

# Level II:

WIC Certification Program



## Preschool Module

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# Objectives of the Preschool Nutrition Module

After completing this module, the learner will be able to:

1. Identify why it is important to develop positive eating habits in children.
2. Recognize at least seven tips which can help parents foster the development of their child's healthy eating habits.
3. Explain what to do about eating behavior issues that are common during the preschool years including: introducing new foods, disliking foods, refusing to eat, playing with food, and "food jags."
4. State why serving sizes are smaller for young children than for adults, and explain why it is important to offer small amounts of a variety of foods at each meal.
5. Recognize the following components of each of the food groups as it applies to children, ages 1 through 5 years:
  - Foods contained within each food group
  - Some favorite foods of young children within each food group
  - Nutrients provided by each food group
  - Number of servings needed each day for children 1 through 5 years old to meet the nutritional needs of this age group.
6. Identify foods not recommended for young children because of choking risk.
7. Explain the important role snacks play in the diet of a young child.
8. Identify ways to prevent and/or treat common nutritional concerns for preschool children including overweight, iron-deficiency anemia, dental caries and inappropriate nutrition practices.

## Section I: Eating Behavior

### Goals of Good Nutrition

For purposes of this module, preschool age is considered 1 to 5 years of age. During these years, young children go through many changes which can influence the amount of food they eat, the way they eat, and their food preferences.

The diets of young children are influenced by their growth rate, their physical maturity and development, and their personality. During these early years, many lifelong food habits, food preferences, and food dislikes are established. Parents, caregivers, other family members, and the eating environment help shape the child's attitude and behavior toward food.

The goals of good nutrition for the preschool child are based not only on his/her physical development, but also on all aspects of the child's development. The following list represents the goals of adequate food and nutrition for the developing child. The nutrients in food and the eating process should help the child to:

- Attain optimal physical and mental growth
- Resist infection and disease
- Form good eating habits
- Develop motor skills
- Grow intellectually and mature psychologically
- Learn to socialize with others

"A healthy feeding relationship between parent and child increases the child's chances of being well-nourished in the long term, and of having healthy attitudes about eating, about himself or herself, and about the world." *Ellyn Satter, RD, MS, MSSW Child of Mine. 1991*

## Developmental Snapshot of the Preschooler

Story, M. Holt, K. Sofka D. eds. 2000. *Bright Futures in Practice: Nutrition* Arlington, VA: National Center for Education in Maternal and Child Health. Information found on pages 3, 4, 5, 6, 11 and 12 of this module was adopted from this resource. This tool provides the following summary of the abilities of the preschooler as he/she grows.

### 1 to 1½ Years

- The child will grasp and release foods with his fingers.
- He will be able to hold a spoon but won't be able to use it very well.
- He will be able to turn a spoon in his mouth.
- He will be able to use a cup but will have difficulty letting go of it.
- He will want food that others are eating.

### 1½ to 2 Years

- The child will eat less.
- She will like to eat with her hands.
- She will like trying foods of various textures.
- She will like routine.
- She will have favorite foods.
- She will get distracted easily.

### 2 to 3 Years

- The child will be able to hold a glass.
- He will be able to place a spoon straight into his mouth.
- He will spill a lot.
- He will be able to chew more foods.
- He will have definite likes and dislikes.
- He will insist on doing things himself.
- He will like routine.
- He will dawdle during meals.
- He will have food jags (when he wants to eat only a particular food).
- He will demand foods in certain shapes.
- He will like to help in the kitchen.

### 3 to 4 Years

- The child will be able to hold a cup by its handle.
- She will be able to pour liquids from a small pitcher.
- She will be able to use a fork.
- She will be able to chew most foods.
- She will have increased appetite and interest in foods.
- She will request favorite foods.
- She will like foods in various shapes and colors.
- She will choose which foods to eat.
- She will be influenced by television.
- She will like to imitate the cook.

### 4 to 5 Years

- The child will be able to use a knife and fork.
- He will be able to use a cup well.
- He will have increased ability to feed himself.
- He will be more interested in talking than in eating.
- He will continue to have food jags.
- He can be motivated to eat (for example, by being told "You'll grow up to be tall like your father").
- He will like to help prepare food.
- He will be interested in where food comes from.
- Peers will increasingly influence him.

## Development of Food Habits

Food habits are learned. Learning to develop positive eating habits and attitudes early on can shape food choices later in life and nutrition status throughout a lifetime. For this reason, it is important for WIC staff to convey to caregivers the benefits of establishing healthy eating habits for preschool-age children.

After the first year of life, the growth rate slows, yet there is a steady increase in body size. Along with the reduction in growth rate comes a decrease in appetite and an increased need for vitamins and minerals. The child's total energy requirements (per pound) are less than during the first year, and his/her appetite decreases. WIC staff can reassure the caregiver that this change in appetite is normal.

Normal nutrition for the older preschool child should provide adequate and varied nutrition for optimal growth and development. The continued slowing of growth velocity, the maturation of fine and oral motor skills, and the development of independence affect diet and feeding.

As children develop and mature, they may go through stages when they refuse certain foods, or request a limited variety of foods. If these situations are not handled appropriately, serious eating problems can develop.

It is in the family that children learn cultural food patterns, what foods are desirable, how these foods are to be eaten, and the rules of conduct while eating. Mealtime is a time for socialization with the family. Children observe the family members and imitate their attitudes toward food.

Parents, as well as caregivers, should be encouraged to prepare a wide variety of foods to provide the children with an opportunity to learn to like them. When introducing new foods, offer them one at a time and serve them with another well-liked food. Furthermore, children may need repeated exposure, possibly 8-12 times, to a new food before he or she takes the first bite. For children to develop the tastes to eat a variety of foods, repeated tastes should be offered.

### Caregivers can teach children healthy eating behaviors by:

- Being a positive role model and practicing healthy eating behaviors themselves.
- Eating meals together as a family.
- Understanding that children will like or dislike certain foods.

"Children use the table as a stage for showing their independence. Sometimes, food isn't the issue at all. The eating process is just one more way children learn about the world."

"Well-meaning parents, grandparents, and caregivers often think the worst of a child who skips a meal or won't eat any vegetables. Keep the big picture in mind. Offer healthful, nourishing meals on a daily basis. Over time, children will get everything they need to grow and develop normally. Plenty of variety and a relaxed, happy atmosphere at mealtime are the ingredients for a well-fed child."

Academy of Nutrition and Dietetics  
Pamphlet, excerpts  
"Feeding Kids Right Isn't Always Easy."  
Revised 1996

- Letting their child decide whether to eat and how much.
- Offering a variety of healthy foods, and encouraging their child to try different ones.
- Letting their child participate in food shopping and meal preparation.
- Teaching their child where foods come from and how foods are grown (for example, plant a garden or visit a farm, orchard, or farmer's market).
- Not using food to reward, bribe, or punish their child.

The eating environment must be comfortable and relaxed for children to develop healthy eating habits. Mealtime can be uncomfortable if the preschoolers are not seated properly and securely, the utensils are inappropriate, or the surroundings are unpleasant.

### Creating a Positive Eating Environment

The following conditions will provide a positive environment for the child to enjoy meals and form lifelong healthy eating habits:

- Use the child's favorite plate, bowl, cup, and eating utensils.
  - Plates and bowls: Sturdy and durable; "child-sized," with a lip that the child can use to push food against.
  - Spoons and forks: Small handle that fits easily in the child's hand, small blunt tips on spoons and forks; increase the size of utensils as the child develops.
  - Cups and glasses: Small enough to be easily grasped by the child yet sturdy enough to sit firmly on the table; unbreakable. Use cups with regular rims rather than "sippy" cups and straws which do not teach the child to form their mouth on the rim of a cup or glass.
  - Chair: One that won't tip and is positioned so that food can be easily reached.
- Serve meals and snacks on a predictable but flexible schedule.
- Let the child decide whether to eat and how much.
- Be patient and understanding if the child makes a mess while he/she learns to feed herself.
- Resist the temptation to prepare a different meal if the child chooses not to eat.
- Give the child the opportunity to share the events of the day.
- Praise the child for trying new foods and for practicing appropriate behavior at the table.
- Create a relaxed setting for meals. Put stresses of the day aside.
- Do not insist that the child eat all the foods on her plate before dessert. Consider serving dessert with the meal.

### Common Questions & Answers

**Q:** *"How can you get a child to eat a healthy diet when the parents don't have good eating habits?"*

**A:** It can be difficult to address feeding issues when parents themselves have poor eating habits. It is difficult for parents to teach when they do not practice. Actions do speak louder than words.

The situation may be an opportunity to improve the dietary habits of the entire family. Use the child's health as a motivator. Some parents may make small changes in their own diet if they think it will help their child to be healthier. They may agree to eat one vegetable at dinner if it will encourage their child to do the same. Suggest to a pregnant mom that she learn to eat a variety of foods if she later wants her child to eat a variety of foods. Pregnancy is a time when many women are highly motivated to change for the sake of their baby's health.

Parents often worry about children overeating unhealthy treats, so they often hide them or put them on a high shelf where they cannot access them. This can encourage eating problems, as restricting foods can make children want the food more. Encourage parents not to bring foods into the house that they need to restrict, but to buy and provide healthy snacks and give children access to these foods.

If parents are unwilling to make any dietary changes then the situation is more difficult. Parents have to work harder in other ways to make up for their lack of example.

- A positive attitude about food is important. Vegetables are not "yucky." Instead they are "cool" and will help you grow big and strong.
- Parents can use examples outside of the family. TV ads for milk (the mustache commercials) are great examples. Even an older sibling or popular neighbor can be used as an example, "Sarah eats breakfast every day before school."
- Coercion and "preaching" about food must be avoided. How many of us still won't eat a certain food because it was forced upon us?
- Create an interest in foods. Think of how Popeye cartoons were created to get kids to eat spinach. Reading books with vegetables as characters or allowing a child to make garnishes with healthy foods may help to build interest.
- Help a child develop "ownership" of certain foods. Assigning the child the "important" task of planning a nutritious snack for the family may help.

While example is the best teacher, it is not always available. Parents who want their kids to eat well need to consider making at least small changes in their own diets. Other strategies require a positive attitude and a display of interest by the parents.

### **Food Issues**

Food issues during the preschool years are a common part of the maturation process. Parents and other caregivers must be encouraged to deal with the problems appropriately to avoid making mealtime an unpleasant situation for all. In general, caregivers should ignore negative behaviors and reinforce positive behaviors. The following pages take common concerns parents bring up in WIC clinics and offer messages WIC staff can share with caregivers.

## Common Questions and Answers

**Q:** *My 2-year-old's appetite has changed. Should I be worried?*

**A:** Children grow more slowly from ages 1-5 than they do during their first 12 months of life. Young children's appetites are usually smaller than those of babies. Children's appetites change a lot from day to day, even from meal to meal. If your child is energetic and growing, he is probably eating enough.

**Q:** *How much should I feed my child?*

**A:** Children usually eat small portions. Offer small portions, and let your child ask for more if she is still hungry. The amount of food from each food group depends on the age, gender, and level of physical activity of the child. Please see the "Nutritional Recommendations" section for more information on portions and recommended servings.

**Q:** *My child sometimes lingers during meals without eating. What can I do?*

**A:** It is normal for children to lose interest in an activity, including eating, after a short time. They are also easily distracted. Try to reduce distractions (for example, television) during meals and snacks. Refrain from making a "scene." Explain that you will remove the food when the child is finished. Once the food is removed, there is no more until the next snack or meal. Routines are important to children and grazing throughout the day can reduce their appetite for the next meal. Serve scheduled meals and snacks.

**Q:** *What can I do about my picky eater?*

**A:** It is a common complaint to hear about children being picky eaters and not wanting to eat what the rest of the family eats. Children are naturally "neophobic" (they do not like new foods at first exposure). Children learn to like foods that are repeatedly offered. When a child rejects a food or all foods offered at a meal, the parent should accept the rejection, without offering to make a different meal for the child. To react or try to force the child to consume food is a way to guarantee that the child is not likely to change their eating behavior any time soon. The child should be asked to sit at the table and keep the family company until the end of the meal.

Look at your child's eating over time rather than at each meal. If your child is energetic and growing, he is probably eating enough. Offer your child food choices and let him decide. Continue to serve a new food even if your child has rejected it (may take multiple exposures to accept the new food). Let your child participate in food shopping and preparation. Do not use food to reward, bribe, or punish your child.

**Q:** *How should I handle food struggles with my child?*

**A:** Your child may struggle with you over food in an attempt to make decisions and become independent. Do not struggle with your child over food. Struggling over food may make her even more determined. Let your child decide whether to eat and how much.

**Q:** *My child wants to eat only peanut butter sandwiches. What should I do?*

**A:** Food jags in children (when children want to eat only a particular food) are common. Offer smaller servings of the favored food, along with other foods to ensure that your child eats a variety of foods. Jags rarely last long enough to be harmful. If your child is energetic and growing, he is probably eating enough.

**Q:** *How can I get my child to try new foods?*

**A:** Offer small portions of new foods – perhaps 1 or 2 tablespoons – and let your child ask for more. Introduce only one new food at a time. Allow plenty of time for the child to look at and examine the food. Encourage your child to try a new food, but don't force her to eat it. She probably won't try new foods if she is tired, irritable, or sick. Continue to serve a new food even if your child has rejected it. It may take several times before she accepts the food.

Serve your child's favorite foods along with new foods. She may be more willing to try new foods if her favorites are on her plate. Be a positive role model – eat new foods yourself. Introduce a new food in a neutral manner. Talk about the food's color, shape, size, aroma, and texture, but don't talk about whether it tastes good. Make trying new foods appealing by involving your child in shopping and preparing the food.

Be creative. For example, cut foods into various shapes using cookie cutters and create fun names for foods (for example, "little trees" for broccoli).

**Q:** *How should I handle my child when he rejects a new food?*

**A:** Refrain from making an issue of the child's rejection. Remember it may take multiple exposures before he accepts the food. Try combining the food with other favorite foods. Prepare the food different ways (separately, raw, cooked, in a soup, etc.). Offer small servings of the food.

Allow children to have a few dislikes, as most adults do too.

*SELF-CHECK: PRACTICE YOUR KNOWLEDGE*

The following begins a series of Self-Checks that occur throughout this module. As you come to each Self-Check, complete it right away. The answers are located at the end of the Self-Check.

1. In the list below, put a check mark (✓) by the following phrases which are desirable qualities of eating utensils for young children:

- Small, blunt-tipped spoons and forks
- Sturdy, durable dishes
- Plates and bowls with a “lip”
- Small, unbreakable cups and glasses

Read the following statements concerning the development of food habits in young children. Place a “T” (for True) or an “F” (for False) in the space to the left of each of the following statements:

- 2.  Food habits acquired at an early age may influence later nutritional status.
- 3.  Food habits are inherited not learned.
- 4.  Children tend to imitate the eating habits of their parents.
- 5.  Don’t force children to eat; healthy children will eat when they are hungry.
- 6.  Children should be offered a variety of foods.

Circle the letter of the phrase(s) that correctly complete(s) the following statements. There may be more than one correct choice.

7. When introducing new food(s):
- a. Serve the new food several times even if it was rejected previously.
  - b. Give the child a large serving so he or she can taste it several times during the meal.
  - c. Serve the food with another, well-liked food.
  - d. Instruct the child to eat all of it.
  - e. Be a positive role model—eat new foods yourself.
8. If a child dislikes a certain food, some possible alternatives are:
- a. Prepare it a different way
  - b. Serve only a small amount
  - c. Combine the disliked food with some of his/her favorite foods.

9. When a child occasionally refuses to eat:
  - a. Tell the child there will be no dessert unless his/her plate is clean.
  - b. Do not struggle with the child – let the child decide whether to eat and how much.
  - c. Punish the child.
  
10. If a child goes on a “food jag” (requesting one food often):
  - a. Allow the child to have smaller servings of the favored food.
  - b. Offer other foods to ensure the child eats a variety of foods.
  - c. Refuse to give it to the child

*ANSWERS*

1. You should have checked all four phrases.
2. True
3. False
4. True
5. True
6. True
7. a, c, e
8. a, b, c
9. b
10. a, b

## Section II: Nutritional Recommendations

Children have specific nutritional needs in order to obtain optimal growth and development. Because no single food provides all the necessary nutrients and minerals for growth, it is important that children eat a variety of healthy foods daily.

### What Foods Should A Child Eat Daily?

In the Colorado WIC Program we have the *Nutrition Guide for Children Age 1 to 5* as an education tool. The Nutrition Guide is made up of five food groups: Milk, Meat, Vegetable, Fruit, and Grain Group. The foods in each of these groups are good sources of vitamins and minerals. Each food group has a recommended amount per day to eat. The amounts given are suggested and younger children may eat smaller amounts, but more frequently; an older child needs larger servings, but less often. If parents want to know exactly how much their child needs from each food group, refer them to the interactive website [www.ChooseMyPlate.gov](http://www.ChooseMyPlate.gov). For children eating less than the amount listed on the Nutrition Guide, discuss ways parents can incorporate these foods into their diet.

### A Word about Serving Sizes

Serving sizes are smaller for young children than for adults and they are usually about one-half the size of an adult portion. Children have small stomachs and will “fill up” faster with smaller amounts of food. In order to ensure that children obtain all the nutrients they need to grow and stay healthy, it is important to serve small amounts of a variety of foods at each meal. If given an adult-sized serving, such as an eight-ounce glass of milk, the child may “fill up,” losing his/her appetite for the other foods.

# Children's Nutrition Guide

## for children 1 – 5 years old

Food Group	Amount per day*	What counts as 1 cup or 1 ounce	EXAMPLES
 <b>VEGETABLE</b>	1 – 1½ cups	What counts as 1 cup: 1 cup raw, cooked, or canned 1 cup vegetable juice 2 cups raw leafy vegetables  Typical serving size: ¼ cup	<p><b>Vary your veggies</b></p> <p>Dark Green: Broccoli, Brussels sprouts, leaf lettuce, spinach                      Orange: Carrots, sweet potatoes, pumpkin, squash (acorn or butternut)                      Starchy: Potatoes, yams, and corn                      Other: Eggplant, tomatoes, peppers, mushrooms, onions, cauliflower, cabbage, greens beans, zucchini</p> <p><b>Nutrition Tip:</b> Eat dark green and orange vegetables every day. Try fresh, frozen, or canned vegetables.</p>
 <b>FRUIT</b>	1 – 1½ cups	What counts as 1 cup: 1 cup raw or 1 small piece 1 cup canned 1 cup 100% juice ½ cup dried fruit  Typical serving size: ¼ cup	<p><b>Focus on fruits</b></p> <p>Oranges, grapefruit, citrus juices, melons, berries</p> <p>Apples, bananas, pears, plums, grapes, pineapple, peaches, apricots, applesauce, 100% juice, raisins, other dried fruit**</p> <p><b>Nutrition Tip:</b> Encourage whole fruit instead of juice, and serve fresh fruit that is in season.</p>
 <b>MILK</b>	2 cups	What counts as 1 cup: 1 cup milk or yogurt 1½ oz cheese 1 cup pudding 2 cups cottage cheese  Typical serving size: ½ cup (4oz milk)	<p><b><u>Get your calcium-rich foods</u></b></p> <p>Milk, yogurt, cheese, cottage cheese                      Milk-based soups, pudding, ice milk, frozen yogurt</p> <p><b>Nutrition Tip:</b> Serve whole milk to 1 year olds, but switch to fat-free (skim) or low-fat (1%) milk after your child turns 2.</p>
 <b>GRAIN</b>	3 – 5 ounces	What counts as 1 ounce: 1 slice bread or 6" tortilla 1 cup ready-to-eat cereal ½ cup cooked rice, pasta, or cereal 5 to 7 crackers  Typical serving size: ½ oz	<p><b><u>Make half your grains whole</u></b></p> <p>100% whole grain bread, cereal, crackers, and pasta                      Rice, noodles, tortillas, oatmeal, bagels, English muffins, popcorn**</p> <p><b>Nutrition Tip:</b> Just because bread is brown doesn't mean it's whole grain. Look for the words "whole wheat" or "whole grain" before the first ingredient, or "100% whole" grain or wheat on the label.</p>
 <b>MEAT</b>	2 – 4 ounces	What counts as 1 ounce: 1 oz meat, poultry, or fish ¼ cup cooked beans or peas 1 egg 1 Tbsp peanut butter or ½ oz nuts  Typical serving size: 1 – 2 oz	<p><b>Go lean with protein</b></p> <p>Lean beef, pork, chicken, or turkey                      Fish including canned salmon and tuna (limit canned tuna to 6oz/week)                      Split peas, pinto beans, black beans, kidney beans, lentils, other beans                      Eggs, peanut butter, nuts, seeds**</p> <p><b>Nutrition Tip:</b> Peanut butter sticks to the mouth and may be hard to swallow. Do not let your child eat peanut butter from a spoon. Instead, spread it thinly on bread, crackers, or toast.</p>

\*Younger children typically eat toward the lower end of the range. Serving size increases with age or activity level.

\*\*Children 1-4 years old should not be given foods that may cause choking. Do not give hard candy, nuts, seeds, raisins, popcorn, whole grapes, corn chips, fruit with pits, and raw vegetables like carrots. Cut foods such as hot dogs and carrots into short strips, and cut grapes into 4 pieces.

The following is a further discussion of the different food groups as they apply to children ages 1 to 5 years of age.

### Milk Group

At least two cups (16 ounces) of milk or the equivalent amount of milk products are necessary each day for the preschool child (2 ½ cups for children ages 4-8). These dairy products provide calcium, protein, riboflavin (a B vitamin), vitamin B<sub>12</sub>, vitamin D, zinc, and other nutrients.

Milk and Milk Products	
Some Food Choices	Typical Serving Size for Children
Whole Milk	½ cup
Fat-Free (skim)* or Low fat (1%)* Milk	½ cup
Nonfat Powdered Milk*	3 tablespoons
Canned Evaporated Milk*	¼ cup
Cheese - Natural	1 ounce
Cheese - Processed	1 ounce
Ice Cream or Frozen Yogurt	¾ cup
Buttermilk*	½ cup
Yogurt	½ cup
Cottage Cheese	¾ cup

*\*Delay use of these products until child is 2 years of age. It is recommended that children 1-2 years old drink only whole milk to ensure adequate fat intake.*

Of course, drinking milk is not the only way for children to receive calcium in their diets. Some particular dairy favorites of young children are:

- Yogurt
- Milk
- Cheese Sticks
- Cottage Cheese
- Custards and Puddings

Although ice cream and ice milk do provide calcium, the amount of calcium is lower in comparison with other dairy products. Also, ice cream is high in both fat and sugar. An occasional serving of ice cream or ice milk is appropriate. Cream cheese is identified as a fat. It is a poor source of protein and calcium, and is not to be considered a member of the milk, yogurt, and cheese group.

Another way to get calcium in the diet is to add nonfat dry (powdered) milk to foods when cooking or baking. For example, add powdered milk to some of the child's favorite foods, like meatloaf, oatmeal, and cookies.

For children who won't drink milk, there are other suggestions to offer, such as:

- Serve other calcium-rich foods such as broccoli, turnip greens, and tofu, if processed with calcium sulfate.
- Serve calcium-fortified foods (e.g., orange juice or cereals).
- Serve dairy foods for snacks, such as cheese, yogurt, and frozen yogurt.

*SELF-CHECK: PRACTICE YOUR KNOWLEDGE*

Fill in the blanks to correctly complete the statements:

1. Name at least two nutrients supplied by the milk, yogurt, and cheese group:

---

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2. A preschool child needs at least \_\_\_\_\_ cups of milk each day.

3. Two milk products, which may be substituted for fluid milk, are \_\_\_\_\_ and \_\_\_\_\_.

4. Serving sizes are \_\_\_\_\_ for young children than for adults.

*ANSWERS*

1. Any two of the following: Calcium, Protein, Riboflavin, Vitamin B<sub>12</sub>, Vitamin D, Zinc
2. Two
3. Any two of the following: yogurt, cheese, cottage cheese, custard, pudding, nonfat dry or evaporated whole milk (used in casseroles, soups, or alone)
4. Smaller or half the size

### Meat Group

Meat and meat alternatives, besides providing protein, provide iron, zinc, niacin (B vitamin), and other nutrients. Children need 2 – 4 ounces of protein-rich foods each day.

Meat	
Some Food Choices	Typical Serving Size for Children
Tuna Salad	¼ cup
Hot Dog*	1
Cooked Meat, Fish, and Poultry	1 ounce: ½ small hamburger ½ chicken leg ½ lean chop 1 slice meat
Egg	1
Nuts*	2 tablespoons
Seeds*	4 tablespoons
Sunflower	
Sesame	
Pumpkin	
Cooked Beans, Lentils, Dried Peas	½ cup
Peanut Butter*	2 tablespoons
Tofu	½ cup
<i>* These foods can cause choking in young children.</i>	

Remember that plant sources of protein, such as peanut butter or dried beans and peas, are nutritious, tasty, and economical.

Some protein-rich foods that are often popular with children are:

- Meatloaf
- Baked Chicken
- Bean Burrito
- Tuna Sandwiches
- Peanut Butter and celery

*SELF-CHECK: PRACTICE YOUR KNOWLEDGE*

Fill in the blanks to correctly complete the statements:

1. \_\_\_\_\_ ounces of protein-rich foods are needed each day for 1 to 5 year olds.
2. Name two plant sources of protein:
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
3. Name two nutrients that protein-rich foods provide:
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
4. Two protein-rich foods that are often popular with children are \_\_\_\_\_ and \_\_\_\_\_.

*ANSWERS*

1. 2-4
2. Peanut butter, dried beans and peas
3. Any two of the following: protein, zinc, iron, niacin (there are other acceptable answers not covered in this module).
4. Any two of the following: peanut butter, tuna, meatloaf, dried beans, hamburgers, chicken.

## Grain Group

Whole grain or enriched bread, rice, pasta, and cereal products contain thiamin, riboflavin, folate, and niacin (B vitamins), and iron. They also supply an inexpensive source of energy (calories). Whole grain products are preferable to enriched, and especially non-enriched products, as they have been minimally processed, so more nutrients remain in the product. Specifically, whole grain products contain many trace nutrients, as well as dietary fiber, which helps regulate digestion and elimination. Intakes above a child’s age plus 5 grams of fiber/day should be avoided for most children. Children over 3 years of age can safely consume their age plus 5 grams of fiber/day (e.g., a 3-year-old can safely consume 3 [age] + 5 grams = 8 grams of fiber/day). Children (1 -5 years old) need 3-5 ounces of grain products daily.

Bread, Cereal, Rice and Pasta Group	
Some Food Choices	Typical Serving Size for Children
Bread	½ slice
Tortilla (6")	½
English Muffin, Bagel	¼
Pancake/Waffle (5")	½
Roll, Muffin	½
Hot Dog/Hamburger Bun	¼
Cooked Hot Cereal	¼ cup
Cold Cereal	½ cup
Rice, Noodles, Pasta	¼ cup
Wheat Germ	2 tablespoons
Popped Corn*	¾ cup
Crackers	1 graham 5 animal or wheat
<i>* This food can cause choking in young children.</i>	

The bread, cereal, rice, and pasta group is generally well liked. A few of the popular choices of preschoolers are:

- Cereal
- Pancakes
- Bread
- Tortillas
- Crackers

However, a few words of caution regarding the bread, cereal, rice, and pasta group:

- Encourage the use of lightly- or non-sugared cereals.

- Limit sweet rolls, cookies, cakes, and other snack foods because they are excessively high in fat and sugar, compared to the other nutrients provided by them.
- Limit additions of butter, oils, and margarine to rice, pasta and bread.
- Use only small amounts of syrup and jelly on pancakes, waffles, or bread.

Adding sugars and fats to the grain foods modifies an otherwise nutritious grain food to a less nutrient dense food.

*SELF-CHECK: PRACTICE YOUR KNOWLEDGE*

1. Whole grain or enriched grain products in the diet are good sources of which of the following: (Circle all the correct answers.)

Vitamin C  
B Vitamins

Energy (Calories)  
Iron

Calcium

Fill in the blanks to accurately complete the statements.

2. \_\_\_\_\_, found in whole grain products, helps regulate digestion and elimination.
3. Children, age 1 to 5 need \_\_\_\_\_ ounces of grain products each day.
4. Name a favorite food for children from the grain group:

*ANSWERS*

1. You should have circled Iron, B Vitamins, and Energy (Calories).
2. Fiber regulates digestion and elimination.
3. 3-5 ounces of grain products are needed daily for 1 to 5 year olds.
4. Any of the following: cereal, pancakes, bread, tortillas or crackers

### Fruit Group and Vegetable Group

Fruits and vegetables are good sources of vitamins A and C. In addition, they provide vitamin E, folate, iron, and fiber. It is important to provide a variety of colors of fruit and vegetables to children to ensure adequate intake of fiber, vitamins and minerals.

A total of 1-1 ½ cups each of vegetables and fruits are the recommended daily amounts for the 1 to 5 year old:

- One serving of vegetables should be dark green.
- One serving of vegetables should be orange.
- The remaining vegetable servings can be from other vegetables
- Limit juice to 4-6 oz per day and serve 100% fruit juice.

<b>Typical Serving Size for Children</b>		
½ medium raw vegetable/fruit		¼ cup raw vegetables/fruits
¼ cup cooked vegetables		½ cup juice
(Exceptions to these serving sizes are indicated in parentheses after the foods in the following lists.)		
<u>Dark Green Vegetables</u> Broccoli Brussels Sprouts Collard Greens Spinach	<u>Orange Vegetables</u> Carrots Sweet Potatoes Pumpkin Squash	<u>Starchy Vegetables</u> Potatoes Yam (Taro) Corn*
<u>Other Vegetables</u>		
Avocado Bamboo Shoots Asparagus Beets Bok Choy Cabbage Eggplant	Okra Onion Peas* Squash Tomato Malanga (Tanier) Turnip	Zucchini Lettuce Mushrooms Yucca (Cassava) Cucumber Wax (Yellow) Beans Celery*
<u>Fruit</u>		
Apple Apricots Banana Cantaloupe (⅛) Cherries (Pitted)* Grape Juice	Grapes* Honey Dew Melon Mango (¼) Persimmons Papaya (¼) Peach	Pears Plantain Pineapple Raisins* Tangerine Watermelon
*These foods can cause choking in young children. Refer to the following section for more details on choking.		

Since children may prefer other foods to vegetables, careful preparation of vegetables is important. Children like bright colors and a variety of textures and shapes. Make vegetables appealing to children by serving them raw, or cutting them in different shapes, and not overcooking them.

However, some raw vegetables like raw carrots are not recommended because of possible choking. To minimize the possibility of choking on a food, it is recommended that young children eat cooked vegetables or tender-raw vegetables (such as dark green lettuce) and soft fresh fruits or canned fruits.

As mentioned before, parents should not overreact to a child's refusal to eat, or to his/her food dislikes. The child should be encouraged to try the vegetable again at a later date. Preparing the food in a different way may also improve the child's acceptance. Above all, parents should avoid using bribery to make their children eat vegetables.

Favorite vegetables and fruits of young children include the following: bananas, applesauce, peaches, or pears with yogurt or cottage cheese; orange or tangerine wedges (with seeds removed); cantaloupe and watermelon (with seeds removed); raw vegetables – broccoli, cauliflower, zucchini, cucumbers, etc., cut in different shapes and served with a dip; potatoes, vegetable soup; and well-cooked, but not mushy, vegetables. Serving spaghetti, lasagna, or other tomato-based casseroles is another way to get children to eat vegetables because of the tomato sauce.

Here are some other tips to get children to eat fruits and vegetables:

- Set a good example or be a role model for children by eating fruits and vegetables with meals and snacks.
- Depending on their age, children can help shop for, clean, peel, or cut up fruit and vegetables.
- While shopping, allow children to pick out a new fruit or vegetable to try later at home.

### **Vitamin and Mineral Supplementation**

Some caregivers may ask WIC staff if they should give their child a vitamin/mineral supplement.

Generally staff can let them know that if their child is growing well and eating a variety of healthy foods, a supplement is probably not needed. Staff should also recommend caregivers talk to their health care provider about the need for supplementation

### **An Important Message about Choking**

Many infants and children die each year from choking. Most choking-related deaths occur in children two years of age or younger. Inappropriate foods given to infants and young children, textures and shapes of some foods given, and lack of supervision during feeding have been cited as causes of food choking-related deaths.

Because children do not develop a full set of baby teeth until they are about 2 years of age, solid foods that require chewing should be modified by cooking and pureeing, mashing, finely chopping, or dicing to aid in chewing to help prevent blocking airways. Parents must also be cautious of choking hazards for children ages 2-5 years, as their rotary chewing motion continues to develop. Foods most often named as causing fatal choking are those that are round or cylindrical in shape or that have the ability to “ball up” in the airway because of their texture. Choking hazards for toddlers and preschooler-age children include:

Examples of such foods that might cause choking include:

- Whole hot dogs and other sausage-shaped meats
- Hot dogs or sausages sliced into rounds, like quarters
- Raw carrots, grapes and apple pieces
- Hot bread-type biscuits
- Peanut butter given alone or in sandwiches
- Popcorn
- Gum drops
- Nuts
- Seeds
- Beans, peas
- Chewing gum
- Round-shaped candies

**To prevent food-related choking:**

- Always supervise feeding of preschool-age children so you are aware of any difficulty they have in swallowing food. If a child is choking, he/she may not be able to make sound. A clear view of children’s faces while eating is an important prevention measure.
- Children should be relaxed and calm before eating and during meals.
- Children should be seated (not lying down) while eating and should not return to play until the meal or snack is eaten.
- Modify shapes and textures of the foods most likely to cause choking. For example, cut hot dogs and sausage-shaped meats into two or more lengthwise pieces first, and then into smaller pieces. Cut whole grapes in half. Chop raw vegetables into thin strips. Lightly mash cooked beans and peas.
- Moisten smooth peanut butter with juice, jelly, or applesauce. Another “safe” way to serve peanut butter is to spread a very thin layer of it on toast – it will melt on the toast.
- Beware of ingredients in foods which might cause choking, e.g., nuts in an oatmeal cookie.
- **Avoid letting children eat in the car.** Should a child choke in the car, the caregiver won’t be able to help as they are driving.

*SELF-CHECK: PRACTICE YOUR KNOWLEDGE*

Fill in the blanks for questions 1-4.

1. Vegetables and fruits are especially good sources of vitamins \_\_\_\_\_ and \_\_\_\_\_.
2. Certain raw vegetables and fruits, hot dogs, popcorn, nuts, and hard candies are among the list of foods that are not recommended for young children, as they might cause \_\_\_\_\_.
3. List two ways that certain foods can be changed or modified to prevent food-related choking in young children.

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4. Children 1-5 years of age need a total of at least \_\_\_\_\_ cups each of vegetables and fruits each day.

5. In the blank to the left of the sentence, put a "T" if the statement is true or "F" if it is false.

\_\_\_\_\_ Parents should force their children to eat their vegetables.

6. Name two tips to help children eat more fruits and vegetables.

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7. Who should parents talk to about vitamin and mineral supplementation needs of their child?

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*ANSWERS*

1. Vitamin A, Vitamin C
2. Choking
3. Any two of the following are correct: Solid foods that require a lot of chewing can be:
  - a) cooked,
  - b) pureed,
  - c) mashed,
  - d) finely chopped, or
  - e) diced;
  - f) cut hot dogs into two or more lengthwise pieces;

- g) moisten smooth peanut butter with juice or applesauce;
  - h) cut round-shaped foods such as raw carrots and grapes into small pieces.
4. 1 ½ cups
  5. False. Parents should not over-react to a child's refusal to eat or to his/her food dislikes.
  6. Tips to help children eat more fruits and vegetables: Caregivers act as a role model and eat fruits and vegetables themselves; have children help with shopping and preparation of vegetables; Try preparing fruits and vegetables in different ways.
  7. Their doctor

### Meal Planning for Young Children

Foods should be simply prepared. Avoid using added sugar (all types), spicy seasonings, and fat (such as butter, margarine, sour cream, mayonnaise, cream cheese and salad dressing). Meals should offer a variety of foods, not only for their different nutrients, but also to add interesting shapes, colors textures, and flavors.

The following is a sample meal pattern for young children. Study the meal pattern and familiarize yourself with the suggested food combinations that provide all the essential nutrients for children ages 1 to 5 years. Try to develop a menu with specific foods from this meal pattern.

<u>Sample Meal Pattern</u>		# of Servings
Breakfast	Fruit group	1
	Bread, cereal, rice, and pasta group	2
	Milk, yogurt, and cheese group	1-2
Snack	Milk, yogurt, and cheese group	1
	Bread, cereal, rice, and pasta group	1
	Fruit group or vegetable group	1
Noon Meal	Meat, poultry, fish, dry beans, eggs, and nuts group	1
	Vegetable group	1
	Fruit group	1
	Bread, cereal, rice, and pasta group	1
	Milk, yogurt, and cheese group	1
Snack	Milk, yogurt, and cheese group	1
	Bread, cereal, rice, and pasta group	1
Evening Meal	Meat, poultry, fish, dry beans, eggs, and nuts group	1
	Vegetable group	1
	Fruit group	1
	Bread, cereal, rice, and pasta group	1
	Milk, yogurt, and cheese group	1

### What Should Children Drink?

Children may not indicate when they are thirsty. Make sure to offer water often, especially between meals and snacks.

Children should consume about 2 cups (16 oz. total) of milk per day (2 ½ cups for children ages 4-8). Approximately what the child’s WIC food package provides. Drinking more than this may reduce the child’s appetite for other healthy foods.

Children between the ages of 1 and 2 years of age should drink whole milk. Older children can drink low fat (1%) or fat-free milk.

Offer juice in small amounts – 4 to 6 oz. per day. (Drinking more than this routinely can reduce the child’s appetite for other healthy foods.) Serve your child juice in a cup, not a bottle. Juice served in a bottle can cover the child’s teeth with sugar for long periods of time and contribute to early childhood caries.

Sports drinks, soda, and fruit drinks provide sugar, excess calories and few, if any, nutrients for young children. These extra calories can also reduce the child’s appetite for other foods. Sports drinks are not intended for young children. Teas should not be offered to preschoolers as they have no nutritive value and if consumed too often can interfere with iron absorption. Also, tea contains tannic acid that can stain a child’s teeth and interfere with iron absorption.

### **Foods Children Like**

Preschool-age children like simple meals, with the foods separated from each other. “Finger foods” – small, bite-sized pieces of food eaten with the fingers – are popular; they are easy for the child to handle and aid in coordinating self-feeding skills. Examples of some finger foods are: vegetable sticks, slices or sections of fruit, bread, crackers, meat strips, cheese cubes, ready-to-eat cereals, and hard-cooked egg. Also, bright colors and varied shapes of foods will catch and hold the child’s interest.

Children have sensitive taste buds; therefore, salt, sugar, pepper, and spicy seasonings should be used in moderation or not at all. If the rest of the family prefers highly seasoned food, advise the parent to dish up the young child’s food before adding more seasoning.

If the above principles of food preparation are observed, children are more likely to enjoy learning to eat a variety of nutritious foods.

<b>Children are excellent judges of well-prepared food.</b>		
Textures, flavors, and temperatures of foods should be served as listed below:		
<u>Food Example</u>	<u>Favorable Qualities</u>	<u>Unfavorable Qualities</u>
Meat	Moist, Soft	Dry or Tough
Hot Cereal, Mashed Potatoes	Smooth	Lumpy or Sticky
Raw Vegetables	Crisp	Mushy
Cheese	Mild Flavor	Spicy or Strong
Milk	Moderate Temperature	Very Hot/Very Cold

## Common Questions and Answers

**Q:** *What would you say to a mother who prepares at least two entrees at a meal to make sure there is a food her child will eat?*

**A:** This is actually an understandable situation. When preparing a meal we usually try to cook what people like. However, it can set up a situation where the caregiver becomes a short-order cook and the family does not get introduced to a variety of foods in their diet.

WIC staff can play an important role by reminding WIC caregivers not to limit their family's meals to only foods they know their child will like. First, encourage parents and caregivers of young children to offer a variety of foods. Second, remind them that a child's likes and dislikes may change a lot; what is liked today may not be liked tomorrow. Third, provide ways to respond to a child's negative emotional reaction to certain foods on their plate.

One good strategy to recommend is to include one food the child likes with each meal (e.g., bread or fruit). When the child arrives at the table, engage the child in conversation, give her support in serving herself, and take the focus off what is on the plate. If the child whines that she doesn't like the food choices, the caregiver can ask that the food be tried. If the child refuses, the caregiver can respond "Oh, okay," and not insist the child eat.

The child will have at least one food that she likes and maybe milk on the table so she won't go hungry. Caregivers should not break down and ask "What will you eat?" This is what sets up the role as the short-order cook. Additional suggestions to help introduce new foods to children include:

- Have the child help prepare a new food
- Serve the food with a known favorite
- Introduce one new food at a time
- Offer the food in a taste-size portion
- Allow the child time to examine (smell, feel) the food
- Explore the food with the child by talking about how it is made or grown
- Be casual if food is refused; offer it again at a later date
- Have the adult or parent enjoy the food

*SELF-CHECK: PRACTICE YOUR KNOWLEDGE*

1. In the list below, put a check mark (✓) in the blank next to the foods and methods of food preparation which are appealing to young children:

- mixed dishes (several foods mixed together)
- bite-sized pieces of food
- bright-colored foods
- dry meat
- very hot food
- crisp vegetables
- very spicy food

In the blank to the left of the statement, put a “T” if the statement is true, or an “F” if the statement is false.

2.  Caregivers should offer at least 12 ounces of juice daily to their child.
3.  Sports drinks are an appropriate beverage for young children.

*ANSWERS*

1. You should have checked (✓): bite-sized pieces of food; bright-colored foods; and crisp vegetables.
2. False. Caregivers should offer no more than 4-6 ounces a day of juice, if at all.
3. False. Sports drinks are inappropriate for young children.

## Snacks

*Are snacks always “junk foods,” “empty calorie” foods, and generally non-nutritious food? No! In fact, snacks can play an important role in the diet of a young child. Snacks can supplement meals, providing nutrients which were not eaten at mealtime. For example, a child who does not drink milk at lunch could be served cheese and crackers for his/her afternoon snack. In this way, snacks can be planned to meet almost any nutrition need.*

A good snack contains:

- Food from one or more of the food groups, such as:
  - Fruit, whole grain cereals, ready-to-eat cereals, crackers or bread, milk, peanut butter, yogurt, cheese, and cottage cheese
- Food that is low in sugar
- Small amounts of food that don't spoil the appetite for meals
- Food that are not among the ones listed in the previous list that may cause choking

## Use Snacks to Improve Food Habits

Some mothers feel frustrated or worried when their children reject certain, vital food groups. However, this anxiety may easily aggravate the situation they need to change. Quite possibly the problem can be avoided, at least in part, by the use of snacks between meals.

Children's snacks can be planned to meet almost any nutrition problem. For example, they can be the means by which protein is added for the child who is too tired or too excited at dinnertime to eat his meat. They can also be the mean by which fast-growing youngsters are offered urgently needed calories in the nutritious forms needed for growth. Furthermore, snacks may be a more successful way to introduce new foods.

## Some Children Need Snacks

Some children have the capacity to go from one meal to the next without hunger. Others actually experience real hunger within two to three hours after eating, especially if they happen to be growing rapidly. If a nutritious snack is not offered at this point, soft drinks, candy, or some other non-nutritious item may eventually satisfy this hunger.

*Timing is important so that a snack is offered when children are hungry, but not so late that it spoils their appetite for the next meal.*

## Planning for Snacks

Planning means deciding:

- What the special needs of your family are
- How snacks can add to their diet
- When would be the best time to offer snacks

Planning also means considering your time and energy. If fixing something special is going to leave you irritated and frustrated when that special snack isn't eaten, then plan simple foods which may be stored away if not eaten. Create a "snack spot" in the refrigerator or a corner in the cupboard where snacks are kept.

Here are some suggestions for snacks which supplement meals:

To add protein:

Offer some hard-cooked eggs, chunks of tuna, pieces of cheese, or slices of leftover meat. Serve crackers with peanut butter, tuna, or cheese. Let the child use their fingers to eat these snacks.

To add fruits and vegetables:

Serve fruit raw. Cut the rind off melon and serve wedges the child can pick up. Peaches, small chunks of cantaloupe or orange slices are another way to add vitamin A to snack time. Try serving small pieces of broccoli and carrots with cottage cheese or ranch dip. Many children prefer raw vegetables to cooked. Besides the ones already mentioned, you might try raw green beans, snap peas, green pepper slices, and spinach, chard, or other greens.

**Common Questions and Answers:**

**Q:** *When are appropriate snack times?*

**A:** "Snack Time!" These words can be magic to a child's ear. Yet parents' thoughts around snacking, such as "snacks spoil appetites," "snack foods are bad," and "children can't have snacks if they didn't eat meals," can take the fun and benefits out of a healthy snack.

Snacks may be the single most helpful concept to empower the feeding relationship. Healthy snacks are the safety net when children are too tired, ill, upset, or distracted during the mealtime. Looking at the big picture, children will usually eat 3-4 times out of the 6 times they are offered food. Therefore, it isn't so scary or frustrating when a child refuses to eat if there is a planned snack in 2-3 hours.

**What Healthy Snacks Are and What They Are Not**

Snacks have structure, a planned time, and place. They are nutritious and contain a variety of foods. Snacks are low in sugar, fat, and salt. Snacks have a defined amount of each item.

It is best when snacks are eaten sitting down in one place with other people. Children should not get food from the kitchen at will or eat from the container (such as a box of cereal or crackers). The serving should be defined.

Routine snacks are not chips, cookies, candy, Kool-Aid, soda, French fries, etc., as these are empty calories and will not boost the nutrient intake. Snacks are planned small meals and are not rewards for eating or withheld as punishment for not eating or doing a specific activity.

## An Important Reminder

Some parents believe sugar causes hyperactivity in their children. In hopes of calming the child, the parent will limit sugar-containing foods. However, there is no reliable evidence sharing a link between sugar and hyperactivity. There are many foods containing sugar that also contain caffeine as well, e.g., chocolate candies, certain soda drinks. It may be the caffeine which affects the child's behavior.

Most children are overactive at times. Any number of things could cause the behavior. Being limited to the house with no exercise might cause a child to become "wild." Or, just a desire for attention might lead to acting out behavior. Very often the "villain" is the exciting situation where the sugary foods are provided; e.g., Halloween and birthday parties.

### Common Questions and Answers:

**Q:** *What can a parent do with a child who will not sit long enough to eat a meal, just a few bites?*

**A:** This can be a real problem for parents and can happen when children who are too engrossed in play or other activities to stop and eat. Here are a few suggestions to offer parents:

- Set regular times for meals and snacks; children do better when they have structure and limits.
- Prepare the child for mealtime. Let them know that "lunch will be ready in five minutes."
- Get rid of distractions. Turn off the TV, radio, or remove other items that distract a child.
- Set the table attractively and join children at the table.

Often children enjoy playing the "I don't want to eat" game. Parents can make the situation worse by trying to force feed them. If a child refuses to eat, parents can tell them, "That's okay, you don't have to eat. Just sit here and keep us company while we eat." Then, wait until the next planned meal or snack to offer any other food or drink (except water which should always be available). Children should understand that it is their choice to eat, but that the consequence may mean waiting for a planned snack later. Ensure parents that children won't starve by missing a meal, and chances are they will be ready to eat and eat well at the next meal.

Additionally, it may be helpful if children are not allowed to continue playing while everyone else eats, or to take food from the table and eat it elsewhere. It might be more pleasant at the table without the child; however, it doesn't help the child learn acceptable mealtime behavior.

**Q:** *Why is it better for a child to have 3 meals and 2-3 snacks than to graze all day long? (How does it affect caloric intake, especially for a child with inadequate growth?)*

**A:** Grazing puts a child at a disadvantage for the following reasons. The child may:

- Not learn to understand their internal cues for hunger and satiety.
- Learn to use food inappropriately.
- Not consume a daily balance of nutrients, and

- Be exposed to a greater risk of cavities.

### What We See

A parent may come in to your office and proudly tell you that their toddler can now open the refrigerator and help himself to whatever, whenever he wants to eat. The parent may be very content because their child is showing some independence with eating and yet, you may cringe because you know that grazing is not healthy.

### What We Know

We are raising a generation of nibblers, in fact, it is documented that some children eat up to 14 times a day. If grazing becomes a habit, it can lead to the misuse of food (such as for entertainment when bored or distraction when upset) and it can prevent children from learning their internal cues for hunger and fullness. Young children must learn to tell when they are hungry from when they are bored, etc. Failure to learn to these differences can lead to inappropriate eating and perhaps to overeating. We also know that children, who are allowed to graze, often drink more juice and other caloric beverages and can set themselves up for an inadequate intake of a variety of foods. So, how do you respond to the parent?

Parents take pride in their child's new ability to help themselves. We should acknowledge and recognize this exciting milestone with them. You may want to ask what other acts of independence their child has made. Let them know that while independence is healthy, grazing is not.

### Here are some tips to share with parents:

Meals and snacks should be planned. Encourage parents to plan snacks so that when the time comes and the child is hungry, a snack is ready. Planned snacks can provide more variety of foods, and can decrease the time a child has to pause and decide what they want for a snack (i.e., favorite food). Allowing a child to be hungry between meal and snack times increases the chances of trying new foods.

Meals and snacks should be offered at designated times and places. If a parent gives a snack any time a child begs, or if the child helps himself to a snack from the refrigerator and runs around with the food, the child will not learn about deliberate eating. Children should have a snack and be done with it. Furthermore, frequent nibbling can increase the incidence of cavities because of the constant presence of food particles on the teeth.

Limit the external cues that might remind the child to eat. Help the parent to identify external cues such as a cookie jar on the counter or the television (if the child is permitted to eat in front of the TV) that may prompt a child to want to eat.

Remember that the goal is not to cut down on eating but to make eating important and worthwhile.

*SELF-CHECK: PRACTICE YOUR KNOWLEDGE*

In the blank to the left of the statement, put a “T” if the statement is true or an “F” if the statement is false.

\_\_\_ Snacks can be nutritious supplements to the preschooler’s diet.

Name two good snacks from each of the following groups of food:

Milk, Yogurt, and Cheese Group

- a.
- b.

Vegetables and Fruits

- a.
- b.

Bread, Cereal, Rice, and Pasta Group

- a.
- b.

Meat, Poultry, Fish, Dry Beans, Eggs, and Nuts Group

- a.
- b.

*ANSWERS*

1. True. Snacks can be nutritious additions to the diet. Snacks should be served in small amounts so that appetite for meals won’t be spoiled.
2. Any foods listed in the appropriate charts of the five food groups or any foods suggested in the section on “snacks” are correct answers.

## The Vegetarian Child

Children who are raised as vegetarians and develop a good understanding of vegetarian eating patterns can establish life-long healthy eating habits. WIC staff can support caregivers of vegetarian children by sharing sound nutrition information to help ensure that an adequate variety of food is offered for optimal growth and development.

There are many variations of vegetarianism. The three most common types of vegetarians are:

- Lacto-ovo: These individuals follow a diet that consists of grains, legumes, nuts, seeds, fruits, vegetables, dairy products, and eggs. Meat, poultry, and fish are typically avoided.
- Lacto: These individuals follow a diet similar to lacto-ovo vegetarians except eggs are also avoided.
- Vegan: These individuals follow a diet that consists of grains, legumes, nuts, seeds, fruits, and vegetables. Meat, poultry, fish, eggs, dairy products, and foods with even small amounts of animal products are avoided.

When menu planning and eating patterns are adequate, these three types of vegetarian children can grow similarly to non-vegetarian children. Poor growth is seen primarily in children with very restricted diets, such as the macrobiotic diet (which excludes meat, poultry, possibly fish, dairy products, eggs, some vegetables, and tropical fruits) and/or poorly planned vegetarian diets.

For the caregiver who identifies their child as a vegetarian, WIC staff will need to assess what foods the caregiver is offering and what foods they are avoiding. This will present staff with an idea of which nutrients or food groups the child's diet may be lacking.

Certain nutrients need extra consideration with the vegetarian child. These include energy, protein, calcium, zinc, iron, vitamin D and vitamin B<sub>12</sub>.

Energy needs are sometimes difficult to meet if the child is eating a diet high in fiber and bulk. Staff can encourage caregivers to reduce some of the child's fiber intake by suggesting serving some refined grains and peeling fruits and vegetables. To boost energy intake, staff can recommend additional use of it in the forms of nuts and nut butters (e.g., peanuts, peanut butter, almonds, almond butter, seeds (e.g., sesame seeds), and avocados. Vegetarian children who consume dairy products can have some of their energy needs met from the fat in dairy products.

Protein needs can be supplied from plant sources alone. If a variety of plant foods are eaten over the course of the day, adequate amounts of essential and non-essential amino acids will be supplied. Examples of protein containing plant foods are grains (e.g., barley, cornmeal, couscous, millet, oats, quinoa, and rice), legumes (e.g., canned or dried beans offered on WIC), soy products (e.g., soy milk, tofu, and soy hot dogs), imitation meat products, nuts and seeds (e.g., walnuts, peanuts, pine nuts, sunflower seeds), dairy products, and eggs.

The lacto-ovo vegetarian child typically receives adequate amounts of calcium because they consume dairy products. For vegan children to receive adequate calcium they must consume other good non-dairy sources of calcium. These included foods such as calcium fortified soy milk and orange juice, tofu prepared with calcium, dark leafy greens that are low in oxalic acid (can inhibit absorption of calcium), such as collard greens, kale, and mustard greens.

Iron can be a concern in the vegetarian diet and good food sources include dried fruits, spinach, and dried fruit and legumes. Since vitamin C promotes iron absorption, citrus fruits, broccoli, strawberries and cabbage help absorption.

Vegetarians need more zinc than non-vegetarians because the body does not absorb this mineral as easily from plants as from animal products. Vegetarians who eat dairy products will find them a good source of zinc. MayoClinic.com notes that it can be found in whole grains, legumes, wheat germ and soy products.

Vitamin B<sub>12</sub> is a concern primarily for vegan children because it is found mainly in animal products, including dairy products. Sources of vitamin B<sub>12</sub> for the vegan child include vitamin B<sub>12</sub> fortified foods such as some brands of soy milk, imitation meat products, fortified nutritional yeast (Red Star Vegetarian Support Formula), and breakfast cereals.

## Desserts

While snacks are eaten between meals, desserts are typically eaten at the end of a meal. Even though desserts are characteristically sweet, they don't have to contribute only "empty calories." Desserts, like snacks, can also be nutritious, supplying necessary nutrients to the child's diet. Examples of nutritious desserts are: fruit, frozen fruit juice on a stick, custard, pudding, ice cream, ice milk, frozen yogurt, fruit-and-nut breads, muffins, and some homemade cookies (such as oatmeal cookies with nuts and raisins).

## Common Questions and Answers

**Q:** *What advice would you give the parent who states, "He eats much better at a meal when I tell him he can have a candy when he's done."*

**A:** Coaxing a child to eat more with a promise of a sweet treat or dessert may encourage a child to overeat both at mealtime and again when having the treat. When food is used as reward for finishing a meal you are teaching the child that the dessert or treat is the only really desirable part of the meal. For example, rewarding with dessert for eating broccoli teaches a child to like dessert more and broccoli less.

Some desserts can be nutritious, such as puddings, oatmeal or peanut butter cookies, or yogurt with fresh fruit. A serving of dessert can be served with the rest of the meal or at the end of the meal. All family members should be permitted to choose whether or not they want dessert. The main point is to keep the focus off any one food being a "reward."

Although desserts can be nutritious, the wise parent will not offer desserts after every meal. It is easy to develop an insatiable “sweet tooth” by offering one or two desserts per day. If children are given desserts often, they will expect them, demand them, and then, eating desserts will become a habit. Desserts do tend to be higher in calories than other foods, and establishing this habit may encourage overeating and lead to an eventual problem of overweight in the child. Habits established early in life are hard to break, so it is best to offer desserts only occasionally.

### **Calories**

The *Nutrition Guide for Children Age 1 to 5* represents the minimum amount of food needed on an average daily basis to supply adequate nutrients. In no way should the guide be used to enforce or restrict a certain amount of food that a child is given to eat. Children should be offered nutritious meals and snacks from the basic food groups, and then be allowed to eat the amount to satisfy their hunger.

Additional calories can also be obtained occasionally from foods such as margarine, mayonnaise, salad dressings, cream cheese, and desserts.

*SELF-CHECK: PRACTICE YOUR KNOWLEDGE*

For questions 1-3, put “T” in the blank to the left of the statement if the statement is true, or “F” in the blank if it is false.

1. \_\_\_\_ Offering desserts after every meal may establish a difficult habit to break.
2. \_\_\_\_ Children should be rewarded with dessert after they clean their plates.
3. \_\_\_\_ Some desserts can be nutritious and provide and a healthy part of the overall diet.
4. List two nutritious desserts:
  - a.
  - b.
5. List three plant sources of protein:
  - a.
  - b.
  - c.

*ANSWERS*

1. True. The dessert “habit” is hard to break.
2. False. Desserts should not be used to bribe or reward.
3. True.
4. Any two of the following: fruit, frozen fruit juice on a stick, custard, pudding, ice cream, ice milk, frozen yogurt, fruit-and-nut breads, muffins, homemade cookies, e.g., oatmeal cookies.
5. Any three of the following: grains, legumes, soy products, meat analogs, nuts, and seeds.

## Section III: Inappropriate Nutrition Practices for Children

Now that you have learned about the nutritional and developmental needs of the preschool child and a few positive feeding practices, we can now look at risk factors relating to inappropriate feeding practices. The WIC Program assigns risk factors for children that related to certain routine feeding practices that are inappropriate for the overall health and well being of preschool children. These feeding practices may results in impaired nutrient intake, disease or health problems. All of these risk factors are considered low risk for children and do not require a referral to the WIC High Risk Counselor.

The format for this section includes the number associated with the risk factor, the definition, background information and your role in counseling and advising your WIC participants and care givers.

### Nutrition Practice NRF's

#### **NRF 425A(Low Risk) - Routinely feeding inappropriate beverages as the primary milk source**

**Definition:** Examples of inappropriate beverages as primary milk source:

- Non-fat or reduced-fat milks (between 12 and 24 months of age only)
- Sweetened condensed milk
- Imitation or substitute milks (such as inadequate or unfortified rice- or soy-based beverages, non-dairy creamer), or other "homemade concoctions".

#### **Background information:**

Goat's milk, sheep's milk, imitation milks and substitute milks do not contain nutrients in amounts appropriate as a primary milk source for children. Non-fat and reduced-fat milks are not recommended for use with children from 1 to 2 years of age because of the lower calorie density compared with whole-fat products. The low-calorie, low-fat content of these milks requires that increased volume be consumed to satisfy caloric needs. Children under two using reduced fat milk gain weight at a slower growth rate, lose body fat as evidenced by skin fold thickness, lose energy reserves, and are at risk of inadequate intake of essential fatty acids.

#### **Your Role:**

- Determine what types of milk are being provided to the child and why.
- Explain reduced fat milks are not recommended for children less than 2-years of age because of the need for fat and cholesterol during the first years that is important for mental development. Instruct caregivers to offer whole milk to children 1 to 2 years of age. Any type of reduced fat milk is acceptable for older children.
- Explain that sweetened condensed milk should be used for cooking purposes only.
- Provide information to care provider regarding the fact that other types of milk substitutes often do not contain adequate amounts of required nutrients.

### **NRF 425B (Low Risk) - Routinely feeding a child any sugar containing fluids**

**Definition:** Examples of sugar-containing fluids:

- Soda/soft drinks
- Gelatin water
- Corn syrup solutions; and
- Sweetened tea

#### **Background Information:**

Routine consumption of sugar containing fluids is the major dietary factor affecting dental caries prevalence and progression. Consumption of foods high in sugar also increases the risk of early childhood overweight and obesity.

#### **Your Role:**

- Complete a thorough assessment of what the child drinks on a routine basis.
- Address caregiver concerns first. Perhaps the parent is feeding a sweetened beverage because the child won't drink milk or water.
- Explain the association between sugar sweetened beverages and dental caries.
- Explain that sugar containing fluids contain significant amounts of "empty" calories and can contribute to excess weight.
- Sports drinks are not needed; not made for children.
- Encourage care givers to offer water frequently during the day.

### **NRF 425C (Low Risk) - Routinely using nursing bottles, cups, or pacifiers improperly**

#### **Definition:**

- Using a bottle to feed fruit juice or diluted cereal or other solid foods.
- Allowing the child to fall asleep or put to bed with a bottle at naps or bedtime.
- Allowing the child to use the bottle without restrictions (e.g., walking around with a bottle) or as a pacifier.
- Use of a bottle for feeding or drinking beyond 14 months of age.
- Using a pacifier dipped in sweet agents such as sugar, honey, or syrups.
- Allowing a child to carry around and drink throughout the day from a covered training cup.

#### **Background information:**

As discussed in the dental section of this module, the fermentation of carbohydrates on the surface of teeth produces acids that demineralize and destroy the tooth's enamel. This leads to tooth decay. If inappropriate use of nursing bottles, cups, or pacifier persists, the child is at risk of toothaches, costly dental treatment, loss of primary teeth, and development lags on eating and chewing. Solid foods such as cereal should not be put into a bottle for feeding.

#### **Your Role:**

- Complete a thorough assessment of what the child puts in a bottle and how they are being fed with a bottle.
- Assess if a pacifier is used and if sweet agents are added.
- Ask questions to determine when the caregiver is planning on weaning the child from the bottle.

- Find out if the caregiver understands the importance of weaning the child at a young age (by 14 months of age).
- Provide information if the caregiver does not know the risks of late weaning.
- Explain the association between prolonged bottle use in children and the risk of tooth decay.

**NRF 425D (Low Risk) - Routinely using feeding practices that disregard the developmental needs or stages of the child**

**Definition:**

- Inability to recognize, insensitivity to, or disregarding the child's cues for hunger and satiety (e.g., forcing a child to eat a certain type and/or amount of food or beverage or ignoring a hungry child's request for appropriate foods).
- Feeding foods of inappropriate consistency, size, or shape that put child at risk of choking.
- Not supporting a child's need for growing independence with self-feeding (e.g., solely spoon-feeding a child who is able and ready to finger feed and/or try self-feeding with appropriate utensils).
- Feeding child foods with inappropriate textures based on his/her developmental stages (e.g., feeding primarily pureed or liquid foods when the infant is ready and capable of eating mashed, chopped or appropriate finger foods).

**Background information:**

The interactions and communication between a caregiver and child during feeding and eating influence a child's ability to progress in eating skills and consume a nutritionally adequate diet. A dysfunctional feeding relationship, which could be characterized by a caregiver misinterpreting, ignoring, or overruling a young child's innate capability to regulate food intake based on hunger, appetite and satiety, can result in poor dietary intake and impaired growth. Parents who consistently attempt to control their children's food intake may give children few opportunities to learn to control their own food intake. This could result in inadequate or excessive food intake, future problems with food regulation, and problems with growth and nutritional status. Children should not be offered baby foods or pureed foods unless they have a medical condition that affects their feeding ability.

**Your Role:**

- Complete a thorough assessment of what types of foods are offered to the child on a regular basis
- Discuss healthy eating habits for children and recommend types of foods and quantities appropriate for the child's age group.
- Children must learn age-appropriate feeding skills and learn to consume a variety of textures in order to develop normally.
- Discuss with caregivers the importance of developing eating skills.
- Parents choose the foods provided, where and when; children decide how much.

**NRF 425E (Low Risk) - Feeding foods to a child that could be contaminated with harmful microorganisms**

**Definition:** Examples of potentially harmful foods for a child:

- Unpasteurized fruit or vegetable juice
- Unpasteurized dairy products or soft cheeses such as feta, Brie, Camembert, blue-veined, and Mexican-style cheese
- Raw or undercooked meat, fish, poultry, or eggs
- Raw vegetable sprouts (alfalfa, clover, bean, and radish)
- Undercooked or raw tofu
- Deli meats, hot dogs, and processed meats (avoid unless heated until steaming hot)

**Background information:**

All foods listed with NRF 425E have been implicated in selected outbreaks of food-borne illness. These foods can contain harmful bacteria that put children at risk for contracting serious food-borne illnesses, such as Salmonella, Listeria, and E. coli.

**Your Role:**

- Complete a thorough assessment as to whether the foods listed are offered to the child.
- Provide the caregiver with information regarding:
  - Do not drink unpasteurized fruit or vegetable juices. Look on label to ensure that it is labeled pasteurized.
  - Do not drink raw milk or eat foods made with unpasteurized milk.
  - Do not eat soft cheese such as feta, Brie, Camembert, blue-veined cheeses and Mexican style cheese such as queso blanco, queso fresco, or Panela unless made with pasteurized milk.
  - Fully cook meat, poultry and seafood. Use a meat thermometer to ensure meats are cooked to safe temperatures.
  - Do not eat raw sprouts.
  - Heat hot dogs, luncheon and deli meats to steaming hot before eating.
- Advise to consult health care provider if child has symptoms of food-borne illnesses.

**NRF 425F (Low Risk) - Routinely feeding a diet very low in calories and/or essential nutrients**

**Definition:** Examples:

- Vegan diet
- Macrobiotic diet
- Other diets very low in calories and/or essential nutrients.

**Background information:**

Highly restrictive diets prevent adequate intake of nutrients, interfere with growth and development, and may lead to other adverse physiological effects. Well-balanced vegetarian diets with dairy products and eggs are generally associated with good health. However, strict vegan diets may be inadequate in calories, vitamin B12, vitamin D, calcium, iron, protein and essential amino acids needed for growth and development. The more limited the diet, the greater the health risk.

**Your Role:**

- Complete a thorough assessment of the child's diet
- Discuss healthy eating habits for children and recommend types of foods and quantities appropriate for the child's age group.
- Ask caregiver why they chose to place their child on a diet low in calories and what they know about the diet.
- Emphasize need for nutrients that are eliminated or reduced by the restriction; suggest alternative foods.
- Recommend the caregiver discuss child's dietary practices with MD.

**NRF 425G (Low Risk) - Feeding dietary supplements with potentially harmful consequences**

**Definition:** Examples of dietary supplements which when fed in excess of recommended dosage may be toxic or have harmful consequences:

- Single or multi-vitamins
- Mineral supplements
- Herbal or botanical supplements/remedies/teas

**Background information:**

A child consuming inappropriate or excessive amounts of single or multivitamins or mineral or herbal remedies not prescribed by a physician is at risk for a variety of adverse effects including harmful nutrient interactions, toxicity, and teratogenicity.

**Your Role:**

- Complete a thorough assessment of dietary supplements and teas/remedies that are provided to the child.
- Follow physician recommendations regarding vitamin and mineral supplements.
- WIC staff should ask caregivers who report they provide additional supplements to their children, not at the direction of their physician, what they have heard about the supplement.
- Provide general advice regarding the risks associated with excessive supplement use. Recommend the caregiver discuss the supplementation with the primary care physician.
- Avoid teas, remedies and supplements that are potentially harmful.

**NRF 425H (Low Risk) - Routinely not providing dietary supplements recognized as essential by national public health policy when a child's diet alone cannot meet nutrient requirements**

**Definition:**

- Providing children less than 36 months of age less than 0.25 mg of fluoride daily when the water supply contains less than 0.3 ppm fluoride.
- Providing children 36-60 months of ages less than 0.50 mg of fluoride daily when the water supply contains less than 0.3 ppm fluoride.
- Not providing 400 IU of vitamin D per day if a child consumes less than 1 liter (or 1 quart) of vitamin D fortified milk or formula.

**Background information:**

Fluoride is found naturally in water and helps prevent and even reverse the early stages of tooth decay. Fluoride supplements may be of benefit in reducing dental decay for children

living in fluoride-deficient areas. Vitamin D is an essential nutrient in bone health. The best sources of vitamin D are direct exposure of skin to sunlight, fortified milk, fish oils, egg yolk, liver and vitamin D supplements.

**Your Role:**

- Ask the caregiver what type of water their child drinks (city, well, bottled, etc.)
- Each local agency should contact their health department to learn the fluoridation level in their municipal water supply and the geographical region it encompasses.
- For those participants with personal well water, ask if their water has been treated and tested. If the answer is “no” or “I don’t know” recommend the caregiver to talk with their doctor or dentist. Have well water checked if fluoride content is unknown.
- Most bottled waters lack fluoride, but fluoridated bottled water is available. If fluoride is added, the manufacturer is required to list the amount.
- Make a referral to the dentist and/or health care provider for fluoride supplementation recommendations.
- If children are not receiving enough vitamin D through food or supplements, then assign NRF 425H and encourage parents to discuss supplementation with their health care provider.

**NRF 425I (Low Risk) - Routine ingestion of nonfood items (pica)**

**Definition:** Examples of inappropriate nonfood items:

- Ashes, carpet fibers, cigarettes or cigarette butts, clay, dust, foam rubber, paint chips, soil and starch (laundry or cornstarch).

**Background information:**

Pica is the craving for or ingestion of nonfood substances. Pica is linked to lead poisoning, anemia, excess calories or displacement of calories, gastric and small bowel obstructions, as well as parasitic infections (for example, if dirt is ingested). It can also contribute to nutrient deficiencies by either inhibiting absorption or by displacing nutrient-dense foods.

**Your Role:**

- WIC staff can assist caregivers of children with pica by collecting information on what nonfood substances the child consumes, finding out if the practice is linked to cultural beliefs, assessing the child’s dietary intake, providing information about the concerns related to pica, and assisting the caregiver in developing a plan to modify the child’s behavior.

**NRF 428 (Low Risk) - Dietary Risk Associated with Complementary Feeding Practices (For children < 2 years of age after a complete nutrition assessment has been performed and no other risks are identified)**

**Definition:** A child  $\geq 12$  to  $< 24$  months of age who has begun to or is expected to begin to 1) Consume complementary foods and beverages, 2) Eat independently, 3) Be weaned from breast milk or infant formula, or 4) Transition from a diet based on infant/toddler foods to be based on the *Dietary Guidelines for Americans*, and is at risk of inappropriate complementary feeding.

**Your Role:** This risk factor should only be assigned if no other risk factors apply.

## Section IV: Growth and Weight Related Concerns in Children

One of the main functions of the WIC Program is to monitor stature and weight status of participants. Childhood is a critical time for normal growth and development and nutrition plays a key role in the process. By tracking the changes in stature and weight over time, a clear picture is obtained in the overall health of the child. Both over and under nutrition are health concerns that need to be addressed. This section covers growth and weight related concerns in preschool children.

### **Birth Weight:**

Children born with a low or very low birth weight need optimal nutrient intake to survive, meet the needs of an extended period of relatively rapid postnatal growth and complete their growth and development. For children, this risk factor is only risked prior to 24 months of age.

### **NRF 141A (Low Risk) - Low Birth Weight**

**Definition:** LBW defined as  $\leq 5$  pounds 8 ounces ( $\leq 2500$  grams) for children  $< 24$  months.

### **NRF 141B (Low Risk) - Very Low Birth Weight**

**Definition:** VLBW defined as  $\leq 3$  pounds 5 ounces ( $\leq 1500$  grams) for children  $< 24$  months.

### **Your Role:**

- Obtain accurate birth measurements.
- Work with the PCP to determine the best practices for feeding breast milk and/or formula past one year of age
- Discuss healthy eating habits for children and recommend types of foods and quantities appropriate for the child's age group.
- Dialogue with the caregiver about eating behaviors, food habits, and physical activity to promote healthy food habits.
- Listen to the caregiver to learn what they would like to work on and devise a plan.

### **Short Stature and At Risk of Short Stature**

Abnormal short stature in children is widely recognized as a response to a limited nutrient supply at the cellular level. Short stature is related to a lack of total dietary energy and to poor dietary quality that provides inadequate protein, particularly animal protein and inadequate amounts of certain nutrients such as zinc, vitamin A, iron, copper, iodine, calcium and phosphorus.

### **NRF 121A (Low Risk) - At Risk of Short Stature**

#### **Definition:**

- Child  $\geq$  one year to < 24 months; > 2<sup>nd</sup> percentile and  $\leq$ 5<sup>th</sup> percentile length-for-age
- Child 2-5 years; >5<sup>th</sup> percentile and  $\leq$ 10<sup>th</sup> percentile height -for-age

### **NRF 121B (Low Risk) - Short Stature**

#### **Definition:**

- Child  $\geq$  one year to < 24 months;  $\leq$ 2<sup>nd</sup> percentile length-for-age
- Child 2-5 years;  $\leq$  5<sup>th</sup> percentile height-for-age

#### **Your Role:**

- Obtain accurate length and height measurements.
- If nutritional inadequacies are present, dialogue with the caregiver to identify factors that might be contributing to poor intake such as chronic illness.
- Review healthy eating habits for children and recommend types of foods and quantities appropriate for the child's age group.
- Discuss eating behaviors and food habits that promote a healthy appetite such as regular meal/snack times.
- Staff may also ask the height of child's biological parents to consider as a variable that may help explain short stature in some infants and children.

### **Underweight and at Risk of Underweight**

Participation in WIC has been associated with improved growth in both weight and height in children. A child determined to be underweight at WIC certification should be monitored at regular intervals during the certification as determined by the WIC High Risk Counselor.

### **NRF 103A (Low Risk) - At Risk of Underweight**

#### **Definition:**

- Child  $\geq$  one year to < 24 months; >2<sup>nd</sup> percentile and  $\leq$ 5<sup>th</sup> percentile weight-for-length
- Child 2-5 years; >5<sup>th</sup> and  $\leq$ 10 percentile BMI-for -age

### **NRF 103B (High Risk) - Underweight**

High Risk requires a referral to the WIC High Risk Counselor within 30 days

#### **Definition:**

- Child  $\geq$ one year to < 24 months ;  $\leq$ 2<sup>nd</sup> percentile weight for length
- Child 2-5 years and is  $\leq$ 5<sup>th</sup> percentile BMI-for age

#### **Inadequate Growth**

Failure to thrive and inadequate growth in children are serious medical concerns that can relate to nutrition related practices. The presence of failure to thrive (FTT) must be diagnosed,

documented and/or reported by a primary care provider. A self-reported diagnosis should be confirmed and validated by the WIC staff. FTT is a serious growth problem with an often complex etiology.

### **NRF 135 - Inadequate Growth**

\*See the Nutrition Risk Factor Module for a full explanation of this risk factor

#### **Your Role:**

- Obtain accurate height and weight measurements
- Refer underweight children to the WIC High Risk Counselor within 30 days of the risk determination
- Discuss with the caregiver factors that might be contributing to or directly causing the child to be underweight, such as illness.
- Explain to the caregiver the causes and potential problems of being underweight.
- Discuss general eating behaviors/issues that can lead to inadequate caloric intake.
- Review healthy eating habits for children and recommend types of foods and quantities appropriate for the child's age group.
- Discuss eating behaviors and food habits which promote a healthy appetite such as regular meal/snack time, creating a calm, relaxed meal atmosphere, and not using food as a bribe.
- Listen to the caregiver to learn what they would like to work on.
- Work together with the caregiver to tailor the plan.
- Once the plan has been developed to a comfort level for the caregiver, confirm the caregiver understands and agrees with the plan.

## **Overweight and Obesity**

**Background:** Overweight and obesity are major health problems in the United States. Excess body weight causes many health problems that limit a person's quality of life, increases risk of chronic diseases, and generates enormous medical costs for the United States. From 1998 through 2003, the prevalence of obesity among low income preschool age children in the U.S. increased from 13.05% to 15.21%, and the prevalence of extreme obesity increased from 1.75% to 2.22%. From 2003 through 2010, the prevalence of obesity decreased slightly from 15.21% to 14.94%. Similarly, the prevalence of extreme obesity decreased from 2.22% to 2.07%. In Colorado, almost 1 in 4 low income children are overweight or obese.

Obesity results from a complex combination of many factors related to genetics, lifestyle behaviors, and the environment we live in. These factors impact critical periods in the life course that determine a child's risk of obesity: the period before a mother becomes pregnant, during pregnancy, and during the earliest years of a child's life.

Obesity for children in the WIC Program is defined as a BMI for age or weight for stature greater than or equal to the 95<sup>th</sup> percentile for children ages 2-5 years.

Overweight for children in the WIC Program is defined as a BMI for age or weight for stature  $\geq 85^{\text{th}}$  and  $< 95^{\text{th}}$  percentile for children ages 2-5 years.

At Risk of Overweight for children 12 months and older in the WIC Program is assigned if the biological mother has a BMI  $\geq 30$  at the time of certification. If the mother is pregnant or has had a baby within the past 6 months, preconception weight is used to determine risk

Nobody wants to be overweight, especially children. Children don't typically think about the health consequences of overweight, but they experience emotional pain related to negative perceptions of obesity by society.

Think for a minute about how you or a friend would describe a person who is overweight. When a group of children were shown a picture of an overweight child and asked to describe the child they presented an image of someone who was lazy, unmotivated, not very bright, and not much fun. They said the child was not someone they would want as a friend. Television, movies, and magazines tell us through their pictures that all the really intelligent, energetic, attractive, fun people are normal weight or on the thin side. For a child, the psychological and social costs of being overweight can be exceedingly painful.

Besides social difficulties, overweight and obesity can cause physical problems for children. One in five overweight children experience health problems related to their weight. These include high blood pressure, high blood cholesterol or high triglycerides (types of blood fats that can cause heart disease when their levels are too high), diabetes, joint problems, difficulty moving, trouble sleeping, and trouble breathing. These conditions not only cause problems for the child, but also start the progression of heart disease, diabetes and cancer that they are likely to experience later in childhood or as adults. Because children do not often die from heart disease the assumption is that high blood pressure or high blood cholesterol do not matter for a child. Increasing amounts of research show that heart disease starts in early childhood though the effects may not be seen until adulthood.

Overweight children have a strong tendency to grow up to be overweight adults. Most people understand the health consequences of being an overweight adult. Unfortunately, it is very difficult to get adults to change their eating and activity habits and to achieve a healthy weight for life. The best approach for solving the obesity epidemic is prevention. This means teaching children healthy food and activity habits. It is much easier for a child to develop good food and activity habits than it is to change the food and activity habits of an adult.

When we think about developing food habits early in life, we are not just talking about manners, or using a knife or fork correctly. We are also referring to why, when, and what children eat. An infant or child who is exposed to a limited number of foods while growing up might only eat a limited number of foods as an adult. A child, who learns to graze through the day, eating for reasons not related to hunger, will likely continue to do so as an adult. A child who learns to eat when he is bored as a reward will find that foods meet many of their psychological needs as adults. Food behaviors and habits are very difficult to change as adults. They are much easier to change when a child is young; particularly at the ages children are enrolled in WIC! The younger the child the easier it is to change habits.

## **Related Nutrition Risk Factors:**

### **NRF 113 (High Risk) - Obese**

\*High Risk requires a referral to the WIC High Risk Counselor within 90 days of risk assignment

#### **Definition:**

- $\geq 95^{\text{th}}$  percentile BMI for children ages 2-5 years.

### **NRF 114 (Low Risk) - Overweight or At Risk of Overweight**

#### **Definition:** At Risk of Overweight

- 1 to 5 years: Biological mother with a BMI  $\geq 30$  at the time of conception or at any point in the first trimester of pregnancy. Biological father with a BMI  $\geq 30$  at the time of certification.

#### **Definition:** Overweight

- 2-5 years:  $\geq 85^{\text{th}}$  percentile and  $< 95^{\text{th}}$  percentile BMI-for-age

### **NRF 115 (Low Risk) -High Weight-for-Length**

#### **Definition:**

- Child  $\geq$  one year to  $< 24$  months of age;  $\geq 98^{\text{th}}$  percentile weight-for-length

## **WIC's Role with Overweight Children**

What causes a person to be overweight? There are many factors contributing to overweight; some cannot be changed, but many can. Our role in WIC is to help participants overcome the factors that they can change. The focus of WIC is NOT on the child's weight, but on the behaviors and habits that may contribute to the child being overweight. The goal is to help children develop habits that make them healthier. Our goal is NOT to help children lose weight. By changing food and activity behaviors of a child, it is hoped that the child may gradually grow into their weight. The real goal is to teach children to have healthy habits for a healthy life.

Children whose BMI-for-age is between the  $85^{\text{th}}$  and  $95^{\text{th}}$  percentile are considered "overweight" and are low risk in the WIC Program. The WIC educator generally provides the nutrition and healthy lifestyles education to prevent further weight gain. There may be times when a low risk child should be referred to the WIC High Risk Counselor even when their BMI-for-age is below the  $95^{\text{th}}$  percentile. If the child has shown a rapid increase in weight for length (2 full channels in a 6-month period), if the child is having health difficulties because of their weight, or if the parent has concerns about the child's weight you may want to check with the WIC High Risk Counselor to see if the child should be referred for assessment by the WIC High Risk Counselor.

Overweight is not something that you do; it is the result of what you do. So the focus is on the eating, physical activity and lifestyle habits of the child and family, not the child's weight.

When working with the caregiver of a child, talk about the health benefits from a balanced diet and being physically active. Look at the diet and activity habits of the family and discuss:

- How childhood is the time to establish good food habits that will impact the health of the child both now and later in life;
- How children need fruits and vegetables for vitamins and minerals that will help them to grow and develop, and to stay healthier when they are exposed to illnesses;
- How a variety of foods make a child more likely to eat a healthy diet;
- The benefits to the family if they can turn the television off and eat dinner with family conversation; and
- The heart-healthy benefits of physical activity for the entire family.

### **Put Focus on the Family**

It is important not to single the child out as a “problem” or a reason for change. Rarely are the food or activity habits of a child a problem just for them. The entire family often needs to look at changing their habits. It is not pleasant for a child to have to sit at the table and eat low fat foods with vegetables when the rest of the family is eating all kinds of fatty foods and no vegetables. This only reinforces to the child that they have a problem. The entire family can develop healthy eating patterns.

Changes in family eating and activity habits can be difficult. Remember to start with very small changes. Ask the parent what she thinks can be changed with respect to the family's eating habits. Think of very concrete and small changes that the entire family can make. Ask the caregiver if she thinks the changes are possible and what some of the roadblocks are to making the change.

### **Lifestyle Habits Associated with Overweight**

Listed below are some of the nutrition, activity and lifestyle habits that may contribute to overweight and obesity. Discuss with the caregiver the eating and lifestyle of the child and the environment in which they spend time. Ask the caregiver questions to get more information if needed.

- Use of an infant bottle. Infant bottle use is not recommended beyond the age of 14 months. Some children who are still on the bottle may be overweight because they are consuming too much milk in addition to food. Often discontinuing the bottle will resolve the overweight condition.
- Excess caloric beverages. When a child is given too many caloric beverages (milk, juice, sports drinks, soda, fruit drinks) these added calories can cause the child to become overweight (some children lose weight with these added beverages because they stop eating meals, others become overweight because they eat meals, snacks, and the beverages). Limiting milk and juice to the recommended amounts and offering water in

place of other beverages may be helpful. This is also good for the child's teeth and helps them to get a more nutritionally-balanced diet.

- Diet low in fruits and vegetables. Fruits and vegetables contain many nutrients and other substance needed by the body. Many research studies indicate that diets high in fruits and vegetables help prevent a whole host of diseases including heart disease and cancer. Fruits and vegetables contain nutrients that are important for healthy skin, good eyesight, a good immune system, and healthy bones. Diets high in fruits and vegetables also tend to be lower in calories.
- Excess desserts and "junk foods." Cakes, cookies, pie, candy, and chips can add large numbers of calories to a person's daily food intake. It is unreasonable and unrealistic to suggest that a child should never eat these foods or that the child should not eat these foods while the rest of the family does. The key is to offer these foods in moderation.
- Frequency of eating out at restaurants or consuming fast food. The more a child eats out or consumes fast food, the more foods they will eat that are high in fat, sugar and calories. Encourage parents to make healthy choices when eating outside the home by choosing foods such as milk versus soda or juice, grilled versus fried, apple wedges versus French fries.
- Consumption of excessive portion sizes. Children are often served portion sizes much larger than the recommended "serving size." For example, a child may be provided a 16 oz. portion of juice, but in reality that is 4 servings! It is important to review with caregivers the recommended serving size for their child so that they do not consume excess calories that can lead to an overweight child.
- Inconsistent availability of food. A child needs three meals a day plus 2-3 snacks. A child should not be restricted to less than this even if they are overweight. Food should be offered in three meals and 2-3 snacks per day. Food should not be available at any time the child wants to eat. This makes junk food too tempting since it can be eaten to resolve boredom or to satisfy other needs.
- Lack of meal structure. Meal structure can be very important. Does the family eat meals together? Do they eat at the table? Do they eat while watching television? Is mealtime pleasant? Mealtime can be very important for a family if they make it a pleasant time when they interact as a family. It can do a lot of good for family dynamics. Families who have structured meals tend to eat healthier diets. They are more likely to have a cooked meal with vegetables and other healthy foods. When the family eats erratically they tend to eat more fast foods and convenience foods that are high in calories.
- Food as reward, punishment, or to relieve boredom. When foods are used to reward, punish, and relieve boredom a child starts to eat for psychological benefits rather than because they are hungry or need nutrients. Some parents need help to find other ways to reward their child and to keep them entertained.
- Unresponsive feeding practices. Adults have the responsibility to decide what healthy foods will be served and when. Children have the responsibility to choose if and how much to eat. Forcing children to eat when they are not hungry interferes with their ability to determine whether they are hungry or full.
- Insufficient sleep: Poor sleep habits resulting in insufficient sleep may result in complex changes in metabolism which results in appetite changes and weight gain.

- Excessive “screen” or television time: Excessive television viewing is problematic for three reasons: 1) It is a sedentary activity, 2) television commercials expose children to marketing of unhealthy foods, 3) unnecessary snacking occurs while children watch television.
- Lack of physical activity: For many reasons, children are not as active as they should be. While many children consume too many calories from sources that contain little nutrition, they also burn fewer calories if they are less active.

### Physical Activity

Besides food habits the other part of being overweight has to do with a person’s activity level. Overweight children tend to be more sedentary. While WIC is primarily a nutrition program, physical activity is a very important part of health. In terms of overweight, it may be as important to set goals around increasing activity level (or limiting inactivity) as it is to change food habits. When talking to the caregiver, look for barriers to activity. Here are some examples:

- How much television does the child watch? If the child is watching television for several hours per day then you may want to suggest limiting television. Be prepared though to help the caregiver think of other ways to fill time for the child. Many caregivers use television as a babysitter when they are overwhelmed or need time off.
- How much time does the child spend confined to a car seat or playpen? Again because a parent may be stressed for time or spare energy they may confine the child to a carrier or playpen as a form of relief. Again try to think of alternatives to help this caregiver. Are there ways to make parts of the house more childproof?
- What kinds of games does the child like to play? Encourage games that are more active.
- What is the parent’s attitude about play? Sometimes parents need to be given “permission” to play with their kids. Playtime is important for a child’s development both physically and mentally. Because our society puts so much emphasis on work and being productive, parents may be reluctant to take valuable time to play with their child. Talk with the parents about how important play is for the development of their child. Let them that it is not just okay, but a very positive part of being a parent. Encourage them to enjoy playing with their child.

Types of activity which are not appropriate for a child (under 5 years of age) include competitive sports, as well as muscle (like weight lifting) and endurance (like running) building exercises. Children need play-type activities. Left on their own children will generally be active and play. Help parents to break down barriers that prevent a child from being playful and active.

Remember the following points when working with the caregivers of overweight children:

- Focus on their food and activity behaviors and not on their weight.
- Try to make changes that involve the entire family. The child should not feel singled out.
- Suggest small changes that are realistic and agreeable to the family.
- Encourage physical activity as well as changes to the diet.
- Focus on traits other than appearance when talking to children.

- When the child is gaining weight very rapidly, having health problems as a result of their weight, when the caregiver has serious concerns about the child's weight, or when change seems unlikely due to family chaos consult with your WIC High Risk Counselor to see what action should be taken.

When a child's BMI-for-age is greater than or equal to the 95<sup>th</sup> percentile they are assigned NRF #113-Obese, a high risk NRF. These children are referred to the WIC High Risk Counselor after the initial visit. The WIC High Risk Counselor will assess the child and determine a course of action.

Children with a BMI-for-age greater than or equal to the 95<sup>th</sup> percentile may have medical or physical problems as a result of their obese condition. It is the responsibility of the WIC High Risk Counselor to assess these children and determine a course of action. In many cases the issues will be similar to those for children who are at overweight. For some, the issues may be more complex and require more intervention. While it is rare, some children may be extremely overweight because of metabolic problems. These children need to be evaluated by the WIC High Risk Counselor and referred to a physician who specializes in metabolic problems.

It is important when referring children to the WIC High Risk Counselor to make the child and the caregiver feel good about the referral. Explain to the caregiver that all kids grow at different rates and that some grow faster than others. Each child has a different weight that is right for them. The WIC High Risk Counselor can better assess the child's growth. Try to help the caregiver to understand that an appointment with the WIC High Risk Counselor is an extra benefit of the WIC Program. The WIC High Risk Counselor can supply more specific information, assessment, and answer questions.

### **The Role of the Wellness Coordinator**

Some local WIC agencies may have a designated WIC Wellness Coordinator. This staff person spends some extra time learning about obesity prevention and sharing ideas, knowledge, and strategies with other WIC staff. The WIC Wellness Coordinator may also organize special activities to support WIC families in adopting healthier lifestyles and work with partners in the community to improve the environment WIC families live in.

*SELF-CHECK: PRACTICE YOUR KNOWLEDGE*

Fill in the blank to accurately complete the following statement:

1. Obese in children may be defined when BMI-for-Age are plotted on a growth chart. A weight for height equal to or above the \_\_\_\_ the percentile may indicate obesity.

Place a "T" (for True) and an "F" (for False) in the space to the left of the following statement.

2. \_\_\_\_ Inappropriate eating patterns and insufficient activity are the most common reasons why people become and remain overweight.
3. List four habits that are associated with overweight:
  - a.
  - b.
  - c.
  - d.

*ANSWERS*

1. A child who's BMI-for-age is equal to or greater than the 95<sup>th</sup> percentile may be considered obese.
2. True
3. Any four: use of a bottle after 14 months of age; drinking excess calories from beverages; consuming a high-fat diet or excess desserts; frequency of eating out; consumption of excessive portion sizes; poor meal structure or lack of meal structure; inconsistent availability of food, use of food as a reward or punishment.

## Section V: Anemia and Oral Health

### Iron Deficiency Anemia

Iron is important in the formation of healthy red blood cells. It combines with protein to form **hemoglobin**, which is the red substance in the blood that transports oxygen to the cells and carbon dioxide away from the cells. When the body has an adequate supply of iron, there is also an increased resistance to infection.

If **iron deficiency** exists, a condition called **anemia** can occur. Symptoms of anemia include fatigue, pale appearance, loss of appetite, and sometimes an increased frequency of colds and other infections. Anemia can be detected by a simple blood test (hematocrit or hemoglobin screening) that requires only a prick of the finger.

Iron-deficiency anemia is the most common nutritional deficiency in children from 6 months to 3 years of age. It is especially prevalent among poverty-level preschool children.

### Cause

A common cause of iron-deficiency anemia in the 1 to 2 year old is due to excessive milk intake. Milk is a poor source of dietary iron. However, some parents encourage their children to drink more milk, especially when the child's consumption of solid foods decreases. This combination of low intake of solid foods and excessive intake of milk may contribute to the development of iron-deficiency anemia. After two to three years of age, a lack of iron-rich foods in the diet is usually the cause of iron-deficiency anemia.

### Prevention

Prevention of iron-deficiency in children may be accomplished by counseling parents/caregivers to modify the child's diet by limiting foods that are both low in iron and high in calories, while substituting more iron-rich foods. Specific suggestions are as follows:

- Since milk is such a poor source of dietary iron, milk intake should generally not exceed 24 ounces daily. Encourage weaning to a cup if the child is still consuming milk in bottles.
- Encourage the eating of iron-rich foods such as lean meats, fish, poultry, whole grain and iron-fortified cereals and breads, fortified noodles/spaghetti, dark green leafy vegetables, and beans and peas.
- Iron from animal sources is better absorbed by the body than iron from plant sources. A good source of vitamin C (like orange juice) or a meat product consumed with an iron-rich plant food increases the absorption of iron from that plant food. A word about eggs: even though eggs are from an animal source, the iron in them is poorly absorbed unless they are eaten along with a vitamin C source (e.g., citrus fruits or juices, broccoli, green pepper, strawberries).

Children aged 1-5 years old need 10 mg of iron daily. The chart below presents the amount of iron contained in child-sized portions of certain foods.

**Milligrams (mg) of Iron in Child-sized Servings of . . .**

Highly fortified cereals, ready-to-eat* (1 oz = ½ to ¾ cup)	18.0 mg
Cooked dried beans (1/2 cup)	2.6 mg
Beef liver (1 oz)	2.5 mg
Chicken liver (1 oz)	2.4 mg
Egg (1)	1.1 mg
Lean red meat (1 oz)	1.0 mg
Peas, mixed vegetables (1/4 cup)	.75 mg
Collards, mustard greens (1/4 cup)	0.6 mg
Bologna, beef (1 slice)	0.5 mg
Dried prunes (2)	0.4 mg
Whole wheat bread (1/2 slice)	0.38 mg
Broiled chicken (1 oz)	0.38 mg
Peanut butter (1 Tablespoon)	0.3 mg
Other fruits and vegetables	0.25 mg
Milk (1/2 cup)	trace

\*Iron fortification is different for each cereal. READ THE LABEL to find out the amount contained in a box of cereal.

## Treatment

One of the nutritional risk criteria for certification in the WIC Program is iron-deficiency anemia. Iron-deficiency anemia can be detected by either a hematocrit or hemoglobin test. Once a participant has been identified as anemic, he and his caregivers will need counseling and treatment.

If the low hemoglobin\hematocrit is severe enough to put the child in the high-risk category, then he must be referred to the WIC High Risk Counselor. If it is not severely low, then the educator handles the counseling.

Some tips for you when counseling the caregivers of these children include:

- **Encourage** the use of good animal sources of iron, e.g., lean red meats. Remember that iron from animal sources is well absorbed by the body.
- **Encourage** the use of non-animal sources of iron, e.g., legumes, grains, and certain vegetables. Remember that one way to increase the absorption of iron from meals containing vegetables and grains is to eat a vitamin C-rich food at the same meal. For example, serve orange juice along with iron-fortified cereal at breakfast.
- **Encourage** the use of WIC cereals for mealtime and snacks.
- **Discourage** the use of tea since it has no nutritive value and interferes with iron absorption.
- **Discourage** a daily milk intake that is greater than 24 ounces since milk is a poor source of iron.
- **Discourage** the use of unfortified snack foods such as baked goods, soft drinks, candy, cookies and chips.

*SELF-CHECK: PRACTICE YOUR KNOWLEDGE*

1. Two common dietary causes of iron-deficiency anemia are:
  - a.
  - b.
  
2. Three suggestions for parents in helping to prevent iron-deficiency anemia in their preschool-age children are:
  - a.
  - b.
  - c.
  
3. Which of the following contains the most iron? (Circle the letter of the correct answer.)
  - a. one egg
  - b. one slice whole wheat bread
  - c. ½ cup of “greens”
  - d. one ounce of a highly fortified cereal, e.g., a WIC cereal.

*ANSWERS*

1. Common dietary causes of iron deficiency anemia are:
  - a) Excessive milk intake and consequently a low intake of solid foods
  - b) Low intake of iron-rich foods (and therefore a high intake of iron-poor foods).
  
2.
  - a) Limit daily milk intake to a maximum of 16 ounces.
  - b) Limit iron-poor foods (soft drinks, candy, pastries, and snack foods).
  - c) Increased intake of iron-rich foods (whole grain and iron-enriched cereal products, dark green leafy vegetables, meats, dried beans and peas, dried fruit); encourage consumption of a good vitamin C source when eating high-iron plant foods to increase iron absorption.
  
3. d)

## Oral Health in Children

Teeth are a very visible and important part of a person. They give shape and expression to the face and mouth; they assist in the pronunciation of words; and they permit chewing of food.

Let's first discuss the growth and development of teeth and then the causes of oral disease or tooth decay.

Each person normally will have two sets of teeth during his lifetime. The first set of teeth begins to form well before birth. The twenty primary (first) teeth will begin to come through the gums when a child is between four and eight months old. The lower teeth usually appear first. By 2½ years of age, most children have all twenty primary teeth.

There are thirty-two permanent (or second teeth). Twenty of them replace the first teeth when the child is somewhere between 6 and 13 years old. Twelve additional teeth also erupt through the gums at this time. The four wisdom teeth do not appear until early adulthood. The permanent teeth must last a lifetime, so consistent care is needed for them.

### Oral Disease and Tooth Decay

Oral disease, also known as tooth decay, has complicated causes with no single solution. Many factors affect a child's susceptibility, including the mother's or primary caregiver's oral health, the family's preventive practices, access to dental insurance and care close to home as well as community water fluoridation. Individual diet choices, bacteria levels in the mouth and the child's overall health also matter. So does each child's history of oral disease. Previous tooth decay is a predictor of future dental problems.

Dental caries, commonly called "cavities," consist of the progressive decay of the tooth. Dental caries are the most prevalent disease for all age groups beyond infancy. Dental caries and their treatment can be painful, expensive, and can result in the loss of teeth. Tooth decay in childhood can lead to crooked permanent teeth and speech problems.

The bacteria, *Streptococcus mutans*, cause tooth decay. People who don't take good care of their teeth have an increased amount of the bacteria in their mouths and are more likely to spread the bacteria to someone else. Children are often exposed to the bacteria during their infancy. Caregivers spread the bacteria to their infant's mouth (such as spoons, pacifiers, toothbrushes).

The bacteria in the mouth then break down dietary carbohydrates, producing acid that attacks the tooth. These acids can remove minerals from the tooth causing the enamel to weaken and decay. The carbohydrates that can readily cause tooth decay are simple sugars and, in particular, the "sticky" type (i.e., sweets) that will stick to the teeth.

Whether or not this process destroys the enamel will depend on the natural hardness of the tooth, the strength of the acids, and the length of time the acids are exposed to the teeth. The

greatest damage is done within the first twenty minutes after eating. Enamel is broken down after repeated acid exposures, thus allowing bacterial access to the body of the tooth. The resulting cavity is actually a bacterial infection.

### **Periodontal Disease**

Periodontal (gum) disease is another type of dental problem. This affects a large proportion of the world's population. Periodontal disease results in the destruction of both the connective tissues that attach the tooth to the bone and the bone itself.

One of the factors that is known to cause periodontal disease is bacterial plaque. Plaque acts as an irritant to the gums causing them to swell and bleed. If the plaque is not removed, it collects on the teeth below the gum line and develops pockets where infection can occur. It is this infection which leads to the eventual destruction of the supportive bone.

*SELF-CHECK: PRACTICE YOUR KNOWLEDGE*

Read through the following statements and put a check mark (✓) in front of those statements that are true.

1. \_\_\_ Teeth perform important functions of providing shape to the face and mouth, assisting in pronunciation of words, and enabling chewing of food.
2. \_\_\_ The primary teeth begin to develop when an infant is between 4 and 8 months old.
3. \_\_\_ The only purpose which primary teeth serve is to allow the child to eat solid food.
4. \_\_\_ Adults generally have 32 teeth.
5. What are the two kinds of dental problems discussed here?  
\_\_\_\_\_ and \_\_\_\_\_
6. Plaque is the name given to the colonies of \_\_\_\_\_ that adhere to teeth.
7. Plaque and sugar form acid which attacks the \_\_\_\_\_ causing \_\_\_\_\_.

*ANSWERS*

1. True
2. True
3. True
4. True
5. Oral Disease/tooth decay & periodontal or gum disease
6. Bacteria
7. Tooth, cavities

## How to Control Bacteria

Bacteria are always present in the mouth. Food particles left on the teeth after eating provide energy for bacteria to grow. Adhering to the following guidelines may prevent cavities:

### Proper cleaning of teeth:

- Brush the teeth, or at least rinse the mouth, after each meal or at least twice a day.
- Brush for at least two minutes. Plaque is sticky and difficult to see. Unless time is spent brushing, plaque will be left on teeth and can mix with minerals in the saliva to form calculus (tartar). Tartar can't be brushed off but must be removed by the dentist.
- After age 24 months, children can begin brushing with fluoridated toothpaste. Only a peas-sized amount is needed. Fluoride is necessary to keep teeth strong, but too much can cause mottling (graying) of teeth. Most municipal water sources contain fluoride. If the family has well water, suggest they have their water test for fluoride. Families who rely on bottled water should be referred to a dentist for fluoride treatments or supplements. Families can contact their local water treatment facility to learn about the fluoridation of the community water supply.
- Parent/caregiver should actually perform the brushing and flossing of teeth until the child is effective with the toothbrush. This usually is until the age of seven or older. Flossing with unwaxed floss once a day will:
  - Dislodge food particles from between teeth
  - Help remove plaque
  - Control plaque build-up
  - Stimulate the gums, helping to prevent gum disease
- Caregivers should lift the child's lip and check their teeth at least once a month (if white spots or dark areas are forming, the child needs to be seen by the dentist right away).

### Healthy Habits:

- Wean children from the bottle completely by 14-months of age. Toddlers who are put to bed with a bottle of milk, juice, or sweetened drink can develop tooth decay. The sugar in these beverages pools around the teeth and the bacteria act upon it. Breastfeeding does not lead to dental caries but actually lowers the risk of tooth decay.
- Clean the mouth after each meal.
- Read labels. The ingredients are listed on labels with the ingredient in the highest percentage first. The further down the list sugar appears the better. Remember, too, that there are many different kinds of sugar. Corn syrup, honey, dextrose, fructose, sucrose, lactose, laevulose, and molasses are all different names of various sugars. They will be separated on a label, but they all add up to SUGAR.
- Avoid snacking on foods high in sugar, particularly between meals. Avoid snacks that contain sugar and stick to the teeth, like gum drops, and raisins.
- Eat snacks that are not as likely to promote tooth decay. Select snack foods from the meat group or fruit and vegetable group. Vegetables, particularly stimulate saliva production which helps wash away some of the food particles from the teeth. In addition, the fiber in fruits and vegetables can assist in loosening food stuck to teeth.

- Ideally, after each meal or snack, try to brush and floss. If this is not possible, rinse the mouth out with water to remove food particles.
- Check with your dentist or doctor to see if fluoride supplements or treatments are needed.
- If the child hasn't yet seen the dentist, arrange for an appointment as soon as possible. If the family dentist is reluctant to see a young child, refer clients to a pediatric dentist. For help locating a dentist call the Family Healthline at 303-692-2229 (Metro Denver) or 1-800-688-7777 (throughout Colorado).
- You can also email a family Healthline specialist at [cdphe.psdrequests@state.co.us](mailto:cdphe.psdrequests@state.co.us)

### Healthy drinking habits:

- Limit sweet drinks such as soda, Kool-Aid, punch, and juice. Sipping on juice throughout the day is as harmful for teeth as any other sweet drink.
- Do not put a child to bed with a bottle.

### Common Questions and Answers:

**Q:** *How do you respond to a parent who chooses to keep a child on the bottle because of the mess the child makes with a cup?*

**A:** Often children are ready to give up the bottle long before the parents are. This sometimes happens with children whose parents don't want them to "grow up too fast," or, as in this case, parents who are afraid the child will make a mess.

### Dangers

Explain to the parents the dangers of keeping the child on the bottle too long. Staying on the bottle too long can hurt the child's teeth, which can affect the adult teeth. Children who stay on the bottle too long often drink too much milk. Drinking too much milk can reduce the child's appetite for other foods and this often leads to low-iron levels in the blood. You may be able to illustrate these "dangers" with the stories and pictures of children with early childhood caries.

### Dealing with the "Mess"

Since the biggest issue seems to be the mess, ask the parent to brainstorm with you ways to reduce the mess while using a cup. Most likely they *know* what they can do. If needed, prompt with a few suggestions: "Do you think you could give your child an empty cup to hold? That way he can get used to the feel of a cup before you put liquids in it." Or, relate stories of other clients' success such as, "Last week I talked to a mom who's going through what you are. She put a plastic mat under the high chair, put a bib on her child, and gave him a cup. That way there was very little mess."

Parents might come up with other suggestions such as limiting eating and drinking to one area of the house (i.e., at the child's high chair or the kitchen table) or removing the cup when the child is finished. Offer support and encouragement. Assure the parent that the messy stage

won't last forever. Whatever approach you take, however, avoid making the parent defensive. Keep in mind that your role is to offer suggestions and help.

### **Role of Sugar in Dental Disease**

As previously discussed, simple sugars are the carbohydrates that plaque will most readily use to form acid. Recent studies on animals have shown that all sugars are cariogenic (cavity-producing). That means that table sugar; brown sugar, molasses, sorghum, corn syrup, honey, and the sugar found in fruits and milk are all cariogenic. A table listing foods and their sugar content is located on the next page.

It has been found that it's not only the amount of sugar eaten, but also the frequency of eating, the length of time the sugar stays in the mouth, and the form of the sugary food (i.e., liquid or sticky candy) that affects cavity production. The more often a person eats sugar, the more often acids form on the teeth. Dentists estimate that every time a person eats, acids will act upon the tooth enamel for twenty minutes. A food containing sugar will increase the strength of the acid and, therefore, increase the chance of damage to the tooth enamel. Similarly, the longer a sugary food stays in contact with the teeth the greater the chance there is for acid to form. With this in mind, a soft drink taken during a short period of time may cause fewer dental problems than a hard candy that remains in the mouth for a prolonged period of time, feeding the bacteria and prolonging the acid attack on the tooth enamel. Chewing candies (such as toffee or caramels) are particularly detrimental to oral health because they contain large quantities of sugar and exist in a sticky consistency that is difficult to remove from the teeth.

Remember that frequency is also a factor. Consider that a slowly sipped cup of sugared coffee may be more hazardous than a quickly swallowed solid food like a sugared donut because of the frequency of attack. For the same reason, five sticks of gum chewed all at once may be less damaging than five sticks chewed individually throughout the day. It should be mentioned here that starch, another form of carbohydrate found in foods such as breads, cereals, and potatoes, will break down to form a type of sugar. Because it takes longer for starches to break down, the starch will usually be in the stomach before it is changed into a sugar. However, if the starch is a consistency which sticks tightly to the teeth (like potato chips), it might be broken down to sugar in the mouth, thereby contributing the energy the bacteria needs to form plaque. Because much of the fiber is removed, white bread tends to have a consistency which readily sticks to the teeth. Other breads and cereals also can stick to teeth, although to a lesser extent.

Dried fruits are a good source of minerals and a fair source of vitamins, but they may contain as much as 70 percent sugar. In the drying process, the water is removed to make the fruit a more concentrated source of sugar. Additionally, the change causes the starch in fruits to become sugar. Due to the change in consistency and high sugar content, dried fruits are considered to be cariogenic.

Food Item	Portion Size	Approximate sugar content in teaspoonfuls of granulated sugar
Orangeade	1-8 oz glass	5
Soda pop	1-8 oz bottle	5
Angel food cake	1-4 oz piece	7
Cheese cake	1-4 oz piece	2
Chocolate cake-iced	1-4 oz piece	10
Cupcake-iced	1	6
Chocolate cookies	1	1 ½
Fig Newton	1	5
Ginger snaps	1	3
Oatmeal cookies	1	2
Sugar cookies	1	1 ½
Donut-glazed	1	6
Candy bar	1-1 ½ oz	2 ½
Fudge	1 oz square	4 ½
Hard candy	4 oz	20
Lifesavers	1	¼
Peanut brittle	1 oz	3 ½
Canned peaches	2 halves & 1 T syrup	3 ½
Ice cream sundae	1	7
Jelly/jam	1 T	10
Apple pie	1 slice-average	4
Cherry pie	1 slice	5
Cream pie	1 slice	4
Pumpkin pie	1 slice	3
Chocolate pudding	½	3
Brown sugar	1 T	3
Granulated sugar	1 T	3
Honey	1 T	3
Maple syrup	1 T	5
Molasses	1 T	3 ½
Icing	1 oz	5

Adapted from a table by the Makers of Calcident Tablets

*SELF-CHECK: PRACTICE YOUR KNOWLEDGE*

1. Which are proper guidelines for cleaning the teeth of a preschooler?
  - a. Brush the teeth at least twice a day.
  - b. After age one, children can use fluoridated toothpaste.
  - c. Instruct children how to brush their own teeth at one year and allow them to do so.
  - d. Floss once a day.
  
2. Which sugar is the most cariogenic?
  - a. table sugar
  - b. natural sugar in fruit
  - c. honey
  - d. molasses
  - e. corn syrup
  - f. all of the above
  
3. Which is the most important factor in the relationship of sugar to dental disease?
  - a. The total amount of sugar eaten per day.
  - b. The number of times sugar-containing food is eaten per day.
  - c. The form in which the sugar is eaten
  - d. All of the above
  
4. List at least 3 healthy habits for preventing dental problems.
  - a.
  - b.
  - c.

*ANSWERS*

1. a, d
2. If you circled “**all of the above**” you are correct. Remember that all sugars are cariogenic.
3. Again, the correct answer is “**all of the above.**” The amount, frequency, and form of the sugar eaten are factors in the relationship of sugar to dental disease.
4. Any 3 listed under Healthy Habits.

## **Anemia and Dental Risk Factors**

### **NRF 201 (Low Risk)- Low Hemoglobin\Low Hematocrit**

#### **Definition:**

- Refer to “Hematocrit or Hemoglobin Levels Indicating Risk” table.

### **NRF 201B (High Risk)- Severely Low Hemoglobin\Low Hematocrit**

- High Risk - Requires a referral to the WIC High Risk Counselor within 30 days.

#### **Definition:**

- Hemoglobin or Hematocrit levels low enough to necessitate a medical referral per the Standards for Severe Anemia table. The greatest risk to children with low hemoglobin\hematocrit (mild and severe) is a delay in mental and motor development. Children with a low hemoglobin\hematocrit are less successful on specific cognitive processes than children with adequate iron stores.

#### **Your Role:**

- Discuss healthy eating habits for children and recommend types of foods and quantities appropriate for the child’s age group.
- Identify if the child is consuming an excessive amount of milk and snacking on or eating foods low in iron.
- Dialogue with the caregiver about iron.
- Find out what they know about iron, e.g., iron’s importance and food sources.
- Identify ways to incorporate iron into the diet. Encourage the use of WIC iron-fortified cereals and protein foods.
- Explain the relationship between non-heme iron and the ability of vitamin C to enhance absorption if meats are not routinely eaten.
- Listen to the caregiver to learn what they would like to work on.
- Negotiate a plan that works toward healthier feeding habits.
- Find out what might or might not be helpful with carrying out the plan.
- Work together with the caregiver to tailor the plan.
- Once the plan has been developed to a comfort level for the caregiver, confirm the caregiver understands and agrees with the plan.
- Provide the caregiver with a related pamphlet to help reinforce the message if appropriate and desired.

### **NRF 211 (High Risk) - Elevated Blood Lead Levels**

- High Risk -Requires a referral to the WIC High Risk Counselor within 30 days.

#### **Definition:**

- Blood lead level of greater than or equal to 10 micrograms/deciliter within the past twelve months. Lead poisoning occurs in children primarily because of their hand-to-mouth activities. The most common cause of lead poisoning is dust and chips from old paint. Other sources are dust, soil, jewelry and ceramics. The effects of lead poisoning are debilitating. Adequate nutrient intake is known to decrease children's susceptibility to the toxic effects of lead.

#### **Your Role:**

- Ensure the diet is high in calcium and iron and that regular meals and snacks are offered. Lead is better absorbed on an empty stomach.
- Staff can discuss healthy eating habits for children and recommend types of foods and quantities appropriate for the child's age group to caregivers who report an elevated lead level for the child.
- Staff should also refer the caregiver to lead treatment programs, if appropriate.

### **Medical Conditions**

See the NRF tables for a complete listing of all of WIC's medical conditions. A medical problem is a nutrition risk factor if it causes, contributes to, or results from an inability to obtain adequate nutrition for growth and development of the child or the maintenance of health. Dental problems are one of the medical conditions. All medical conditions require a referral to the WIC High Risk Counselor within 30 days, except NRF 381 Oral Health Conditions, which is low risk. There may be times when a low risk child with dental problems should be referred to the WIC High Risk Counselor. If the child is having chewing difficulty because of their oral health issues, or if the parent has concerns about the child's ability to consume food in adequate quantity or quality you may want to check with the WIC High Risk Counselor to see if the child should be referred for assessment by the WIC High Risk Counselor.

### **NRF 381 (Low Risk) - Oral Health Condition**

#### **Definition:**

- This should be risked if there is a diagnosis of dental problems by a physician or health care provider working under the orders of a physician or adequate documentation by the competent professional authority; includes but not limited to: Oral health conditions include, but are not limited to:
  - Dental caries, often referred to as "cavities" or "tooth decay"
  - Periodontal diseases (stages include gingivitis and periodontitis)
  - Tooth loss, ineffectively replaced teeth or oral infections which impair the ability to ingest food in adequate quantity or quality

## Section VI: Social Indicators of Nutritional Need

Some children are at nutritional risk based upon their living accommodations and/or the ability of the care giver to take care of themselves and their family. Situations where the WIC Program identifies children as being at nutritional risk based on social indicators include homelessness, migrancy, and inability of caregiver to make appropriate feeding decisions or recent placement in foster care. Generally in situations where shelter is temporary, a person is less able to ensure that she has access to adequate nutritious food, food storage, and cooking facilities. These are all low risk, nutrition risk factors (NRF's).

### NRF 801 (Low Risk) - Homelessness

#### Definition:

- A child who lacks a fixed and regular night time residence; or whose primary night time residence is: A supervised publicly or privately operated shelter (including a welfare hotel, a congregate shelter, or a shelter for victims of domestic violence) designated to provide temporary living accommodations; an institution that provides a temporary residence for individuals intended to be institutionalized; a temporary accommodation in the residence of another individual not exceeding 365 days; or a public or private place not designed, or ordinarily used as, a regular sleeping accommodation for human beings.

#### Your Role:

- Providing effective and appropriate nutrition education to homeless persons requires that staff have an understanding of the participant's transient lifestyle. It is important to identify the caregiver's ability to provide regular healthy meals to the child. Because a participant may only be enrolled for a short period of time, ongoing, long-term education goals may not be appropriate.

### NRF 802 (Low Risk) - Migrancy

#### Definition:

- A child whose family's principal employment is in agriculture on a seasonal basis, who has been employed within the last 24 months, and who establishes, for the purposes of such employment, a temporary abode.

#### Your Role:

- Many migrants have participated in WIC Programs in other states where food delivery, allowable foods, and the design of the check are very different. Therefore, priority topics for education should include identifying affordable food resources in their community, how to use the WIC check, allowable WIC foods, and how to use the foods.

### NRF 901(Low Risk) - Recipient of Abuse

#### Definition

- Battering or child abuse/neglect within the past 6 months as self-reported by endorser/proxy or documented by a social worker, health care provider, or on other

appropriate documents, or as reported through consultation with a social worker, health care provider, or other appropriate personnel.

### **NRF 902 (Low Risk) - Primary Caregiver with Limited Ability to Make Feeding Decisions and/or Prepare Food**

#### **Definition:**

- Child whose primary caregiver is assessed to have a limited ability to make appropriate feeding decisions and/or prepare food. Examples may include individuals who are:
  - Mentally disabled/delayed and/or have a mental illness such as clinical depression (diagnosed by a physician or licensed psychologist;
  - Physically disabled to a degree that restricts or limits food preparation abilities;
  - Currently using or have a history of abusing alcohol or other drugs.

#### **Your Role:**

- Discuss with the caregiver ways the WIC Program can assist in meeting the participant's nutritional needs.
- WIC staff can provide education, referrals, and coordinate services to help the caregiver develop the skills and locate the resources to assist her/him in caring for the child.

### **NRF 903 (Low Risk)- Foster Care**

#### **Definition:**

- Entering the foster care system during the previous 6 months or moving from one foster home to another foster home during the previous 6 months.

#### **Your Role:**

- Foster children have a high frequency of mental and physical problems that are often the result of abuse and neglect happening before foster care. They are often more likely to have inadequate nutrition. WIC staff can provide a baseline nutritional assessment of the participant and provide nutrition education, as well as make referrals to resources to support the foster parent and participant's ability to be healthy.

### **NRF 904 (Low Risk) - Environmental Tobacco Smoke Exposure (ETS)**

#### **Definition:**

- Exposure to smoke from tobacco products inside the home or car.
  - Note: ETS is also known as passive, secondhand, or involuntary smoke.

#### **Your Role:**

- Complete a thorough nutrition assessment as outlined in normal child protocols.
- Provide information about the specific risks involved with secondhand smoke.
- Discuss ways that the caregiver can protect the child from second hand smoke (i.e. smoke outside; don't smoke in the car, etc.).
- Listen to the caregiver to learn what they would like to work on.

*SELF-CHECK: PRACTICE YOUR KNOWLEDGE*

1. Put a check (✓) next to the nutrition risk factors for children 2 years and older.

- a.  Anemia
- b.  Underweight
- c.  Overweight
- d.  Failure to Meet Dietary Guidelines
- e.  Pica
- f.  Substance Abuse
- g.  Complications of Delivery
- h.  Medical Conditions
- i.  Prematurity
- j.  Low birth weight
- k.  Short stature
- l.  Inadequate or Potentially Inadequate Growth
- m.  Migrancy

Place a "T" for true or an "F" for false in the space to the left of each of the following statements:

- 2.  Children who are at the 85<sup>th</sup> percentile BMI-for-age are considered high risk.
- 3.  Children who are below the 5<sup>th</sup> percentile BMI-for-age are considered low risk.

*ANSWERS*

- 1. a, b, c, d, e, h, k, l, and m should be checked.
- 2. False.      Low risk
- 3. False.      This is a high-risk condition.

## Section VII: Case Studies

The following are four case studies which present various situations involving eating behavior challenges with preschool children. Read the case studies and the education suggestions for the participants.

### Case Study #1

Mary Ambrose is an active, energetic 2½-year-old child enrolled in your WIC clinic. Her height, weight, and hemoglobin are normal. Her mother complains that Mary is a very picky eater and will hardly eat anything. In particular, Mary will not eat vegetables. Mary's mother complains that the only way she can get Mary to eat her vegetables is to tell her she can have her favorite dessert if she eats all the vegetables on her plate.

**The positive education that could be given to Mary's mother includes:**

- Reassure Mary's mother that Mary's growth is *normal* and that it is common for preschoolers to be picky about their food. After a child reaches one year of age, changes in her food intake occur. The child's rate of growth slows down and her appetite decreases or is erratic. Thus, Mary may not seem to be eating much because she is not growing as rapidly now and does not need as much food for her weight as when she was growing more rapidly. Also, you may want to remind Mary's mother that Mary's serving size is different from an adult's serving size.
- Encourage Mary's mother to *continue* to offer vegetables, prepare them in a variety of ways, and set an example for Mary by eating and enjoying vegetables. Reassure her that children often need to be exposed to new foods a number of times before they decide to eat them.
- Try serving raw vegetables with low-fat dips, or offer a vegetable main dish, such as broccoli cheese casserole.
- Mary's mother could try "disguising" vegetables in dishes like omelets or pizza or tomato-based dishes, or in breads and muffins (like pumpkin bread, zucchini bread, or carrot muffins).

**Discuss with Mary's mother:**

- Bribing Mary with dessert to get her to eat her vegetables may be encouraging Mary to overeat. It also may be reinforcing the idea to Mary that vegetables are bad and sweets are good.
- Mary should have "between meal" snack times that are established and consistent. It may be that Mary is allowed to snack throughout the day. Then, when it comes to mealtimes, Mary is not hungry and only eats a little.

**This is NOT a good response:**

- Tell Mary's mother that because Mary is a preschooler she is growing very fast and she should be eating a lot every day.

**NOTE:** *If height and/or weight should begin to drop out of normal range, or she has other symptoms of illness, Mary may need to be checked by her health care provider to see why her appetite is so poor. Refer her to the WIC High Risk Counselor for further assessment.*

### Case Study #2

The Pollard family sits down to dinner one night. The Pollard family includes Mr. and Mrs. Pollard and their two children, Sandra (28 months) and Amy (7 years). The dinner meal that night consists of noodles, hamburger patties, and carrots. The children are each given a glass of milk. Mrs. Pollard knows from past experience that Sandra doesn't like cooked carrots, but that she does like noodles and milk and will generally eat hamburger. Toward the end of the meal, Sandra hasn't eaten much. She has eaten some noodles and has drunk half her milk, but she hasn't touched her meat or carrots. Sandra starts to fidget and play with her food. Mrs. Pollard lets her leave the table to go play. If Mrs. Pollard described this situation to you in WIC clinic the next day, what would be an appropriate response you could give her?

**The following are appropriate responses you could give Mrs. Pollard:**

- Tell Mrs. Pollard that she did well by including at least two things in the meal she knew Sandra would eat, and that she didn't limit the menu to only those things Sandra likes.
- Reassure Mrs. Pollard that Sandra probably wasn't very hungry.
- Tell Mrs. Pollard that she did well by not offering to fix Sandra something else for dinner when she refused the hamburger and carrots.
- Encourage Sandra if she is done with her dinner, that's fine, but that she can stay at the table to talk with the rest of the family.

**This is NOT a good response:**

- Tell Mrs. Pollard that she should have made Sandra sit at the table until she had eaten her hamburger and carrots, because otherwise her intake at the meal was very inadequate. Tell Mrs. Pollard to promise Sandra dessert if she eats her hamburger and carrots next time.

### Case Study #3

A father complains to you that all his 3-year-old son Jason eats are sweets. Below are positive education tips to share with Jason's father:

- Try to help the father realize that parents are in charge of what foods are available in the home and that maybe he is buying too many sweets.
- Help the father determine whether he is using sweets as a reward with his son.
- Make "sweets" something nutritious like peanut butter, fruit, yogurt, or pudding.
- Find out what other nutritious foods Jason likes and encourage the father to make them available at home.

**This is NOT a good response:**

- Tell Jason's father that he should never keep sweets in the house.

**Case Study #4**

Mr. and Mrs. Eastman come into your WIC clinic for their nutrition education appointment. They complain that they have been trying to follow your advice about serving well-balanced meals; but that their 30-month-old Jennifer is so active that she won't sit down at the table and ends up missing a lot of meals.

The education points you could discuss with the Eastman's are:

- It's reasonable for parents to insist that all family members come to the table at mealtime, at least for a while, whether they want to eat or not.
- A brief rest period before meals might help Jennifer calm down, (e.g., reading or looking at a book).
- Help the parents determine whether there are distractions (such as TV or loud music) that may be making it hard for Jennifer to settle down.
- Help the parents determine if Jennifer is getting snacks that are being served too close to mealtime.

**These are NOT good responses:**

Jennifer must be hyperactive since she won't sit at the table and should be seen by their family doctor.

- Jennifer's hyperactivity must be caused by too many additives in her food and she should be put on a strict diet.

## **Training Activity**

Once you have completed this module, please take the Preschool Module on-line post- test. For access instructions please visit the Colorado WIC website. **Good Luck!**