
PROMOTING HEALTHY EATING AND PHYSICAL ACTIVITY BEHAVIORS

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The development of healthy eating behaviors and physical activity patterns helps to optimize health status and promote mental and physical well being. Unfortunately, many adolescents engage in health compromising behaviors such as frequent dieting, meal skipping, and frequent consumption of foods high in total and saturated fats, sodium and sugar. In addition, physical inactivity is common among adolescents. Meeting the challenge of improving physical activity and dietary habits of teenagers requires the integrated efforts of parents, educators, health care providers, schools, communities, the food industry, policymakers and the teens themselves, all working together to create more opportunities for healthful eating.

This chapter will provide examples of educational programs and materials that can assist health professionals in promoting healthy eating and physical activity behaviors among adolescents. It will also provide an overview of how parents, community members and schools can work together to create environments that encourage health promoting behaviors.

NUTRITION EDUCATION AND PHYSICAL ACTIVITY RESOURCES

The Dietary Guidelines for Americans

The Dietary Guidelines for Americans are a set of science-based diet and physical activity recommendations intended to promote health and prevent disease among Americans.¹ The most recent version of the Dietary Guidelines can be found on the web at <http://www.health.gov/dietaryguidelines/dga2005/recommendations.htm>. The Dietary Guidelines are revised every 5 years to reflect the growing body of knowledge about healthy eating and physical activity as well as to address emerging issues. Key Recommendations for the General Public as well as Key Recommendations for Specific Population Groups (in this case teenagers) from the Dietary Guidelines for Americans 2005 are listed in Figure 1.

Figure 1
Key Recommendations for the General Population and for Adolescents

ADEQUATE NUTRIENTS WITHIN CALORIE NEEDS

- Consume a variety of nutrient-dense foods and beverages within and among the basic food groups while choosing foods that limit the intake of saturated and *trans* fats, cholesterol, added sugars, salt and alcohol.
- Meet recommended intakes within energy needs by adopting a balanced eating pattern, such as the USDA Food Guide or the DASH Eating Plan.*

Key Recommendations for Adolescents:

- ***Women of childbearing age who may become pregnant.*** Eat foods high in heme-iron and/or consume iron-rich plant foods or iron-fortified foods with an enhancer of iron absorption, such as vitamin C-rich foods.
- ***Women of childbearing age who may become pregnant and those in the first trimester of pregnancy.*** Consume adequate synthetic folic acid daily (from fortified foods or supplements) in addition to food forms of folate from a varied diet.

WEIGHT MANAGEMENT

- To maintain body weight in a healthy range, balance calories from foods and beverages with calories expended.
- To prevent gradual weight gain over time, make small decreases in food and beverage calories and increase physical activity.

Key Recommendations for Children and Adolescents:

- ***Those who need to lose weight.*** Aim for a slow, steady weight loss by decreasing calorie intake while maintaining an adequate nutrient intake and increasing physical activity.
- ***Overweight children.*** Reduce the rate of body weight gain while allowing growth and development. Consult a healthcare provider before placing a child on a weight-reduction program.
- ***Overweight adults and overweight children with chronic diseases and/or on medication.*** Consult a healthcare provider about weight loss strategies prior to starting a weight-reduction program to ensure appropriate management of other health conditions.

PHYSICAL ACTIVITY

- Engage in regular physical activity and reduce sedentary activities to promote health, psychological well-being and a healthy body weight.
 - To reduce the risk of chronic disease in adulthood: Engage in at least 30 minutes of moderate-intensity physical activity, above usual activity, at work or home on most days of the week.
 - For most people, greater health benefits can be obtained by engaging in physical activity of more vigorous intensity or longer duration.
 - To help manage body weight and prevent gradual, unhealthy body weight gain in adulthood: Engage in approximately 60 minutes of moderate- to vigorous-intensity activity on most days of the week while not exceeding caloric intake requirements.
 - To sustain weight loss in adulthood: Participate in at least 60 to 90 minutes of daily moderate-intensity physical activity while not exceeding caloric intake requirements. Some people may need to consult with a healthcare provider before participating in this level of activity.

PHYSICAL ACTIVITY (continued)

- Achieve physical fitness by including cardiovascular conditioning, stretching exercises for flexibility, and resistance exercises or calisthenics for muscle strength and endurance.

Key Recommendations for Children and Adolescents:

- **Engage in at least 60 minutes of physical activity on most, preferably all, days of the week.**

FOOD GROUPS TO ENCOURAGE

- Consume a sufficient amount of fruits and vegetables while staying within energy needs. Two cups of fruit and 2-1/2 cups of vegetables per day are recommended for a reference 2,000-calorie intake, with higher or lower amounts depending on the calorie level.
- Choose a variety of fruits and vegetables each day. In particular, select from all five vegetable sub-groups (dark green, orange, legumes, starchy vegetables, and other vegetables) several times a week.
- Consume 3 or more ounce-equivalents of whole grain products per day, with the rest of the recommended grains coming from enriched or whole grain products. In general, at least half the grains should come from whole grains.
- Consume 3 cups per day of fat-free or low-fat milk or equivalent milk products.

Key Recommendations for Children and Adolescents:

- **Consume whole-grain products often: at least half the grains should be whole grains. Children 2 to 8 years should consume 2 cups per day of fat-free or low-fat milk or equivalent milk products. Children 9 years of age and older should consume 3 cups per day of fat-free or low-fat milk or equivalent milk products.**

FATS

- Consume less than 10 percent of calories from saturated fatty acids and less than 300 mg/day of cholesterol, and keep *trans* fatty acid consumption as low as possible.
- Keep total fat intake between 20 and 35 percent of calories, with most fats coming from sources of polyunsaturated and monounsaturated fatty acids, such as fish, nuts, and vegetable oils.
- When selecting and preparing meat, poultry, dry beans, and milk or milk products, make choices that are lean, low-fat, or fat-free.
- Limit intake of fats and oils high in saturated and/or *trans* fatty acids, and choose products low in such fats and oils.

Key Recommendations for Children and Adolescents:

- **Keep total fat intake between 30 to 35 percent of calories for children 2 to 3 years of age and between 25 to 35 percent of calories for children and adolescents 4 to 18 years of age, with most fats coming from sources of polyunsaturated and monounsaturated fatty acids, such as fish, nuts, and vegetable oils.**

CARBOHYDRATES

- Choose fiber-rich fruits, vegetables, and whole grains often.
- Choose and prepare foods and beverages with little added sugars or caloric sweeteners, such as amounts suggested by the USDA Food Guide and the DASH Eating Plan.
- Reduce the incidence of dental caries by practicing good oral hygiene and consuming sugar- and starch-containing foods and beverages less frequently.

SODIUM AND POTASSIUM

- Consume less than 2,300 mg (approximately 1 tsp of salt) of sodium per day.
- Choose and prepare foods with little salt. At the same time, consume potassium-rich foods, such as fruits and vegetables.

ALCOHOLIC BEVERAGES

- Those who choose to drink alcoholic beverages should do so sensibly and in moderation—defined as the consumption of up to one drink per day for women and up to two drinks per day for men.
- Alcoholic beverages should not be consumed by some individuals, including those who cannot restrict their alcohol intake, women of childbearing age who may become pregnant, pregnant and lactating women, children and adolescents, individuals taking medications that can interact with alcohol, and those with specific medical conditions.
- Alcoholic beverages should be avoided by individuals engaging in activities that require attention, skill or coordination, such as driving or operating machinery.

FOOD SAFETY

- To avoid microbial foodborne illness:
 - Clean hands, food contact surfaces and fruits and vegetables. Meat and poultry should *not* be washed or rinsed.
 - Separate raw, cooked, and ready-to-eat foods while shopping, preparing, or storing foods.
 - Cook foods to a safe temperature to kill microorganisms.
 - Chill (refrigerate) perishable food promptly and defrost foods properly.
 - Avoid raw (unpasteurized) milk or any products made from unpasteurized milk, raw or partially cooked eggs or foods containing raw eggs, raw or undercooked meat and poultry, unpasteurized juices and raw sprouts.

* Information about the Dietary Approaches to Stop Hypertension (DASH) Eating Plan can be found at <http://www.nhlbi.nih.gov/health/public/heart/hbp/dash/>.

Source: US Department of Agriculture, US Department of Health and Human Services. Dietary Guidelines for Americans 2005. Accessed 01/18/2005. <http://www.healthierus.gov/dietaryguidelines/>

When discussing the Dietary Guidelines with adolescents, it is important to provide specific ideas and concrete examples of how to implement the information in order to teens to be able to fully utilize the information presented to them. Ideas for topics to discuss, along with specific recommendations, are discussed below.

The need for regularly scheduled meals and snacks is a topic that should be discussed with all adolescents. Teenagers should be encouraged to consume 2-3 meals as well as snacks each day in order to consume an adequate diet that meets their nutrient needs but does not provide excessive energy. Frequent meal skipping can lead to excessive hunger, which can result in overeating when food is available.

Adolescents should also be encouraged to eat breakfast every morning. Even a small breakfast, such as a piece of fruit or a slice of toast with juice, can improve nutrient intake, provide energy and keep urges to snack at a minimum. Encourage the intake of foods that provide a mixture of low fat dairy or other protein sources with whole grains and/or fruit to optimize nutrient intake. A fresh fruit smoothie made with yogurt and fruit is a quick breakfast that most teens will enjoy. Leftover

vegetable pizza or bean burritos, whole grain cereal with milk or a scrambled egg on toast or rolled in a tortilla can provide quick, portable and healthy breakfast options that teens can eat while on their way to school.

Fast foods and convenience foods are a part of the adolescent culture in America. Effective nutrition education and health promotion strategies teach teens how to balance the intake of fast foods and convenience foods with healthy food choices in order to optimize nutrient intake and keep caloric intake at a healthy level. Nutrition information is available from most fast food and convenience food manufacturers; this information can assist health professionals in educating teens about the healthiest options available at their favorite restaurants. When possible, encourage adolescents to purchase foods at outlets that allow them to customize their food choices. Many sub and sandwich restaurants allow customers to choose whole grain breads as well as a variety of fresh vegetables as toppings, with the added benefit of being able to ask for little or no added sauces. Pizza parlors enable teens to be able to ask for additional vegetable toppings while limiting or eliminating high fat, high sodium meat toppings. Some fast food restaurants allow customers to choose their side dishes, which can include a salad with lowfat dressing or a baked potato in place of traditional high fat, high sodium French fries. Most restaurants now offer bottled water in addition to soft drinks.

All adolescents should be encouraged to set a goal of having at least one fruit or vegetable as a snack each day in place of chips, soft drinks, crackers, candy or baked goods. This goal can help teens increase their fruit and vegetable consumption while decreasing the intake of snacks foods high in saturated or trans fatty acids, sodium and calories.

Portion size is a topic that should be discussed with adolescents, especially with those who are overweight. The use of food models, food containers and measuring cups/spoons can assist teens in visualizing what a true portion of food looks like.

Teenagers should be encouraged to explore a variety of noncompetitive physical activity options in order to find activities that can be incorporated into their daily lifestyle. Yoga, martial arts, walking, biking and dance are often enjoyed by a variety of adolescents as they require little or no equipment and are not competitive. Many adolescents prefer to be active in groups. Health professionals can work with local community centers and schools to offer walking or biking clubs or introductory yoga, dance or martial arts classes to encourage teens to find physical activity partners.

The Food Guide Pyramid

The 1992 Food Guide Pyramid has been reintroduced to the public as MyPyramid.gov: Steps to a Healthier You² (Figure 2). The MyPyramid system is a web-based interactive tool that provides food-based guidance to help Americans change their current eating and physical activity habits to match the recommendations laid out in the 2005 Dietary Guidelines for Americans. The key concepts emphasized by the MyPyramid system are variety, proportionality, moderation, personalization, activity and gradual improvement. It is hoped that the MyPyramid system will be effective in improving the average American diet by encouraging increased intakes of vitamins, minerals, dietary fiber and other essential nutrients; lowering intakes of saturated fats, trans fats and cholesterol; increasing intakes of fruits, vegetables and whole grains; and emphasizing the importance of balancing caloric intake with energy needs to promote healthy weight status.

Figure 2
The Food Guide Pyramid



LOOKING AT MyPyramid

MyPyramid is a personalized approach to healthy eating and physical activity that was developed to remind consumers to make healthy food choices and to be active every day.

- **Activity** is represented by the steps and the person climbing them, as a reminder that daily physical activity is important for good health.
- **Moderation** is represented by the narrowing of each food group from bottom to the top of the pyramid. The wide base stands for food with little or no solid fats or added sugars. These foods should be selected more often. The narrower top stands for foods containing more solid fats and added sugars. More of these foods can fit into the diet if a person is more physically active.
- **Personalization** is shown by the person on the steps, the slogan, and the URL.
- **Proportionality** is shown by the different widths of the food group bands. Each width suggests how much food a person should choose from each group. Each width is a general guide, not an exact proportion.
- **Variety** is shown by the 6 color bands representing the 5 food groups of the Pyramid (grains, vegetables, fruits, milk, and meat & beans) and oils. This shows that foods from all groups are needed each day for good health.
- **Gradual Improvement** is encouraged by the slogan “Steps to a Healthier You.” It suggests that individuals can benefit from taking small steps to improve diet and lifestyle each day.

Source: US Department of Agriculture, US Department of Health and Human Services. MyPyramid.gov: Steps to a Healthier You. Accessed 05/18/2005. <http://www.mypyramid.gov>

To use MyPyramid, a person must first go to the MyPyramid web site, <http://www.mypyramid.gov>. After entering sex, age and usual level of daily physical activity into the MyPyramid.gov website, the MyPyramid system provides a recommended level of caloric intake that is appropriate for the information provided. The recommended calorie level is further broken down into recommended numbers of servings of grains, vegetables, fruits, milk and protein foods, and a discretionary calorie allowance, which is the remaining calories in a food intake pattern after accounting for the calories needed for all food groups if all foods used are fat-free or low-fat and have no added sugars. MyPyramid also gives an allowance of fats, sugars and sodium that is appropriate for the provided age, sex and activity level.

Educational materials that can be used by professionals can be found in the “For Professionals” section of the [www.MyPyramid.gov](http://www.mypyramid.gov) website. Tracking forms are available that allow individuals to monitor and assess food intake and physical activity as they institute changes. An interactive dietary assessment program allows teens to enter current dietary intake as well as to enter suggested alternative foods to determine how changes will affect nutrient and food group intakes.

While the MyPyramid tool remains a colorfully visual representation of a healthy diet, English comprehension and internet access are needed in order to understand the personalized food guidance system. MyPyramid materials are currently available in English only, and may not be appropriate for those with limited literacy and comprehension skills, those with learning disabilities and those for who English is a second language. Because MyPyramid is web-based, individuals must have internet access in order to use the tool.

Teens should be encouraged to consume a variety of foods from each food group each day. Adolescents who are actively growing or are very physically active will be given a higher energy and food servings allowance from the MyPyramid tool, while those who have completed the growth spurt or are physically inactive will be given a lower energy and food servings allowance from the MyPyramid tool. Adolescents should be reminded that the suggested caloric intakes are only estimates. Food intakes may need to be adjusted, as appropriate, to ensure that teens maintain a healthy weight. Table 1 details the suggested amounts of food to consume from the basic food groups, subgroups and oils to meet recommended nutrient intakes at different calorie levels. Table 2 identifies the calorie levels for males and females of selected ages by activity level. See Figure 3 for examples of food portions for each food group.

Table 1 MyPyramid: Daily Amount of Food from Each Group and Food Intake Pattern Calorie Levels								
Calorie level	1,600	1,800	2,000	2,200	2,400	2,600	2,800	3,000*
Fruits	1.5 cups	1.5 cups	2 cups	2 cups	2 cups	2 cups	2.5 cups	2.5 cups
Vegetables	2 cups	2.5 cups	2.5 cups	3 cups	3 cups	3.5 cups	3.5 cups	4 cups
Grains	5 oz-eq	6 oz-eq	6 oz-eq	7 oz-eq	8 oz-eq	9 oz-eq	10 oz-eq	10 oz-eq
Meat & Beans	5 oz-eq	5 oz-eq	5.5 oz-eq	6 oz-eq	6.5 oz-eq	6.5 oz-eq	7 oz-eq	7 oz-eq
Milk	3 cups	3 cups	3 cups	3 cups	3 cups	3 cups	3 cups	3 cups
Oils	5 tsp	5 tsp	6 tsp	6 tsp	7 tsp	8 tsp	8 tsp	10 tsp
Discretionary calorie allowance	132	195	267	290	362	410	426	512

* For 3,200 calories, the additional calories come from 1 additional tsp of oil—11 total tsp--and 648 discretionary calories.

Source: MyPyramid: Steps to a Healthier You. Public domain. US Department of Agriculture and the US Department of Health and Human Services. Available online: <http://www.mypyramid.gov>

Table 2 Calorie Levels for Males and Females by Age and Activity Level*						
Activity Level	Sedentary	MALES			FEMALES	
		Mod. Active	Active	Sedentary	Mod. Active	Active
AGE						
12	1800	2200	2400	1600	2000	2200
14	2000	2400	2800	1800	2000	2400
17	2400	2800	3200	1800	2000	2400

*Activity levels as described as follows: Sedentary: light physical activity associated with typical day-to-day life; Active: physical activity equivalent to walking more than 3 miles per day at 3 to 4 miles per hour in addition to light physical activity associated with typical day-to-day life.

Source: MyPyramid: Steps to a Healthier You. Public domain. US Department of Agriculture and the US Department of Health and Human Services. Available online: <http://www.mypyramid.gov>

Figure 3
Examples of Recommended Amounts

Milk: portions equivalent to 1 cup		
1 cup of milk or yogurt	1 1/2 ounces of natural cheese	2 ounces of process cheese
Meat & Beans: portions equivalent to 1 ounce		
1 ounce of cooked lean meat, poultry, or fish	1/4 cup of cooked dry beans, 1 egg, 1/2 ounce of nuts or seeds 1 tablespoon of peanut butter	
Vegetables: portions equivalent to 1 cup		
1 cup of raw or cooked vegetables	1 cup vegetable juice	2 cups of raw leafy vegetables
Fruits: portions equivalent to 1 cup		
1 cup of fruit	1/2 cup dried fruit	1 cup of 100% fruit juice
Grains: portions equivalent to 1 ounce		
1 slice of bread	1 cup of ready-to-eat cereal	1/2 cup of cooked cereal, rice, or pasts
PYRAMID POINTERS... SOME SELECTION TIPS FOR BUILDING A BETTER DIET		
<p>Here are some tips to help you eat the suggested food servings that the MyPyramid tool recommends for a healthier you. More tips can be found on the MyPyramid website at http://www.mypyramid.gov.</p>		
Oils		Fruits
<ul style="list-style-type: none"> ▪ Most of the fats you eat should be polyunsaturated (PUFA) or monounsaturated (MUFA) fats. Oils are the major source of MUFAs and PUFAs in the diet. PUFAs contain some fatty acids that are necessary to health—called “essential fatty acids.” ▪ The MUFAs and PUFAs found in fish, nuts, and vegetable oils contain essential fatty acids. ▪ While consuming some oil is needed for health, oils still contain calories. Oils and solid fats both contain about 120 calories per tablespoon. The amount of oil consumed needs to be limited to balance total calorie intake. 		<ul style="list-style-type: none"> ▪ Choose fresh fruits, 100% fruit juices, and frozen, canned or dried fruit. ▪ Make most of your choices whole or cut-up fruit rather than juice, for the benefits dietary fiber provides. When choosing canned fruits, select fruit canned in 100% fruit juice or water rather than syrup. ▪ Count only 100 percent fruit juice as fruit. Punches, ades, and most fruit “drinks” contain only a little juice and lots of added sugars.
Grains		Vegetables
<ul style="list-style-type: none"> ▪ Aim for at least half of your grain servings to come from whole grains. They have more dietary fiber, iron and B vitamins than refined grains. ▪ It’s important to <i>substitute</i> the whole grain product for a refined grain, rather than <i>adding</i> the whole grain product to your diet. ▪ When preparing pasta, stuffing, and sauce from packaged mixes, use only half the butter or margarine suggested; if milk or cream is called for, use low fat milk. 		<ul style="list-style-type: none"> ▪ Different types of vegetables provide different nutrients. Eat a variety. ▪ Include dark-green leafy vegetables and legumes several times a week – they are especially good sources of vitamins and minerals. ▪ Limit the fat you add to vegetables at the table or during cooking. Added spreads or toppings, such as butter, mayonnaise, and salad dressing, count as fat.
Meat & Beans		Milk
<ul style="list-style-type: none"> ▪ Choose lean meat, poultry without skin, fish, and dry beans and peas often. They are lowest in fat. ▪ Prepare meats in low fat ways: <ul style="list-style-type: none"> - Trim away all the fat you can see. - Remove all skin from poultry. - Broil, roast, or boil meats instead of frying. ▪ Legumes also provide protein and can be used in place of meat. 		<ul style="list-style-type: none"> ▪ If you usually drink whole milk, switch gradually to fat-free milk, to lower saturated fat and calories. Try reduced fat (2%), then low-fat (1%), and finally fat-free (skim). ▪ Choose “part skim” or low fat cheeses when available and lower fat milk desserts, like ice milk or frozen yogurt. Read labels.
<p>Source: MyPyramid: Steps to a Healthier You. Public domain. US Department of Agriculture and the US Department of Health and Human Services. Available online: http://www.mypyramid.gov</p>		

PROMOTING HEALTHY NUTRITION AND PHYSICAL EDUCATION BEHAVIORS

School-based nutrition education programs play an important role in promoting lifelong healthy eating and physical activity habits. Efforts to promote physical activity and nutritious eating should be integral parts of a coordinated school health program. Essential aspects of nutrition and physical activity to be included in comprehensive school health programs include:³

- school health instruction (curriculum)
- physical education classes
- school food service
- health services (screening and preventive counseling)
- school-site health promotion programs for faculty and staff
- integrated community efforts

The Centers for Disease Control and Prevention have published the *Guidelines for School Health Programs to Promote Lifelong Healthy Eating*⁴ and *Guidelines for School and Community Programs to Promote Lifelong Physical Activity Among Young People*⁵ to assist education and health professionals in developing comprehensive health promotion programs for children and adolescents. These documents provide a detailed outline for the development of comprehensive school nutrition and physical activity programs that can be used by school administrators, educators, health professionals and public policymakers. Essential components that need to be considered when developing school-based health programs include:

- The establishment of physical and social school environment that promotes healthy eating and physical activity.
- The establishment or maintenance of school policies that allow adequate time for nutrition and physical education instruction at each grade level.
- The purchase of developmentally appropriate nutrition and physical education curricula.
- Personnel training for current and future educators.
- The development of opportunities for family and community involvement.
- Program evaluation methods.

Classroom Nutrition Education

A review of published evaluations of school-based nutrition education programs⁶ found that less than half of the studies were conducted with adolescents. Rates of nutrition education taught in US public schools range from 92% of grades 7-9 to 86% of grades 10-12.⁷ However it is important to note that the percentage of US public schools with mandated nutrition education requirements is substantially lower at each grade level than the percentage of schools that teach nutrition education. While half or more of all K through 8 public schools have district or state requirements that mandate nutrition education, only 40% of schools have requirements for 9th and 10th grades. Mandated nutrition education rates for 11th and 12th grades in US public schools is estimated at approximately 20%.

Knowledge alone is not adequate to assure that teens choose a healthy diet. The decision about what foods to eat is tempered by peer and social influences and a widely available supply of high-fat, high-sugar foods. Therefore, the focus of nutrition education should be on the acquisition of specific behavior change strategies and skills that will empower teens to make healthful food decisions. Table 3 lists a variety of teaching methods have been found to be effective in school health education curricula.⁶

TABLE 3
Instructional Methods Appropriate for Nutrition Education of Adolescents

<p>Discovery learning</p> <p>Student learning stations with hands-on activities</p> <p>Small work or discussion groups</p> <p>Cooperative learning techniques</p> <p>Role playing common peer situations</p> <p>Peer teaching, with same age and mixed age groups</p> <p>Positive messages that emphasize intrinsic values of good health</p> <p>Promoting a personal commitment to change using goal setting or healthy behavior contracts</p> <p>Opportunities to practice skills that increase self-efficacy such as behavior modification skills</p>
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Most importantly, adolescents need to be given frequent opportunities to develop, practice, and master the skills needed to make informed decisions and cope with social influences. Providing experienced teens the opportunity to teach these skills to younger or less experienced peers (peer teaching) further enhances mastery of behavior modification skills. The most effective health education programs address cultural and linguistic differences among teens as well as the developmental aspects of adolescence.

Teacher training in basic nutrition combined with an awareness of appropriate instructional, motivational, and behavioral change strategies for use with adolescents is vital to the establishment of an effective nutrition education curriculum. Teacher training is likely to result in increased time spent on teaching nutrition in the classroom.⁸

School Food Services

The National School Lunch Program (NSLP), and School Breakfast Program (SBP) are federally sponsored nutrition programs administered by the US Department of Agriculture (USDA), in conjunction with state and local education agencies. Youth who live in households with incomes between 130% and 185% of the poverty level are eligible to receive meals at reduced prices while those from households with incomes 130% of the poverty level and below can receive school meals free of charge. Almost 99% of public schools participate in the NSLP and about 50% in the SBP.⁹ The National School Nutrition Dietary Assessment Study (SNDAS) found that youth who participated in the NSLP had greater intakes of many vitamins and minerals and lower intakes of foods high in sugar compared to those who did not participate.¹⁰ However participants in the NSLP also had higher intakes of total and saturated fats.

Findings from the SNDAS study, coupled with mounting data suggesting a relationship between dietary fat intake during childhood and young adulthood and chronic disease risk later in life, prompted changes in the national school meal programs. Legislation requiring that all USDA-

reimbursable breakfast and lunch meals served through the NLSP and SBP comply with the Dietary Guidelines for Americans was passed by Congress in 1994.

School lunch and breakfast programs have the opportunity to reinforce messages about healthy eating that are learned in the classroom. School cafeterias should be utilized as learning laboratories for nutrition education. The synergistic interaction between the school lunch program and classroom learning should enhance the likelihood that adolescents will adopt healthful eating practices.

Nutrition Environment of the School

The school environment presents multiple food and nutrition activities in addition to classroom nutrition education and school meals. A study by Consumers Union Education Services found that direct advertising in schools has increased dramatically over the past decade, as demonstrated in Table 4.¹¹ Results from the School Health Policies and Programs Study (SHPPS) show that 20% of schools offer name brand fast foods in school cafeterias.¹²

Channel One, a daily news program broadcast to millions of students in grades 6 through 12 in thousands of US schools, allows 2 minutes out of each daily 12-minute program to be devoted to paid commercials for products such as candy bars, snack chips, and sweetened beverages and soft drinks.¹¹

TABLE 4
Examples of Food Influences in Junior and Senior High Schools

Foods sold in vending machines, school stores, and snack bars
A la carte food items or fast food items offered in school cafeterias
Fund raising events during which foods are sold
Teachers using food as rewards
Utilization of corporate-sponsored nutrition education materials or textbooks
Provision of in-school advertising of food products on posters, computer software, school newspapers and yearbooks, scoreboards, and trophy cases
School bus advertising for soft drinks and fast food restaurants
Free textbook covers advertising candy, chips, and soft drinks
Product giveaways and coupons

Vending machines and other sources of snack foods that are accessible to students throughout the school day are increasingly commonplace in school corridors. The SHPPS found that 74% of middle/junior high schools and 95% of senior high schools allow students access to vending machines, school stores, canteens or snack bars.¹² The majority of foods sold in school vending machines and stores are high-fat or high-sugar items such as snack chips, candy, and sweetened soft drinks.¹³ In the promotion of a healthy nutrition environment, vending machines and school stores need to be encouraged or mandated to offer healthier choices and lower-fat alternatives. Alternative products that are likely to appeal to teens are listed in Table 5.

Table 5
Alternative Snack Foods and Vending Food Choices

Animal crackers	Baked chips	Cereal bars
Pretzels	Low fat popcorn	Flavored milk
Dried fruit/trail mix	Bottled water	Vegetables with low fat dip
Low fat yogurt	Fresh fruit	Low fat snack mix
Low fat dip	Granola bars	
Small boxes of sweetened cereal	Low fat crackers	

The growing barrage of commercial endorsements and food advertisements, combined with easy access to high-fat and high-sugar food products in school vending machines, undermine the goals of nutrition education, and may negate classroom and lunchroom attempts to foster healthy eating behaviors. District and school-wide policies related to the development of a healthful nutrition environment are needed for all schools. Serious deliberation should be given to limiting the promotion or sale of foods and beverages high in fat and/or sugar in schools. Such foods should be replaced by alternative choices that provide fiber, vitamins and minerals as well as energy. Corporate-sponsored education materials and programs should be carefully evaluated for nutrition accuracy, objectivity, and should only be utilized if they reinforce messages about healthy eating and physical activity. School boards and administrators should consider adopting the Consumers Union recommendation for making schools ad-free zones, where adolescents can engage in education without manipulation by commercial messages.¹⁴

Parent Involvement

Parents as well as teenagers should be targets for nutrition education since they are usually responsible for the purchasing and preparation of foods and serve as key role models during the development of eating behaviors. While parents may have little control over what their teenagers are eating outside the home, they have a great deal of control in the home environment. Teens tend to choose foods that are easy to prepare and quickly accessible. Parents can capitalize on this by stocking the kitchen with a variety of nutritious ready-to-eat foods and limiting the availability of high-sugar, high-fat foods within the home. The use of different creative settings and outlets to deliver innovative nutrition education programs to parents, including school newsletters and parent education programs should be explored.

Community Involvement in Nutritionally Supportive Environments

Promoting lifelong healthy eating and physical activity behaviors among adolescents requires attention to the multiple behavioral and environmental influences provided by each community. Adolescents are most likely to adopt healthy behaviors if they receive consistent messages through multiple channels (e.g., community, home, school, and the media) and from multiple sources (e.g., parents, peers, teachers, health professionals, community leaders, and local media).¹⁵ Most physical activity occurs outside the school setting. Thus, community sports and recreation programs are essential for promoting physical activity among young people. Healthy eating can be integrated into these efforts by discussing and/or providing nutritious snacks. The establishment of community coalitions or task forces to assess community needs and develop, implement and evaluate physical activity and nutrition programs for young people are essential. Key community members who

should be considered when developing a community nutrition and physical education coalition are listed in Table 6.

Restaurants	Churches, synagogues, temples	Libraries
Grocers	Youth groups	Police
Schools	City or tribal councils/other governing boards	Housing authorities
Parks and recreation board	Shopping mall/retail representatives	Businesses
Community centers	Hairdressers	Adolescents
		Parents

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