their life situations. The rating of health impairment is within the jurisdiction of a physician's expertise to quantitate. However, the determination of disability also requires consideration of many nonmedical variables. Physicians, however, generally have considerable knowledge about how impairment affects their patients' lives. Therefore it is important for physicians to identify all the individual factors modifying the impact of impairment on their patients' lives for administrators who determine disability compensation.

DIAGNOSIS OF ASTHMA
Asthma should be suspected in the presence of a compatible history of cough, sputum, wheeze, chest tightness, or breathlessness, particularly when the symptoms are episodic and worse at night (4). The diagnosis of asthma requires both relevant symptoms (currently or by history) and the presence of airflow limitation that is partially or completely reversible either spontaneously or after treatment, or the presence of airway hyperresponsiveness to methacholine or histamine in the absence of airflow limitation.

In the presence of severe airflow limitation, it may not be possible to distinguish between asthma and other types of obstructive lung disease. Additional diagnostic criteria should be considered such as the presence of blood or sputum eosinophilia.

METHODS
Measurement of Spirometry
Spirometric measurements should be carried out using equipment, methods of calibration, and techniques that meet the criteria outlined in the most recent revision (5) of the ATS official statement on standardization of spirometry (6), or subsequent revisions of that statement, whichever is most current. The measurement of height, prediction equations, and corrections for racial differences should follow those outlined in the ATS official statement on "Lung Function Testing: Selection of Reference Values and Interpretable Strategies" (7).

Spirometric measurements should be made, if possible, after withholding inhaled bronchodilators for 6 h and long-acting bronchodilators (e.g., long-acting theophylline preparations) for 24 h. However, if it is not possible to withhold bronchodilators for this period of time, they can be used, but the time these medications are taken before the test should be noted. Antinflammatory preparations such as cromolyn, inhaled or systemic corticosteroid should not be withheld.

FEV1, FVC, and FEV1/FVC should be determined from spirometry. When airflow limitation is present, i.e., FEV1/FVC is less than the lower limit of normal, which is defined as the lowest 5% of the reference population (7), spirometry should be repeated after the administration of an inhaled β-adrenergic agonist. An improvement in FEV1 of 12% or greater, with an absolute change of at least 200 ml, from the baseline level, confirms that there is significant reversibility, and together with the appropriate history, the diagnosis of asthma (7). When the improvement in FEV1 is <12%, a steroid trial should be given. This can be given as high-dose inhaled steroid (> 800 mcg beclomethasone or equivalent/day) although prednisone 30 to 40 mg for a period of 1 to 2 wk may

Am Rev Respir Dis Vol 147, pp 1056–1061, 1993

Revised: 2/2018
be required in some patients. An improvement in FEV₁ of 20% with steroid trial also confirms the presence of asthma. When airflow limitation is absent, i.e., FEV₁/FVC is above the lower limit of normal (7), the level of airway responsiveness should be determined.

Measurement of Airway Responsiveness
Measurement of airway responsiveness is needed for the diagnosis of asthma and for impairment rating when the subject has no current objective evidence of airflow limitation. When the baseline FEV₁ is below 70% of predicted, response to the inhaled β-adrenergic agonist and not the measurement of airway responsiveness is the appropriate test to establish the diagnosis of asthma (8).

Measurement of airway responsiveness should be made by methacholine or histamine inhalation test using standardized methods (9-11). It is imperative that standardized methods be used in order to adequately interpret the results. This test should be done after withholding inhaled short-acting β-adrenergic agonist or ipratropium for 6 h and long-acting β-adrenergic agonist or theophylline for 24 h; in the case of histamine test, short-acting antihistamines should be withheld for 48 h and antacids for 1 or 2 months. Antiinflammatory preparations should not be withheld because withdrawal of these for a few hours does not influence measurement of airway responsiveness to histamine or methacholine, whereas prolonged withdrawal of these drugs can lead to an exacerbation of asthma. The subjects should be asked to refrain from smoking and exposure to cold air for two hours before the test.

The results should be expressed as the provocation concentration to cause a fall in FEV₁ of 20% (PCᵢ₂₀ or PDᵢ₂₀) (9). Airway hyperresponsiveness is considered to be present when the PCᵢ₂₀

---

**SEQUENCE OF TESTING**

Symptoms of asthma

NO

asthma not present

YES

spirometry

FEV₁/FVC above the lower limit of normal

Methacholine or histamine challenge

PC 20 > 8 mg/ml or equivalent

FEV₁/FVC below the lower limit of normal

Repeat spirometry after beta-adrenergic agonist

Reversibility of FEV₁ ≥ 12% with absolute value ≥ 200 ml

PC 20 ≤ 8 mg/ml or equivalent

Steroid trial

Improvement in FEV₁ ≥ 20%

Diagnosis of asthma

Impairment rating (see Tables 1-4)

* Lower limit of normal = below the lowest 5% of the reference population

**Figure 1.** Sequence of testing.
Exercise Test

Exercise testing should not be done routinely in the investigation of asthma. However, many physicians perform spirometry before and after exercise testing in the investigation of dyspnea. If a subject has been shown to have a 15% or more decline in FEV₁ from the baseline level after exercise, this information will be useful in the assessment of impairment, particularly if the level of effort is similar to their usual work or daily activities.

Measurement of Diffusing Capacity and Lung Volumes

These measurements are necessary only to distinguish asthma from other conditions. They are not required for impairment evaluation in patients with asthma.

PROCESS OF EVALUATION

The sequence of testing to be performed is defined in figure 1, while figure 2 shows the process of evaluation. There are two types of impairment/disability, temporary and permanent. Temporary impairment/disability refers to a situation that is likely to change. For example, the individual may be expected to improve so that the

**PROCESS OF IMPAIRMENT EVALUATION**

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- Give temporary rating (see Tables 1-4).
- Recommend specific treatment or referral to specialist.
- State when to reassess.

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- Give longterm impairment rating (see Tables 1-4).
- Express opinion whether the calculated rating over or underestimates impairment.
- State individual modifiers eg. coexisting disease or non-compliance.

```
```

Assess impact on subject's life

```
```

Disability Awards
(a nonmedical administrative process)

```
```

Re-evaluate if clinically changed

* See text for objectives of optimal treatment of asthma

Figure 2. Process of impairment evaluation.
current functional status does not describe the anticipated future status. Temporary impairment/disability can be evaluated from the results of tests used to establish the diagnosis of asthma. Permanent impairment/disability refers to a situation when the individual has reached maximal medical improvement and is receiving optimal therapy. Evaluation for permanent impairment/disability should be done after the objectives of optimal treatment of asthma have been attained.

The objectives of treatment include the following (4):

1. To achieve control or the best overall results (least symptoms, least need for β-adrenergic agonist when taken only if required, best expiratory flow rates, least diurnal variation of flow rates and least side-effects from medication).
2. To use the minimum medication to maintain control or the best overall results.
3. To treat exacerbations early to prevent them from becoming severe.

Physicians involved in the evaluation of impairment should assess whether the objectives of treatment of asthma have been achieved. They should therefore be familiar with the recent published guidelines for treatment of asthma by the National Asthma Expert Panel in the United States (4). In addition to the American Expert Panel's guidelines, other countries such as the United Kingdom (13), Australia (14), New Zealand (14), and Canada (15) have their own published guidelines. Effective management of asthma depends on both pharmacologic and nonpharmacologic measures. Nonpharmacologic measures include environmental control, patient and family education, and regular supervision. In some subjects it may take several months to achieve the objectives of treatment.

If the objectives of treatment are not achieved, the following should be done:
1. Give rating for temporary impairment (see tables 1 through 4).
2. Recommend specific treatment, or give referral to a specialist experienced in the management of asthma (e.g., pulmonary physician or allergist).
3. State when to reevaluate (when the objectives of treatment have been achieved or in 6 months, whichever is shorter).

RE-EVALUATION
Because asthma may improve or worsen with time, it is necessary to re-evaluate the subject if the clinical status changes even after long-term impairment/disability evaluation has been completed.

PARAMETERS TO BE CONSIDERED FOR RATING OF IMPAIRMENT
Tables 1 through 4 include the parameters used for classifying the extent of impairment. This is done based on both physiologic and clinical parameters.

### Table 1: Postbronchodilator FEV₁

<table>
<thead>
<tr>
<th>Score</th>
<th>FEV₁ % predicted</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>&gt; lower limit of normal</td>
</tr>
<tr>
<td>1</td>
<td>70- lower limit of normal</td>
</tr>
<tr>
<td>2</td>
<td>60-59</td>
</tr>
<tr>
<td>3</td>
<td>50-59</td>
</tr>
<tr>
<td>4</td>
<td>&lt; 50</td>
</tr>
</tbody>
</table>

Physiologic Parameters
The level of airflow limitation and either its reversibility or the level of airway responsiveness should be used in the impairment rating as shown in tables 1 through 4.

The postbronchodilator FEV₁ should be used in determining the level of airflow limitation. When there is no evidence of airflow limitation as defined above, the score is zero; when there is a severe degree of airflow limitation (FEV₁ < 50% predicted), the score is 4.

Whether the reversibility of airflow limitation or the degree of airway hyperresponsiveness should be used in impairment rating is dependent on the postbronchodilator FEV₁. When the postbronchodilator FEV₁ is above the lower limit of normal, the degree of airway hyperresponsiveness should be used; when the postbronchodilator FEV₁ is between 70% predicted and the lower limit of normal, either the degree of airway hyperresponsiveness or the degree of reversibility can be used; when the postbronchodilator FEV₁ is < 70% predicted, the degree of reversibility should be used.

### Table 2: Reversibility of FEV₁ or Degree of Hyperresponsiveness

<table>
<thead>
<tr>
<th>Score</th>
<th>% FEV₁ change</th>
<th>PC₂₀ mg or equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>&lt; 10</td>
<td>&gt; 8</td>
</tr>
<tr>
<td>1</td>
<td>10-19</td>
<td>8-10</td>
</tr>
<tr>
<td>2</td>
<td>20-29</td>
<td>0.5-1,125</td>
</tr>
<tr>
<td>3</td>
<td>&gt; 30</td>
<td>≤ 0.125</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*When FEV₁ is above the lower limit of normal, PC₂₀ should be determined and used for rating of impairment; when FEV₁ is ≤ 70% predicted, the degree of reversibility should be used; when FEV₁ is between 70% predicted and the lower limit of normal either reversibility or PC₂₀ can be used.

Reversibility with bronchodilator is calculated as,

\[
\text{FEV₁ post-bronchodilator - FEV₁ pre-bronchodilator} \times 100\%
\]

\[
\text{FEV₁ pre-bronchodilator}
\]

Airway responsiveness is expressed as that concentration of agent that will provoke a fall in FEV₁ of 20% from the lowest post saline value. Plot the concentration of methacholine/histamine against the fall in FEV₁, using a logarithmic scale for the doubling concentrations. The PC₂₀ is obtained by interpolation between the last two points. The formula for linear interpolation of the PC₂₀ from the log dose response curve is as follows:

\[
\text{PC₂₀} = \frac{\text{log} \ C₂ - \text{log} \ C₁}{\text{log} \ (C₂ - C₁) (20 - R₁)} (R₂ - R₁)
\]

Where
- \( C₁ = \) second last concentration (≤ 20% FEV₁, fall)
- \( C₂ = \) last concentration (> 20% FEV₁, fall)
- \( R₁ = \% \) fall FEV₁, after \( C₁ \)
- \( R₂ = \% \) fall FEV₁, after \( C₂ \)

### Table 3: Minimum Medication Need

<table>
<thead>
<tr>
<th>Score</th>
<th>Medication</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No medication</td>
</tr>
<tr>
<td>1</td>
<td>Occasional bronchodilator, not daily and/or occasional cromolyn, not daily</td>
</tr>
<tr>
<td>2</td>
<td>Daily bronchodilator and/or daily cromolyn and/or daily low-dose inhaled steroid (&lt; 800 μg beclomethasone or equivalent)</td>
</tr>
<tr>
<td>3</td>
<td>Bronchodilator on demand and daily high-dose inhaled steroid (&gt; 800 μg beclomethasone or equivalent) or occasional course (1-3yr) systemic steroid</td>
</tr>
<tr>
<td>4</td>
<td>Bronchodilator on demand and daily high-dose inhaled steroid (&gt; 1000 μg beclomethasone or equivalent) and daily systemic steroid</td>
</tr>
</tbody>
</table>

* The need for minimum medication should be demonstrated by the treating physician, e.g., previous records of exacerbation when medications have been reduced.
TABLE 4

<table>
<thead>
<tr>
<th>Impairment Class</th>
<th>Total Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I</td>
<td>1–3</td>
</tr>
<tr>
<td>II</td>
<td>4–6</td>
</tr>
<tr>
<td>III</td>
<td>7–9</td>
</tr>
<tr>
<td>IV</td>
<td>10–11</td>
</tr>
<tr>
<td>V</td>
<td>Asthma not controlled despite maximal treatment; i.e., FEV₁ remaining &lt; 50% despite use of &gt; 20 mg prednisone/day.</td>
</tr>
</tbody>
</table>

* The impairment rating is calculated as the sum of the patient's scores from tables 1, 2, and 3.

The degree of reversibility and airway hyperresponsiveness are given less weight compared with the other parameters, with a maximum score of 3.

Clinical Parameters

Although symptoms are a critical component of asthma because of their subjective nature, they should not be the only criterion for impairment rating. The frequency of acute exacerbations requiring emergency room treatment or hospitalization has been used in previous attempts to rate impairment (2). Given the efficacy of currently recommended antiinflammatory preparations in the treatment of asthma, frequent emergency room visits or hospitalizations generally reflect inadequate treatment and failure to achieve the objectives of treatment. The nature and frequency of medications required to maintain asthma under control (or the best results) give a better reflection of the severity of the disease and are more useful for the purpose of impairment assessment. The use of medication requirement as an important component in the rating scheme will be enhanced if the treating physicians follow published treatment guidelines (12–15).

The minimum medication required to maintain control of asthma (or the best results) can be used to rate severity (16), as indicated in table 3. A subject requiring occasional use (not daily) of bronchodilator (inhaled β-adrenergic agonist or oral theophylline) and/or cromolyn can be considered to have very mild asthma (or a severity score of 1). The need for inhaled β-adrenergic agonist or oral theophylline on a daily basis and additional daily low-dose inhaled steroid or cromolyn reflects an increase in severity of asthma. The need for daily high-dose inhaled steroid (> 800 mcg of beclomethasone or equivalent doses of other agents) and systemic steroid is given the highest severity score of 4. It is important that the rating physician be confident that these medications are the minimum required to maintain control (or the best results) in a subject and that reduction in medications leads to exacerbation of symptoms and reduced lung function.

IMPAIRMENT RATING

Impairment rating can be determined using the scheme shown in tables 1 through 4. This rating scheme attempts to standardize a method to quantify the effect of the illness on the subject's life, similar to earlier ATS guidelines on evaluation of impairment/disability (1, 2), rather than to quantify the severity of the disease itself. For the description of the clinical disease severity per se, the clinical severity scale of the National Asthma Expert Panel (4) should be used. The degree of Impairment is calculated as the sum of the scores for postbronchodilator FEV₁, reversibility of FEV₁ or PC₂₀, and medication need. The class of Impairment is expressed as Class 0, I, II, III, IV or V. Total impairment/disability (Class V) in a subject with asthma is defined as asthma that cannot be controlled adequately despite maximum treatment, including > 20 mg oral prednisone per day, the FEV₁ remains below 50% of predicted.

The evaluating physician may also express an opinion as to whether the impairment rating obtained overestimates or underestimates impairment due to unusual circumstances of individual subjects. These circumstances should be described in detail. Individual modifying factors, such as barriers to compliance in treatment, limitations to environmental control measures, and coexisting disease that might influence the impact of asthma on the subject's life should be clearly stated. In addition, the evaluating physician should indicate the effects asthma has on the subject's quality of life, including the impact on the subject's ability to perform his or her normal job.

SPECIAL CONSIDERATIONS FOR SUBJECTS WITH OCCUPATIONAL ASTHMA

General Comments

Occupational asthma is a disease characterized by variable airflow limitation and/or airway hyperresponsiveness due to causes or conditions that are attributable to a particular occupational environment and not to stimuli encountered outside the workplace. Occupational asthma may encompass both immunologic and nonimmunologic causes: (1) Immunologic occupational asthma occurs upon reexposure to an agent after a latent period of immune sensitization; (2) nonimmunologic occupational asthma that does not induce immune sensitization as determined by currently available technology. An irritant and potentially toxic agent may trigger new asthma as an aftermath of an acute inhalation injury in some patients. Such individuals have nonspecific airway hyperresponsiveness and should be evaluated for impairment as for other general forms of asthma.

There are many follow-up studies of subjects with documented occupational asthma showing that the majority (60 to 90%) of subjects failed to recover several years after leaving exposure (17). Early diagnosis and cessation of exposure are documented prognostic factors that increase the likelihood of a favorable outcome (17). It has been shown that continuous exposure to the offending agent leads to deterioration of symptoms and even fatalities (17). It is therefore important to diagnose occupational asthma early and for the worker to avoid further exposure to the offending agent.

General Approach

Assessment of individuals with occupational asthma should be done by physicians with expertise in this area. Assessment for impairment/disability should take place at least on two occasions.

1. Temporary impairment/disability. Once the diagnosis of occupational asthma is made, the proper treatment is to remove the worker from exposure. These patients should be considered 100% impaired on a permanent basis for the job that caused the illness and for other jobs with exposure to the same causative agent. Because the individual cannot return to the previous job, plans for vocational rehabilitation should be instituted as soon as the diagnosis of occupational asthma is made. It is not necessary to wait for a permanent disability rating to initiate vocational planning. Several alternatives should be considered in the management of subjects with occupational asthma:
   - Relocation to a new job either in the same plant or in a different plant where there is no exposure.
   - Rehabilitation into a new job or early retirement. Financial compensation should be offered in every instance in which there
is loss of earnings. The amount and duration of compensation should be made known to the worker so that the worker can make rational decisions about the changes.

In some special situations, modification of the job such as improved ventilation, process change, or product substitution may enable the worker to remain. It is important to remember that when the agent acts by sensitization, the worker may react to levels of exposure well below those considered safe for individuals without prior sensitization. The ability of a respirator to provide adequate protection against the low levels that might trigger an attack and the ability of the asthmatic individual to work safely and effectively with the respirator must be carefully assessed before relying on these devices.

2. Long-term impairment/disability. Assessment for long-term impairment/disability should be carried out 2 yr after the removal of exposure when improvement has been shown to plateau (18). Evaluation should be done after the above objectives of treatment have been achieved and using the scaling system as for subjects with nonoccupational asthma.

List of participants: This statement was prepared by the ATS Ad Hoc Committee on Impairment/Disability Evaluation in Subjects with Asthma. The members of the Committee are as follows: Mahea Chan-Yeung, M.B., B.Ch; Philip Harber, M.D.; (Co-Chair); William Bailey, M.D.; John Balmes, M.D.; Scott Barnhart, M.D.; Frederick E. Hargreave, M.D.; Jean-Luc Malo, M.D.; Charles Reed, M.D.; and Hal Richerson, M.D.

References


Revised: 2/2018
Cardiovascular Impairments
AMA Guides, 3rd Edition, revised - Chapter 6, p.127

Objectives:
1) Determine the assessment requirements for performing cardiovascular impairment ratings and identify the four classes for impairment rating.
2) Identify the steps necessary for performing cardiovascular impairment ratings.
3) Determine the whole person cardiovascular rating using a case example.

Summary/Steps for Determining Cardiovascular Impairment Ratings
1. Determine the primary cardiovascular diagnostic category with review of confirmatory testing.
2. Review the patient’s current treatment management.
3. Determine the functional ability using patient history and functional testing as necessary.
4. Determine the cardiovascular disease category utilizing the appropriate tables in Chapter 6 of the AMA Guides to calculate the impairment.
   - If more than one cardiovascular disease category is present, be sure to avoid double dipping regarding physical limitations. If more than one category is separately affecting the patient’s functional limitations, combine the impairment ratings by using the Combined Values Chart (p. 254.)

References/Links
No worksheets needed, provide details of impairment rating in the narrative report.

Core Content The assessment of cardiovascular disease impairment incorporates a combination of:
   - Diagnosis and confirmatory diagnostic testing (auscultation, electrocardiogram, exercise testing, echocardiography, cardiac catheterization and radioisotope studies)
   - Treatment required
   - Assessing symptomatic limitation

Impairment rating is based on the functional classifications including ADLs and heavy physical activity, which are found in AMA Guides Table 1, p. 128.

Revised: 2/2018
**Cardiovascular Impairment General Principles**

**Diagnostic Categories of Cardiovascular Disease**
The following table lists the categories of cardiovascular disease and where to find impairment rating information in the *AMA Guides*:

<table>
<thead>
<tr>
<th>Cardiac Disease</th>
<th>Table in AMA Guides</th>
<th>Page number in AMA Guides</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valvular Heart Disease</td>
<td>5</td>
<td>133</td>
</tr>
<tr>
<td>Coronary Heart Disease</td>
<td>7</td>
<td>137</td>
</tr>
<tr>
<td>Congenital Heart Disease</td>
<td>8</td>
<td>141</td>
</tr>
<tr>
<td>Hypertensive Cardiovascular Disease</td>
<td>9</td>
<td>145</td>
</tr>
<tr>
<td>Cardiomyopathies</td>
<td>10</td>
<td>148</td>
</tr>
<tr>
<td>Pericardial Heart Disease</td>
<td>11</td>
<td>149</td>
</tr>
<tr>
<td>Arrhythmias</td>
<td>12</td>
<td>152</td>
</tr>
<tr>
<td>Vascular Disease of Extremities* (upper)</td>
<td>16</td>
<td>47</td>
</tr>
<tr>
<td>Vascular Disease of Extremities* (lower)</td>
<td>52</td>
<td>79</td>
</tr>
</tbody>
</table>

*These tables and page numbers are correct. There is an error in the text of Chapter 6.

Some diagnoses, such as cardiomyopathies and pericardial heart disease, can be reversible, therefore, allow an adequate period of time before assessing impairment.

**Level of Treatment**
Chronic treatment, drug therapy, diet control, and other treatment regimes are determining factors for classification and should be described. If surgery is appropriate for the diagnosis, this will be included in the classification description. *An impairment rating cannot be determined until all treatment regimes (drug or surgery) have received adequate trials.*
Symptomatic Limitations

Impairment is partially assessed through the patient’s report of symptomatic limitations with activities of daily living (ADLs) and heavy exertion. All of the cardiac diagnostic rating subsections are divided into four similar impairment classes. The general activity and class ranking for most subsections are below.

<table>
<thead>
<tr>
<th>Class</th>
<th>% Whole Person Impairment</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0-10%</td>
<td>Asymptomatic during normal activities or with moderately heavy physical activities.</td>
</tr>
<tr>
<td>2</td>
<td>15-25%</td>
<td>Asymptomatic during normal activities, but some limitation in heavy physical exertion</td>
</tr>
<tr>
<td>3</td>
<td>30-50%</td>
<td>Symptomatic during normal activities</td>
</tr>
<tr>
<td>4</td>
<td>55-100%</td>
<td>Normal activities are significantly limited and at rest, symptoms may occur.</td>
</tr>
</tbody>
</table>

Exercise Testing

Exercise testing is the preferred method for quantifying limitations due to cardiovascular disease. In certain cardiovascular diseases, other forms of quantitative assessment will be used in lieu of, or in addition to exercise testing. (i.e. angioplasty in the assessment of coronary artery disease.)

Most exercise protocols use a treadmill for testing, but bicycle ergometry or the step test is acceptable. Ideally, measuring oxygen consumption gives the most accurate information about the patient’s exercise capability. The physician should estimate the patient’s cooperativeness and ability to exercise as well.

Steps for Exercise Testing

- Estimate the workload in multiples of resting metabolic energy (MET). One MET equals 3.5 ml/(kg•min)
  - For treadmill protocols use *AMA Guides* Table 2, p. 129 for the relationship of METS and functional class.
  - For step test protocols use *AMA Guides* Table 3, p. 130 for the relationship of METS and functional class.
○ For bicycle ergometry use AMA Guides Table 4, p. 130 for the energy expenditure in METS.

Tests such as echocardiography, angiography and radioisotope studies should not be ordered only for the purposes of rating impairment, but can contribute to the impairment rating when they are performed for clinical diagnosis and management. Expensive and invasive cardiovascular testing for the purpose of estimating impairment should not be performed.

Case Example: 59 y.o. male had myocardial infarction (MI) 6 months ago and was treated with 2 stents.
Examination findings:
● Continued fatigue and dyspnea on exertion with walking
● Abnormal stress test: increased ST V1-4
● Treated with low-fat diet, beta blockers, and statins
● Develops intermittent ventricular tachycardia
● Requires amiodarone for rate control

He has been restricted from any heavy labor job based on his stress test.

Calculate the impairment rating for this patient.
**Answer:**
Since the patient has symptoms of coronary heart disease (CHD), *AMA Guides* Table 7, p.137 is used to determine the class and percentage of impairment. Due to the documented history of MI, EKG changes with exercise requires moderate dietary changes and medications, has recovered from surgery but still needs treatment, **Class 3**: 35-50% whole person impairment is evident. In this case, **40%** impairment is chosen.

Since the patient has documented cardiac arrhythmias, requires medications, but does not limit activity, an impairment of cardiac arrhythmias is calculated. Using *AMA Guides* Table 12, p.152, **Class 2**: 15-25% whole person impairment is evident.
In this case, **15%** impairment is chosen as most of his physical limitation is due to his primary diagnosis.

Since two diagnoses categories are involved, the lower end of both categories is chosen and then combined for the final impairment rating.

For the overall impairment rating, use the Combined Values Chart (p.254) to combine 40% (CHD) and 15% (cardiac arrhythmias) = **49%** whole person impairment rating.

**Vascular Disease Affecting the Extremities** - vascular impairment of the extremities may be assessed, however, the tables are located in different chapters. Please refer to *AMA Guides* Table 16 (p.47) for upper extremity and *AMA Guides* Table 52 (p.79) for lower extremity.
Impairment of the peripheral vascular system can result from:

- Diseases of **arteries** reducing blood flow and producing claudication, trophic changes, ulceration, gangrene, Raynaud’s phenomenon, or even loss of an extremity;
- Diseases or **veins** producing pain, edema, stasis dermatitis, ulceration; and
- Disorders of **lymphatics**, leading to lymphedema, sometimes complicated by infection.

**Pitfalls**  
Many patients with cardiac disease fall into more than one diagnosis category. The primary diagnosis should be the main focus when determining an impairment. If it is necessary to use more than one category to describe the patient’s impairment, be
careful that you have assigned the appropriate impairment percentage to each category. The same physical impairment should not be rated under two categories, as this would be “double dipping.”
Skin Impairment
AMA Guides, 3rd Edition, revised - Chapter 13, p. 223

Objectives:
1) Define the steps used to determine an impairment rating for pruritus, disfigurement, scars and other skin disease impairments.
2) Identify the elements used to define the five (5) classes of skin impairment and calculate skin impairment ratings using case examples.

Summary/Steps for Determining Skin Impairment Ratings
1. Evaluate the patient with a detailed medical history and complete physical examination, including diagnostic testing to determine the signs and symptoms of the skin disorder, the type of treatment (intermittent or continuous) and the limitations in ADLs.
2. Determine impairment by utilizing AMA Guides Table 1, p. 232 to identify the proper class and impairment rating.

References/Links: No worksheet needed, please provide details of impairment rating in the narrative report.

Core Content
Criteria for evaluating the effect of skin permanent impairment depends upon the individual’s ability to perform or participate in ADLs. Permanent impairment of the skin is defined as a skin condition that persists following maximum medical treatment, rehabilitation, and after a length of time sufficient to permit regeneration or other physiologic adjustments. This includes any functional or anatomic abnormality or loss including an acquired immunologic capacity to react to antigens (allergic contact dermatitis). Three elements used to define the five classes of skin impairment include:
1) The presence of signs and symptoms of a skin disorder
2) Intermittent or continuous treatment
3) Assessment of the limitations in performance of ADLs

Skin Impairment General Principles
In order to rate skin impairments, the functions of intact skin must be taken into account, which includes:
- Providing a protective barrier against environmental insults such as:
- Chemical irritants
- Allergic sensitizers
- Ultraviolet light injuries
- Invasion of micro-organisms (bacteria or fungi)

- Temperature regulation and sensory perception
- Fluid and electrolyte balance
  - Related to the intact stratum corneum barrier against fluid loss
- Cutaneous immunologic defense of the skin
  - Prevents and controls bacterial, fungal and viral infections
- Ability to regenerate its epidermis and appendages

The most common job-related skin permanent impairment results from contact dermatitis.

**Impairment Rating of the Skin**

A medical evaluation involving a detailed medical history, complete physical examination, and diagnostic testing should be performed. The amount of *functional loss* is most important when determining impairment. Other factors to consider include:

- Extent of surface involved
- Site involvement (hands and feet are very important to assess)
- Altered cosmetic appearance
  - Pus
  - Smell
  - Scale
  - Disfigurement
- Need and frequency of treatment
- Effect of medical diagnosis on life activities
- Accommodations and/or restrictions

Diagnostic testing can include:

- Patch testing to diagnose allergic contact dermatitis cautions include:
  - Careful interpretation is necessary
  - Tests can yield false positives and false negatives
  - Results depend on proper technique, physician’s skill in interpretation, proper concentration, and vehicle
- Prick or scratch testing
- Bacterial or fungal cultures
- Potassium hydroxide scrapings
- Skin biopsy

Revised: 2/2018
Skin impairment can be associated with other body system impairments (respiratory, cardiovascular, endocrine, gastrointestinal, behavioral/psychological). Each system should be evaluated independently for the degree of impairment and then combined using the Combined Values Chart, AMA Guides, p.254 for total whole person impairment.

**Categories of Skin Disorders for Rating Impairment:** The following criteria should be considered when evaluating skin disorders:

**Pruritus** - AMA Guides, Chapter 13.2, p. 224: itching combined with the desire to scratch or rub is a commonly associated symptom of a wide variety of skin diseases and can be intolerable. For the evaluation of pruritus, the following should be considered:

- Assessment of the interference with ADL and work performance
- Objective findings to support the severity of pruritus:
  - Excoriations
  - Lichenification (thickened skin)
  - Hyperpigmentation
  - Hypopigmentation
- Psychological factors and if they play a role
  - If so, consider a psychological rating

**Disfigurement** - AMA Guides, Chapter 13.3, p.224-225: altered appearance induced by changes in skin color, shape and/or structure. It can be a result of injury, disease or an ongoing disorder. There is usually no loss of body function and little effect on ADLs.

The physician should state:

- Probable duration and permanency of the altered state
- If the appearance can be improved or concealed (makeup or wigs)
- If long-term medical treatment is indicated

Psychological ratings may be indicated to assess the extent of the patient’s change in self-image, interactions with others or withdrawal from society.

**Facial Disfigurement** - AMA Guides, ENT - Chapter 9.2, p.179 should be utilized when rating facial disfigurement

**Scars** - AMA Guides, Chapter 13.4, p.225: result from healing of burned, traumatized or diseased tissue and how it impacts ADL and work performance
The assessment includes:

- Size, shape, color, and texture
- Anatomic location
- Evidence of ulceration and need for subsequent therapy
- Depressed (atrophic) or elevated (hypertrophic) skin
- Involvement of sweat gland function
- Hair and nail growth
- Pigment

Photography may be used to document skin impairment.

It may be useful to consult the AMA Guides, ENT - Chapter 9, to determine a scar rating. Unless there is an impact on ADLs the rating cannot exceed 5% in Class 1. Consider additional range of motion impairment when joints are involved.

Skin impairment may affect other systems requiring a separate rating which may include:

- Related psychological or behavioral changes (see Chapter 14 - Mental and Behavioral Disorders for rating)*
- Sensory alterations (see AMA Guides, Chapter 4 - Neurological Impairment Guidelines for rating)*
- Range of motion defect (see AMA Guides, Chapter 3 - Musculoskeletal Impairment Guidelines for rating)*
- Limited chest wall excursion (see AMA Guides, Chapter 5 - Respiratory Impairment Guidelines for rating)*

* Ratings should then be combined using the Combined Values Chart (AMA Guides, page 254) for final whole person rating.

**Additional Information for Rating Scars from the Division’s Impairment Rating Tips (p.2)**

Scars involving the face should be rated separately, according to the ENT ratings - AMA Guides Chapter 9.2, p.179, if the physician deems appropriate. Providers should be aware that not all scars qualify for an impairment rating when they do not affect ADLs. The claimant may request an award for scars from an Administrative Law Judge.
Once the examination is complete, utilize AMA Guides, Table 1, p. 232 to determine the class of impairment and the associated impairment rating. Table 1 outlines Classes 1-5 for Skin Impairment:

<table>
<thead>
<tr>
<th>Class 1 (0-5%)</th>
<th>Class 2 (10-20%)</th>
<th>Class 3 (25-50%)</th>
<th>Class 4 (55-80%)</th>
<th>Class 5 (85-95%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signs or symptoms of skin disorder are present and with treatment, there is no limitation, or minimal limitation, in the performance of ADLs, although exposure to certain physical or chemical agents might increase limitation temporarily</td>
<td>Signs and symptoms of skin disorder are present and intermittent treatment is required and there is limitation in the performance of some of the ADLs</td>
<td>Signs and symptoms of skin disorder are present and continuous treatment is required and there is limitation in the performance of many ADLs</td>
<td>Signs and symptoms of skin disorder are present and continuous treatment is required which may include periodic confinement at home or other domicile and there is limitation in the performance of many ADLs</td>
<td>Signs and symptoms of skin disorder are present and continuous treatment is required, which necessitates confinement at home or other domicile and there is severe limitation in the performance of ADLs</td>
</tr>
</tbody>
</table>

**Workshop Case #1**
A 27 year old worker was employed in a small plant making latex gloves for the past 5 years. His job was to mix and pour batches of gloves. He developed an acute contact dermatitis of the hands, arms, neck, with small patches on the face.
Patch testing for a type IV contact dermatitis was positive to 2-n-4-isothiazolin-3-one, a rubber accelerator used to polymerize the latex in the gloves.

**Diagnosis:** allergic contact dermatitis due to rubber accelerator present in latex gloves.

He was restricted from direct and indirect exposure to mixing batches of gloves, however, dermatitis persisted on his face. When he quit his job, his dermatitis resolved completely but he had to avoid using latex gloves because of his contact allergy to the rubber accelerator.
How would you rate this patient?

Answer: Using AMA Guides, Table 1, p. 232:
Class 1 impairment (0-5% whole person rating)
- Signs and symptoms are present, and
- With treatment, there are no or minimal limitations in performance of activities of daily living.
- Exposure to certain agents or chemicals might temporarily increase limitations.
- Examples: allergic contact dermatitis, photodermatitis, occupational leukoderma without behavioral effects.
- No neurologic, psychiatric or facial involvement exists, and there is no loss of range of motion.

Workshop Case #2
A 17 year-old-man worked in a rare metals refining plant. One day he was inadvertently splashed with liquid zirconium chloride over the face, neck, and hands. He immediately washed the areas but required admission to the hospital for 2 days of treatment. He was able to return to work 22 days later.

One year later, examination of the face shows well-demarcated areas of depigmentation, with narrow collars of hyperpigmentation around the depigmented areas. The hands and arms have irregular areas of depigmentation as well.

Diagnosis: chemical leukoderma after zirconium chloride burn.

The areas are hypersensitive to cold, heat, pinprick, and touch. They sunburn easily which occasionally requires treatment. They sting and burn when the patient works near a furnace or kiln. He is embarrassed about his appearance and avoids many social activities.

How would you rate this patient?
Answer: Using AMA Guides, Table 1, p. 232:
Class II Impairment (10 – 20% whole person rating)
- Signs and symptoms of a skin disorder are present, and
- Intermittent treatment is required, and
- Limitation in performance of some activities of daily living.
- Examples:
  - Atopic dermatitis - Contact dermatitis
  - Persistent photodermatitis aggravated by UV light
  - Leukoderma after chemical burn (zirconium chloride)
- This patient may also be a candidate for supportive psychological therapy which may or may not include a mental impairment rating.

Workshop Case #3
A 45 year old man has a persistent pruritic skin rash involving his ankles, forearms, hands, face, and neck. These areas are excoriated and lichenified. He has recurrent pyogenic infections with swollen and tender regional lymph nodes.
The patient previously worked in a greenhouse. Activities included planting, weeding, watering, fertilizing, and spraying with pesticides and fungicides. These chemicals were primary irritants, and the patient’s dermatitis responded to topical treatment and avoidance. However, his condition would flare with re-exposure to irritants.

A skin biopsy was performed to evaluate the rash:
- Epidermal thickening (acanthosis) and hyperplasia
- Hyperkeratosis/ parakeratosis
- Slight thickening of the papillary dermis with coarse collagen fibers and a lymphoid inflammatory cell infiltrate.

Eventually, the condition persisted, and the pruritus flared with nonspecific triggers such as heat, sweating, and stress.
The patient has developed neurodermatitis – an "itch-scratch" syndrome also known as lichen simplex chronicus.

Diagnosis: persistent neurodermatitis secondary to occupational contact dermatitis.

He has not worked in a plant nursery for the past 3 years and does not tolerate other physical work since his dermatitis flares. At home, he cannot help with household chores, and no longer participates in social and recreational activities. He requires almost continuous treatment due to flare-ups.
How would you rate this patient?

*Answer:* Using AMA Guides, Table 1, p. 232:
Class 3 Impairment (25-50% whole person rating)
- Signs and symptoms of a skin disorder are present, and
- Continuous treatment is required, and
- There is limitation in the performance of many activities of daily living.
- Example: Occupational irritant or allergic dermatitis with secondary neurodermatitis
- Patient may also be a candidate for supportive psychological therapy which may or may not include a mental impairment rating.
Rule 13  Provider Accreditation

13-1  STATEMENT OF BASIS AND PURPOSE

(A) This rule implements and establishes procedures for the provider accreditation program set forth in § 8-42-101(3.5) and (3.6), C.R.S., as well educates the providers about their administrative, legal, and medical roles in the Colorado workers’ compensation system. Accreditation requirements shall apply to:

(1) Providers who seek Level I or Level II accreditation under § 8-42-101(3.5) and (3.6), C.R.S.;

(2) Physicians providing permanent impairment evaluations of claimants; and

(3) Physicians serving on the Division Independent Medical Examination Panel.

13-2  ACCREDITATION

(A) To obtain Level I Accreditation, a provider must:

(1) Qualify under § 8-42-101(3.5), C.R.S.;

(2) Complete an application form prescribed by the Division and pay the registration fee;

(3) Complete the Division Level I course;

(4) Demonstrate an understanding of the Division materials by passing a Division-administered examination. If the provider does not exhibit sufficient knowledge upon taking the examination a second time, he or she must attend the seminar again prior to any further attempts at the examination. Additional fees may apply.

(5) Agree to comply with all relevant statutes, Division rules, and all Division-issued guidance (including materials incorporated by reference);

(6) The accreditation begins on the date the provider passes the examination. The accreditation expires on July 31st of the third year following the year the provider passed the examination.

(B) To obtain Level II Accreditation, a physician must:
(1) Receive Level I accreditation. However, a physician who received his/her initial Level II accreditation before January 1, 2018 is exempt from this requirement.

(2) Qualify under § 8-42-101(3.5), C.R.S.;

(3) Complete an application form prescribed by the Division, pay the registration fee, and indicate if full or limited accreditation is sought;

(4) Complete the Division Level II course;

(5) Demonstrate an understanding of the Division materials (including the American Medical Association Guides to the Evaluation of Permanent Impairment, as incorporated by reference into § 8-42-101(3)(a)(I), C.R.S. ('AMA Guides')) by passing a Division-administered examination. If the provider does not exhibit sufficient knowledge upon taking the examination a second time, he or she must attend the seminar again prior to any further attempts at the examination. Additional fees may apply.

(i) Full Accreditation: A physician who passes the full Level II Accreditation examination shall be fully accredited to determine permanent impairment ratings on any work-related injury or illness.

(ii) Limited Accreditation: A physician who seeks Level II Accreditation to rate impairment only in connection with a specialty medical practice and who satisfactorily completes specified portions of the Level II examination shall receive limited accreditation to determine permanent impairment ratings on the corresponding sections of the AMA Guides.

(6) Agree to comply with all relevant statutes, Division rules, and all Division-issued guidance (including materials incorporated by reference).

(7) Submit his/her first three (3) impairment rating reports deemed sufficient by the Division within 12 months of passing the Level II accreditation examination; and

(8) Agree to the probationary one-year Level II accreditation period beginning on the date the physician passes the Level II accreditation examination. The probationary accreditation will expire if the physician fails to submit three (3) impairment rating reports deemed sufficient by the Division within one year of the examination. Non-probationary accreditation begins on the date the physician submits his/her first three (3) impairment rating reports deemed sufficient by the Division. The non-probationary accreditation expires on January 31ST of the third calendar year following the year the physician successfully completed the Level II Accreditation examination.

13-3 RENEWAL OF ACCREDITATION

(A) The Division will attempt to notify accredited providers of impending expiration of their accreditation.
(B) A provider who does not renew his or her accreditation before the expiration date may reapply and complete the process for initial accreditation under section 13-2.

(C) To renew accreditation, a provider must:

1. Qualify under § 8-42-101(3.5), C.R.S.;

2. Complete an application form prescribed by the Division, pay the registration fee, and, for Level II accreditation, indicate if full or limited reaccreditation is sought;

3. Complete the Division course requirements for the highest level of accreditation maintained;

4. Agree to comply with all relevant statutes and Division rules; and

5. For Level II reaccreditation only, submit one impairment rating report deemed sufficient by the Division (which may be a Division Independent Medical Examination report) for audit. The purpose of providing an impairment report is to demonstrate an understanding of the requirements of a sufficient impairment rating report; to educate and provide feedback to the physician; and to assist the Division in examining its curriculum. Any correspondence or communication regarding this process is confidential and shall not be subject to discovery or examination by any person.

13-4 SANCTIONS UPON ACCREDITATION

(A) The Director, with input from the Medical Director, may initiate proceedings to sanction a Level I or Level II Accreditation on any of the following grounds:

1. Refusal to comply, substantial failure to comply, or two or more incidents of failure to comply with the provisions of these Workers’ Compensation Rules of Procedure and all relevant statutes.

2. Misrepresentation on the application for accreditation, or

3. A unanimous recommendation to revoke accreditation by a reviewing panel pursuant to § 8-43-501(3)(c)(III) and (4), C.R.S..

(B) The severity of any sanctions taken under these rules shall reflect the character of the failure and the attendant circumstances. Examples of sanctions include, but are not limited to, a suspension or a revocation of accreditation.

(C) A proceeding to sanction a Level I or Level II Accreditation may be initiated by the Director, with input from the Medical Director, with referral for a hearing before an administrative law judge.

(D) Following a hearing, the administrative law judge shall render proposed findings of fact and conclusions of law, and make recommendations to the Director, who shall enter an order in the case.
Physician Education and Support (PES)

The Division offers a service to all DIME Panel Members to make the DIME process easier for the physicians and their staff.

DIME physicians are assigned to a personal PES representative who will provide a smooth transition into the DIME Panel. Your PES representative will assist you and your staff to answer any administrative questions about DIME cases.

The program also offers a Medical Reviewer to assist with any medical or impairment-related questions.

General Information

Phone: 303-318-8655
Fax: 303-318-8659
633 17th Street Suite 400
Denver, CO 80202
imeunit@state.co.us
www.colorado.gov/cdle/dwc

WHAT IS THE DIVISION OF WORKERS’ COMPENSATION INDEPENDENT MEDICAL EXAMINATIONS (DIME) PROGRAM?

If a dispute concerning Maximum Medical Improvement (MMI) or impairment rating occurs in a workers’ compensation claim, any party may request a second opinion from a physician unassociated with the claim. Parties have the opportunity to agree upon a physician to complete the exam; however, if the parties cannot agree the Division of Workers’ Compensation will select from a panel of DIME physicians.

Following the exam, the DIME physician will issue a report on their findings. The DIME physician’s opinion can only be overturned by clear and convincing evidence before an administrative law judge, and parties may not go to hearing until the DIME physician has issued a final report.

The Division reviews DIME physicians’ reports to ensure that they are complete and adhere to the basic principles taught in the Level II accreditation curriculum and the AMA Guides, 3rd Ed. (rev.).

Contact us today to begin your application process!
Why Become a DIME Physician?

- Provide a valuable service to the citizens of Colorado by protecting the integrity of our workers’ compensation system.
- Reduce litigation costs for employers and injured workers.
- Elevate your status as a respected expert in the workers’ compensation community.
- Review a case from start to finish.
- Potential for new business! The fee to obtain a DIME is paid directly to the physician.
- Your opinion is final and can only be overturned by clear and convincing evidence.

Requirements to Become a DIME Physician:

- Current, active and unrestricted license, by the Colorado licensing board
- Certified/board eligible in an area of specialty
- Perform 384 hours of direct patient care per year
- Level II Accredited

If all of these apply, then call today to join!

Other Opportunities:

- Serve as a taskforce member for Colorado's nationally renowned Medical Treatment Guidelines.
- Serve as an educator for many organizations and professions impacted by the workers’ compensation system
- Serve on the instructor panel for the Division’s Accreditation Seminars
- Become a member of the Utilization Review panel and much more!

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