

Ono V, Nakamura R et al. Epicondylitis among cooks in nursery schools. Occup Environ Med 1998;55:172-179.

Design: Cross-sectional study

Population/sample size/setting:

- 209 female nursery school cooks (mean age 49.6) and 366 female non-cooks (mean age 48.3), employed in the public welfare department in the Aichi Prefecture in Japan
- Non-cooks consisted of nursing assistants, nurses for the aged, home care service workers, nursery workers for the handicapped, and handywomen

Main outcome measures:

- Exposures were measured by a questionnaire with items for self-estimated job physical stressors, workload, psychological stressors, and non-work activities
- Outcomes were assessed by an occupational health physician who was unaware of the occupations of the subjects
- Epicondylitis was diagnosed based on tenderness of the medial and lateral epicondyles and on epicondylar pain provoked by resisted extension and flexion of the elbow with the elbow extended
- The 17 variables in the questionnaire were grouped into three job stress (JS) factors based on factor analysis: JS1 was psychological (difficult relations at work, unplanned work, role ambiguity in the workplace, lack of discussion of work problems, etc): JS2 was mechanical overload (frequent lifting and handling of objects, static work posture, repetitive work, too much work, too many different tasks) and JS3 was the amount of work (too much work, too many different tasks, too much responsibility, time pressures, shortage of staff)
- 24 cooks and 9 non-cooks had either lateral or medial epicondylitis
- Lateral and medial epicondylitis were more common among the cooks than in the non-cooks (odds ratio 5.4 in a model that adjusted for age, body length, and BMI)
- More cooks than non-cooks reported mechanical workload problems such as static work posture, repetitive work, too much work, too many different tasks, and great time pressures
- BMI was not associated with epicondylitis
- In a logistic regression model that had age, body length, BMI, and the three JS factors, JS2 (mechanical overload) was significantly related to epicondylitis (OR=1.7), and JS1 (psychological) had an OR of 1.2

Authors' conclusions:

- Nursery school cooks had a higher prevalence of epicondylitis than non-cooks
- The cooks had a higher prevalence of self-reported job stressors such as static work posture and frequent repetitive work
- Mechanical overload and psychological factors may be risk factors for epicondylitis

- Certain biases may have been present in the study, including differential reporting of work stressors by persons with epicondylitis, multiple statistical testing, and misclassification of exposure and outcome

Comments:

- The odds ratios for the job stressor factors (JS1, JS2, and JS3) do not have a straightforward interpretation, since they are derived from factor analysis and do not have meaningful units
- However, JS2, the mechanical overload factor, had the highest factor loadings for frequent repetitive work and static work posture; the factor loadings for too much work and too many different tasks are lower, and are correlated with the other variables (this is how they come to be loaded on the same factor)
- The regression reported in Table 7 has six variables: age, body length, BMI, and the three JS factors
- Since there are only 33 epicondylitis cases in the study sample, and since logistic regression models preferably have ten cases per variable, there are probably too many variables in the logistic model
- There was no reason to include both body length and BMI in any model, since body length is part of the definition of BMI
- While there may have been some misclassification of outcome, if the examiner was unaware of the job activities of the workers, this would reduce some of the potential for bias
- Because the setting is preparing of nursery school lunch meals, the number of hours per day is difficult to estimate and is not reported, but is unlikely to be eight hours

Assessment: Adequate for an evidence statement that medial and lateral epicondylitis are associated with repetition and static posture