

## Nutrition for the School-Aged Child

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When you send your child off to school, your job related to healthful meals for your child isn't over. During the school years, many nutrition lessons still need to be taught. Your children likely will face new choices about what to eat during and after school. Their friends and schoolmates will have a greater influence on these choices.

### Important Nutrients for Healthy Growth and Development

Through the school years, children will have periods of rapid growth and big appetites. When growth slows, appetites will decrease and children may want to eat less food at meals and snacks. Allow your child to decide when she or he is full. Do not force children to clean their plates. The following are important nutrients needed for healthy growth and development.

#### Carbohydrates, Fats, and Protein:

- *Carbohydrates and fats* provide energy for growing and physical activity. Children need fuel for their bodies to grow and to meet their everyday energy needs. Foods such as grains, fruits, and vegetables provide that energy, in addition to vitamins, minerals, and fiber for good health. It is important to choose healthy fats, such as those found in nuts, seeds, and oils, and to limit saturated and trans fats.
- *Protein* builds, maintains, and repairs body tissue. It is especially important for growth. In the United States (U.S.), most children eat enough protein. However, it is still important to encourage children to eat the recommended amounts of protein-rich food each day. Milk and other dairy products, poultry, seafood, pork, beef, eggs, soy products, nuts, and seeds are examples of good protein sources.

#### Vitamins and Minerals:

- *Calcium* from milk and dairy products and some dark green, leafy vegetables is usually sufficient in young

children's diets. As children approach their teen years, dietary calcium intakes don't always keep up with recommendations. Calcium is particularly important in building strong bones and teeth. Osteoporosis, a brittle bone disease that affects older adults, begins in childhood if diets do not contain enough calcium-rich foods.

- *Iron* deficiency anemia can be a problem for some children. Iron is an oxygen-carrying component of blood. Children need iron because of rapidly expanding blood volume during growth. For girls, the beginning of menstruation in late childhood adds an extra demand for iron due to the regular loss of iron in menstrual blood. The following foods are a good source of iron: beef, ham, chicken, fish, beans, dark green vegetables, and enriched breads and cereals. Our bodies absorb iron better when foods high in iron are eaten with foods high in vitamin C. The following foods are high in vitamin C: citrus fruits such as oranges and kiwi, dark green vegetables, potatoes, tomatoes, and peppers.
- *Vitamins A and C*, and *folate* come from many different fruits and vegetables. They are important for healthy skin, growth, and fighting infections.
- *The B vitamins* (thiamin, niacin, riboflavin, and other B vitamins) come from a variety of foods including grain products, meat and meat substitutes, and dairy products. They promote healthy growth in a variety of ways.
- *Potassium*, found in many fruits and vegetables, meat, and milk, is also important for good health.

Parents should provide a variety of foods, establish regular meal and snack times, and encourage physical activity for their children. In most cases, nutrient and energy needs will be adequately met when you include a variety of foods from all five food groups. If parents are concerned about their child's nutrient intake or their weight, they should consult with a physician or registered dietitian.

**Table I. Healthy snack ideas for children and others for each of the five food groups.**

<i>Grain Group</i>	<i>Vegetable Group</i>	<i>Fruit Group</i>	<i>Dairy Group</i>	<i>Protein Foods Group</i>
<ul style="list-style-type: none"> <li>• Crackers with cheese</li> <li>• Tortilla filled with vegetables, salsa, and low-fat cheese</li> <li>• Popcorn</li> <li>• Whole-grain cereal with low-fat milk</li> <li>• Bagels with low-fat flavored cream cheese</li> <li>• Rice cakes with peanut butter and sliced bananas</li> <li>• Baked tortilla chips or pita chips</li> <li>• Vanilla wafers</li> <li>• Graham crackers</li> <li>• Animal crackers</li> <li>• Trail mix (made with cereal and dried fruit)</li> <li>• Instant hot oatmeal</li> <li>• Soft pretzels with melted low-fat cheese</li> </ul>	<ul style="list-style-type: none"> <li>• Carrot sticks with low-fat ranch dressing or yogurt</li> <li>• Celery sticks with cheese</li> <li>• Garden salad</li> <li>• Baked potato with cheese</li> <li>• Celery sticks with peanut butter and raisins</li> <li>• Broccoli with cheese</li> <li>• Fresh veggies (snow peas; grape tomatoes; red, green, or yellow bell peppers; carrot sticks; etc.)</li> </ul>	<ul style="list-style-type: none"> <li>• Bananas</li> <li>• Apples</li> <li>• Oranges</li> <li>• Strawberries</li> <li>• Dried fruit (raisins, dried cranberries, apricots, apples, or bananas)</li> <li>• Unsweetened applesauce</li> <li>• 100% fruit juice</li> <li>• Kiwi</li> <li>• Frozen bananas with peanut butter</li> <li>• Apple slices with peanut butter, yogurt, or caramel</li> <li>• Frozen grapes</li> <li>• Toast with peanut butter and sliced apples or bananas</li> <li>• Strawberries dipped in yogurt</li> </ul>	<ul style="list-style-type: none"> <li>• String cheese</li> <li>• Low-fat or fat-free yogurt</li> <li>• Low-fat or fat-free milk</li> <li>• Smoothie made with milk, yogurt, and fruit</li> <li>• Fresh fruit dipped in yogurt</li> <li>• Cheese and crackers</li> <li>• Cottage cheese and fruit</li> </ul>	<ul style="list-style-type: none"> <li>• Baked tortilla chips with low-fat bean dip</li> <li>• Trail mix (cereal, dried fruit, and peanuts/nuts)</li> <li>• Peanut butter on crackers or celery</li> <li>• Soy nuts</li> <li>• Sliced turkey or ham</li> <li>• Peanuts or almonds</li> <li>• Scrambled eggs with cheese and vegetables</li> </ul>

“Daily Food Plans” (*Table II*) provide guidance for planning general daily food intakes for children. For more information about food selections for your child’s specific age, gender, and activity level, go to [www.choosemyplate.gov](http://www.choosemyplate.gov). Go to the tab labeled “Supertracker and Other Tools” and click on “Daily Food Plans.”

### Healthy Snacks

Growing and physically active children need snacks, but unhealthy snack choices may lead to excess calories and not enough nutrients. Parents and other caretakers can help children make nutritious snack choices by keeping foods on hand from the five food groups. When thinking about healthy snacks, keep it simple, especially if you need to bring snacks to school or to a sporting event for your child. Healthy snack ideas for the five food groups can be found in *Table I*.

Safe food-handling and preparation is an important part of snacking. Young school children ages 5 to 8 should have snacks that are ready-to-eat or partly prepared. Older children enjoy preparing their own snacks. Review safety rules for using kitchen equipment and set limits for the amount of food preparation that can be done. Demonstrate how to use a microwave oven. Sharp knives and electrically powered equipment should be off limits unless a child has adult supervision. Encourage children to be responsible for their own kitchen activities by expecting them to clean up after themselves.

Some age-appropriate tasks are:

**Preschool-aged:** Pouring, scooping and measuring ingredients, such as flour, sugar, shredded cheese, dry beans, and rice; stirring ingredients; or rinsing fruits and vegetables.

**Elementary:** Above tasks, plus cracking eggs, opening cans, making hamburger patties, some cutting with plastic or butter knives.

**Upper elementary and middle school:** If children do well with the tasks above, they can begin doing more cooking with heat such as making pasta, grilled cheese sandwich, etc.

### Keeping Children Healthy

U.S. children today are more overweight and less physically fit compared to children of the 1960s. A variety of factors affect this trend but a primary reason is lack of physical activity. Today’s average school-aged child spends several hours each day watching television and spending time on the computer. The result is less physical activity. Added to the problem is the decline of physical education as children advance through the grade levels.

- **Stay Active.** The 2010 Dietary Guidelines for Americans recommend that children engage in 1 hour (60 minutes) or more of physical activity every day of the week. Parents can become positive examples for their

**Table II. Daily Food Plans for school-aged children. Suggested daily amount is for kids getting 30-60 min/day of physical activity.**

Food Groups	Children		Girls		Boys		Measurement Equivalents	Tip
	2-3 year olds	4-8 year olds	9-13 year olds	14-18 year olds	9-13 year olds	14-18 year olds		
Grains — includes foods made with whole grains	3 oz	5 oz	5 oz	6 oz	6 oz	8 oz	1 oz = 1 slice bread, 1 cup ready-to-eat cereal, ½ cup cooked cereal, pasta, or rice	Make at least ½ your grains whole grains.
Vegetables — includes all fresh, frozen, and canned vegetables	1 cup	1½ cups	2 cups	2½ cups	2½ cups	3 cups	1 cup = 1 cup raw or cooked vegetables, 1 cup 100% juice, 2 cups raw, leafy greens	Choose a variety of colorful vegetables.
Fruits — includes all fresh, frozen, canned, and dried fruit	1 cup	1 to 1½ cups	1½ cups	1½ cups	1½ cups	2 cups	1 cup = 1 cup fruit or 100% fruit juice, ½ cup dried fruit	Eat more fruit than fruit juices.
Protein foods — includes meat, poultry, beans, seafood, eggs, nuts, and seeds	2 oz	4 oz	5 oz	5 oz	5 oz	6½ oz	1 oz = 1 oz lean meat, poultry or fish, 1 egg, 1 tablespoon peanut butter, ½ cup cooked dry beans, ½ oz nuts	Eat lean meat and vary your choices.
Dairy — includes milk, cheese, and yogurt	2 cups	2½ cups	3 cups	3 cups	3 cups	3 cups	1 cup = 1 cup milk or yogurt, 1 ½ oz natural cheese, 2 oz processed cheese	Choose low-fat or fat-free milk products.

children by joining them in physical activity. Outdoor activities such as playing tag, swinging, walking, bicycling, flying a kite, swimming, and building a snow fort will boost energy requirements for a child and help to build healthy weights. Enjoy family outings that include hiking, picnicking, trips to the park playground, bicycle trips, or bowling.

- **Eat Healthy.** Use caution when dealing with an overweight child. Children should not be put on a “diet” and should not be pushed to lose weight. Instead, focus on making better choices within each food group. For example, choose fruit smoothies made with whole fruit and yogurt instead of ice cream. Do not isolate children from family meals by preparing separate food. The family menus should be appropriate for all family members, including an overweight child.

Keeping fat intake at moderate levels, without being too extreme, is important. Parents who are too restrictive with fat intake will limit a child’s ability to eat sufficient calories to maintain growth. No foods should be forbidden

in a child’s diet. The key to achieving low- to moderate-fat levels is offering appropriate choices, balancing high-fat choices with low-fat choices, and providing a variety of foods. In a recent study on food marketing to children, fast foods have actually increased while sweetened beverages have decreased. Fat intake from fast foods is a concern in regard to total calorie intake and the potential for weight gain. Look over *Table III*, “Healthy Meal and Snack Ideas,” to learn about choosing lower fat choices.

### Summary

Nutrition for school-aged children should promote growth, and meet energy and nutrient needs without promoting too much weight gain. During the school years, children will experience increased opportunities to make choices about their food intakes. Parents can help their children make positive food choices by planning family mealtimes, keeping a variety of foods on hand, and setting positive examples. Habits formed in childhood are likely to carry into adult years.

**Table III. Healthy Meal and Snack Ideas for children and others.**

<i>Instead of this...</i>	<i>Choose this...</i>
<b>Grains</b> (For whole grains, look for whole grain as the first item on ingredient list.)	
Donuts	Whole grain cereal (oatmeal, whole wheat flakes, toasted o's)
Toaster pastry or white bread	Variety of whole grain or enriched bread (whole wheat, whole oats, whole rye)
White pasta	Whole wheat pasta
White rice	Brown rice or wild rice
<b>Vegetables</b> (Eat more dark green and orange vegetables.)	
Sautéed or deep-fried vegetables	Lightly steamed vegetables with herb seasonings or lemon
French fries or au gratin potatoes	Baked potato with low-fat yogurt, cottage cheese, or small amounts of margarine and sour cream, or baked sweet potato fries
Creamy salads	Salads with low-fat dressing, vinegar, or oil
<b>Protein Foods</b> (Vary protein sources — choose more fish, beans, peas, nuts, and seeds.)	
High-fat meat cuts	Select lean meat cuts (those with “loin” or “round” in the name, such as tenderloin or sirloin); trim fat off.
Luncheon meats	Select lean ham, chicken, and turkey to replace luncheon meats.
Hot dogs	Roasted or baked chicken
Fried eggs	Hard-cooked eggs
<b>Milk and Milk Products</b> (If you can't drink milk, choose lactose-free products)	
Whole milk	Select low-fat or non-fat milk, milk products, and yogurt
Regular cheeses	Use low-fat cheeses, such as mozzarella and ricotta
Ice cream	Select sherbet or frozen yogurt, or smoothies made with low-fat milk and fruit
<b>Snack Items</b> (Use snacks only to supplement daily meals, not to replace them.)	
Chips	Popcorn
Candy bars, fruit snacks, etc.	Low-fat crackers, bread sticks
Cookies or snack cakes	Graham or whole grain crackers, trail mix (whole grain cereal, dried fruit, nuts, etc.)

**References**

Cavadini, C, Siega-Riz, AM, and Popkin, BM. U.S. adolescent food intake trends from 1965 to 1996. *Arch Dis Child* 83:13-24, 2000.

Ogden, CL, Flegal, KM, Carroll, MD, Johnson, CL. Prevalence and trends in overweight among U.S. children and adolescents, 1999-2000. *JAMA* 288:1728-1732, 2000.

Robinson, TN. Reducing children's television viewing to prevent obesity: a randomized controlled trial. *JAMA* 282(16):1561-7, 1999.

U.S. Dept. of Health and Human Services and USDA. *Dietary Guidelines for Americans*, 2010 (7th ed.). <http://www.cnpp.usda.gov/DGAs2010-PolicyDocument.htm>.

2008 Physical Activity Guidelines for Americans. <http://www.health.gov/PAGuidelines/guidelines/default.aspx>. February 2012.

[www.choosemyplate.gov](http://www.choosemyplate.gov). February 2012.

Ogden CL, Carroll MD, Curtin LR, Lamb MM, Flegal KM. Prevalence of High Body Mass Index in U.S. children and Adolescents, 2007-08, *JAMA* 303(3)242-249, 2010.

Powell LM, Schermbeck RM, Szczypka G, Chaloupka FJ, Braunschweig CL. Trends in the nutritional content of television food advertisements seen by children in the United States. *Arch Pediatr Adolesc Med.* 165(12)1078-1086, 2011.

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