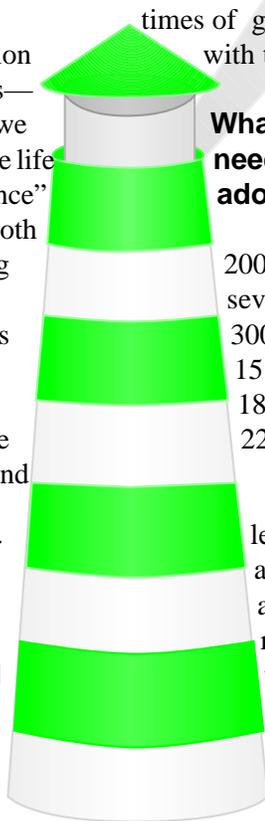


Growing Nutrition Needs: The Adolescent Years

This issue of *Nutrition Spotlight* focuses on nutrition during the adolescent years—the next stop we make as we explore nutrition through the life cycle. The term “adolescence” refers to the period when both mind and body are maturing and therefore applies to humans before and after, as well as *during* puberty. Emotional, social, and intellectual development are rapid during adolescence, and nutrition choices are often independent from parent or caregiver influence.

Nutritional Requirements Related to Growth.

As we examine the RDAs for adolescents, the highest levels of nutrients are recommended for the group assumed to be growing at the most rapid rate. Adolescents at the peak of growth velocity have been shown to incorporate twice the amount of calcium, iron, zinc, magnesium and nitrogen into their bodies during



times of growth spurt as compared with that of other years.

What specific nutrition needs does the adolescent have?

Calories range from 2000 per day for children seven to 10 years of age, to 3000 per day for males ages 15 to 18. Females ages 11-18 require approximately 2200 calories each day.

Protein needs are less well-known for adolescents than for other age groups. The recommendation is that the energy value of the protein intake should make up 7 to 8 percent of total energy consumed. Gender, age, nutritional status and quality of protein must be considered when estimating an individual’s need. The range of total protein need is usually between 39 to 56 gm an amount readily obtained in the normal diet.

Calcium requirements are based on the amount needed for skeletal growth. Of total bone growth, 45% occurs during adolescence. The chart shows that at the peak of the growth spurt, males need 400 mg. of calcium daily for growth alone, and females require 240 mg. each day just to meet the demands of growth.

cont'd p. 2 col. 1

	Daily Increments in Body Content Due to Growth	
	Average for Period 10-20 yr (mg)	At Peak of Growth Spurt (mg)
Calcium		
Male	210	400
Female	110	240
Iron		
Male	0.57	1.1
Female	0.23	0.9
Nitrogen*		
Male	320	610 (3.8 g protein)
Female	160	360 (2.2 g protein)
Zinc		
Male	0.27	0.50
Female	0.18	0.31
Magnesium		
Male	4.4	8.4
Female	2.3	5.0

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Iron needs are high for both males and females during adolescence. Males require more iron because the buildup of muscle mass is accompanied by greater blood volume. Adolescent females require more iron than children because of menstrual losses.

Zinc is known to be essential for growth and sexual maturation, so it is particularly important during adolescence. Studies show that the body more efficiently retains zinc during a growth spurt, optimizing a varied diet of zinc-containing foods.

Vitamins are integral to the rapid growth of the adolescent, especially thiamin, riboflavin and niacin in their roles of energy release. Vitamin D is especially needed for rapid skeletal growth.

The remainder of this issue of *Nutrition Spotlight* is devoted to answering the question ‘what are the nutritional needs of the adolescent?’ We hope you find answers you seek.

Source: Pipes, PL: *Nutrition in Infancy and Childhood*. 5th ed. 1993; pp 205-207

High Fiber, Low Fat Equals Healthy Teen Diet

Teens who eat according to the Dietary Guidelines are few, but the ones who eat diets rich in fiber and low in total fat score the healthiest eating pattern.

That was the result of a recent survey of 319 teens who recalled what they had eaten in the prior 24 hours. The findings appeared in the online issue of the *Journal of Pediatrics: Pediatrics* 2000 (vol. 105, p.e21)

Only one-third of the students in the study had the more healthful eating pattern, and only nine percent of non-white teens. Healthy choices that frequented the lists of the “top eaters” included whole grain breads and cereals, fruit, salads, beans, vegetables, small portions, low-fat dairy products and few fried foods.

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Calendar

August	National Sandwich Month Kansas Peaches
September	National Honey Month National Breakfast Month Kansas Fruits and Vegetables Food Safety Education Month Healthy Aging Month
September 4	Labor Day
10	Grandparents' Day
10-16	National 5-A-Day For Better Health

Eating Together Helps Nutrition, Too

There has been much recent interest in the positive effects a family's eating together can have on the psychological well-being of children. A study summarized in the March 2000 *Archives of Family Medicine* revealed that their nutritional well-being appears to be improved, as well. The authors examined the nutritional quality of the diets of 16,000 children ages nine to 14, and found that those who ate dinner more often with their families had better quality diets.

Forty-three percent of the children, who were children of participants in the ongoing Nurses' Health Study II, reported that they ate dinner with members of their family every day. That percent declined as the age of the children increased.

An increased frequency of family dinner was associated with substantially higher intake of several nutrients, including fiber, calcium, folate, iron, vitamins B6, B12, C and E; lower glycemic load; and lower intake of saturated and trans fat as a percentage of energy. In addition, family meals increased the intake of fruits and vegetables, increased fiber sources, and showed no differences in red meat or snack foods consumed. Patterns were similar for boys and girls.

To access the complete article online, visit this web site:

<http://archfami.ama-assn.org/issues/current/abs/foc9011.html>



Quick, Healthy Breakfast Ideas

Teens: Listen Up!

Breakfast is the healthy way to start the day! Choosing from at least three of the Food Guide Pyramid's five food groups forms a healthy, nutritious breakfast. Eating breakfast helps provide increased strength and endurance, and enables better concentration and problem-solving ability.

Here are some quick-grab, breakfast-on-the run ideas:

- A carton of yogurt and bagel spread with peanut butter
- Grapes, crackers and cheese
- Cereal topped with sliced banana and yogurt
- Bran muffin and yogurt topped with berries
- Peanut butter on whole wheat toast and milk
- Pizza slice and orange juice
- English muffin topped with ham and cheese
- Hard-boiled egg, toast and juice
- Tortilla, peanut butter and banana rolled up
- Breakfast bar, apple and milk
- Peanut Butter Breakfast Balls with milk

Healthy Meatless Meals May Appeal to the Entire Family

Parents are often concerned when their teen "goes vegetarian." The concern shouldn't focus on the fact that their child is vegetarian, but whether they skip meals or fail to eat a wide variety within the food groups of the Food Guide Pyramid. Variety is the key to a healthy diet that includes a vegetarian diet. Below are some guidelines for your teenager. Even if the vegetarian lifestyle isn't for you, try working one, two or a few meatless meals per week into your family's menu!

Guidelines for Teens

<i>Food Group</i>	<i>Number of Servings</i>	<i>Serving Size</i>
Grains, breads, cereals	8-10	1 sl bread, 1/2 cup cooked cereal
Legumes	1-2	1/2 cup cooked beans
Nuts or seeds	1-2	2 T. of nuts, seeds, nut butter
Milk or calcium fortified soymilk	3	1 cup milk or yogurt
Leafy green vegetables	2	1 cup raw or 1/2 cup cooked
Other vegetables	3	1 cup raw or 1/2 cup cooked
Fruit	3-4	1 piece, 1/2 cup chopped, 1/2 cup juice
Fats	4-5	1 t. oil, margarine, mayo

Sports Nutrition Important for Active Teens, Adults

Teens are often involved in team or individual sports, and their diet is vital for growth and performance. Good nutrition is important in helping a person have maximum ability to reach or maintain higher levels of physical activity. Diet makes a difference in how well an athlete of any age is able to perform.

The main differences between an athlete's diet and a non-athlete's diet are that athletes need more fluids and calories. The best distribution of food for an athlete is the same as is recommended in the Food Guide Pyramid and the Dietary Guidelines for Americans. Some athletes need a bigger quantity, though, because of their need for more energy, or calories. A well-balanced diet with a variety of foods every day is recommended. Regular meals and snacks throughout the day are recommended for best performance and well-being. Also during competition, avoid eating out-of-the-ordinary foods and beverages. Instead, choose familiar items in quantities that have been eaten during training.

Fluids

Dehydration decreases muscle strength, endurance, and coordination, and increases risk of cramps and heat stroke. Athletes may not feel thirsty enough to drink replacement fluids. If athletes get used to drinking fluids at regular intervals during training sessions, even if not thirsty, then they will be comfortable drinking the same amount and type of fluids during competition. Recommended amounts of fluid include: 14-22 oz. fluid about 2 hours before endurance exertion; 6-12 oz. fluid every 15-20 minutes, beginning at the start of exercise; and plenty of

fluids to replace losses afterwards, about 16-24 oz. fluid for every pound body weight lost during exercise.

Plain cool water makes a good fluid replacement. Avoid beverages with caffeine. If exercising for more than one hour, or during very hot and humid weather, a sports beverage may be preferable, to provide small amounts of sugar, sodium, potassium, chloride and magnesium to replace body losses.

Carbohydrates

A specific "carbohydrate loading diet plan" shouldn't be needed if the competition is less than 90 minutes of continuous activity. A limiting factor for increasing muscle mass is calories, not protein. Therefore, athletes who are trying to increase muscle mass should meet their calorie needs first, by getting enough carbohydrate foods. Eating high-carbohydrate, low-fat foods is a healthful way to get enough calories. Carbohydrates are digested quickly and half to two-thirds or more of meal or snack choices should be carbohydrates. Food labels show carbohydrate content. High carbohydrate foods are those with starch or sugar. Fruit juices, milk and yogurt contain food sugars. Starchy foods are fresh fruits, rice/grains/pasta/ breads/ cereals and vegetables, including peas, corn, dried beans and potatoes.

Protein

Athletes require about the same amount of dietary protein as non-athletes or a little bit more. The usual diets of most athletes provide enough protein to cover the increased amounts that may be needed during the competitive season. High protein foods include red meats; poultry; fish; cheeses;

milk; tofu; eggs; dried peas and beans such as split peas, refried beans, chili beans, lentils and chick peas/garbanzos; and nuts/peanut butter. Many high protein foods have a lot of fat. Low-fat protein foods are recommended.

A diet that is too high in protein can be harmful to health and athletic performance. Excess protein is either stored as fat or used for energy. Using protein for energy makes the kidneys work harder and increases risk for dehydration. Protein and fat are digested more slowly than carbohydrates.

Fats

Dietary fat should be kept to 30% or less of calories as the daily average. Daily allowance for fat grams for athletes may be higher than the amount recommended on food labels, because athletes often need more than 2000 calories per day. High fat foods include foods such as french-fried food, donuts, candy bars, hot dogs, nachos, chips, etc., as well as oils, margarine, sour cream, mayonnaise, and salad dressings.

Supplements

In general, athletes do not need vitamin and mineral supplements if adequate energy to maintain body weight is eaten from a variety of foods. Ergogenic aids are products that claim to increase performance. If used at all, they should be used with caution, and only after careful evaluation of the product for safety, etc. Many diet compounds do not improve athletic performance. Some are dangerous. Claims, whether valid or not, legally can be made for products if the label meets certain regulations.

Source: Position of The American Dietetic Association, Dietitians of Canada, and the American College of Sports Medicine: Nutrition and athletic performance. 2000. <http://www.eatright.org/positions.html#9>

Nutrition for Pregnant Teens

Good nutrition is important for any teen. It is of paramount importance for the pregnant teen. If she is a young teen, she still is growing, compounding the need to consume a healthy prenatal diet. Her body actually may be competing with her fetus for nutrients. Consequently, consuming sufficient calories for adequate weight gain is very important. Because energy needs vary greatly (38-50 kcal/kg/day), the best way to tell if a teen is getting enough is if she is having satisfactory weight gain. Most young teens will gain almost 35 lbs. during the nine months of gestation.

A pregnant teen is still a teenager and may have less than optimal eating habits. Like her peers, she may often eat erratically and consume foods that are lacking in nutrient density. Her baby, even in utero, needs “to eat” around the clock. Therefore, it is important that she not only eat a variety of foods following the recommendations of the Food Guide Pyramid, but also eat on a regular basis—preferably three meals and three snacks a day. She should try to eat a breakfast of at least 300 kcal of nutrient dense foods. Skipping this meal can make it difficult for her to obtain sufficient energy, protein and calcium for the day.

Beyond energy needs, there are a number of critical nutrients for a healthy pregnancy outcome.

* Although the typical pregnant teen’s protein requirement does increase (10g), it is no more than what she would consume by drinking an additional 10 oz glass of milk.

* If iron is not available in adequate amounts, the teen may develop anemia which is associated

with increased risk of preterm delivery or low birth weight baby. Even though health care providers usually recommend iron supplementation, a teen should be encouraged to eat iron-rich foods (beef, pork, legumes and fortified cereals) and foods that enhance absorption of iron (vitamin C, meat, fish and poultry).

* Adequate calcium intake is vital for the teen, who is forming bone for herself as well as for her baby.



Increased consumption of soft drinks, in place of milk as the drink of choice, may compromise bone density, which can have long-reaching effect later in life. She would do well to

consume three to four glasses of milk each day. If she can not tolerate milk, she may be able to tolerate hard cheese, yogurt, or calcium-fortified orange juice or soy-milk.

* Zinc is also important for its impact on growth. A zinc deficiency has been linked to preterm delivery and low birth weight. Routine iron and folate supplements can impair its absorption. Therefore, a good source of zinc (seafood, meat, eggs and legumes) is important in a teen’s diet.

* To obtain sufficient vitamin A, a pregnant teen should be encouraged to eat a wide variety of fruits, vegetables, fortified cereals and dairy products to ensure proper fetal development.

* Vitamin B₁₂ is essential in

preventing megaloblastic anemia. It can be found in food sources such as beef, pork, turkey, chicken, fish, milk, cheese and yogurt. Fortified cereals also are good sources.

* Folic acid deficiency can result in intrauterine growth retardation, congenital anomalies, or even spontaneous abortion. If a teen skips breakfast or doesn’t eat sufficient fruits and vegetables, she may not be meeting her need for folic acid. Good sources are dry beans, peanuts, orange juice, strawberries, leafy greens, and fortified cereals.

* Fluids are important at this time to help maintain proper body temperature, transport nutrients, and most importantly cushion and protect the fetus. They are in demand because blood volume increases during pregnancy. At least eight cups of non-caffeinated fluids/day are recommended. Limiting caffeine containing beverages to two-three servings is best.

* Along with adequate fluids, fiber (25-35g/day) can be a great help minimizing constipation and hemorrhoids that can be associated with pregnancy. Good sources of food with fiber are whole grain foods, fruits, vegetables, legumes, nuts and seeds.

Finally, professionals who work with pregnant teens are aware that most pregnant teens want to provide “a good start in life for their baby.” Perhaps, then, the primary eating behavior message to be conveyed to pregnant teens is: “The most important thing you can do to have a healthy baby is to eat well and gain the appropriate amount of weight.”

Source: Story, Mary and Stang, Jamie. Nutrition and the Pregnant Adolescent. A Practical Reference Guide. US Department of HHS, 2000.

Eating Disorders Among Teens

“Normal” eating occurs when one begins to eat when hungry and stops eating when full. “Eating disorders” is a term for several different health problems that result when people have lost their sense of using hunger and fullness to guide their food behavior. Instead, they use food to help them control other aspects of their life. Eating disorders are diagnosed when dysfunctional eating behaviors become extreme. For example, with anorexia nervosa, a girl (typically) deprives herself of adequate amounts of food and becomes underweight. Bulimia is when a person eats too much food at once, then purges it from his or her body, usually by vomiting or abusing laxatives, or both.

During adolescence, many body changes occur and young people may feel insecure. Children normally gain 40 pounds or more between the ages of 8 and 14 years. But more than half of teen girls are on a diet, or think they should be, even if they do not consider themselves to be overweight. Many think they should retain their pre-puberty figures.

The reasons why certain people develop an eating disorder are unclear. There seems to be a genetic predisposition. Biological factors such as brain chemical imbalances may contribute to the problem. Also, cultural and media influences pressure females in particular to be thin. Personal characteristics such as the drive towards high achievement, obsessiveness and perfectionism seem to play a role as well. People vulnerable to an eating disorder may experience relationship problems, especially loneliness, even though they may not let on that they feel they do not fit in or feel they have no confidant.

Family and friends of young people can do several things to help lessen the chance that an individual will develop a serious eating disorder.

- * Model healthy eating, exercise and coping behaviors. Encourage it in others, but do not nag about it.
- * Be comfortable with and enjoy your body and its abilities, regardless of size and shape.
- * Do not criticize your own or another person’s appearance.
- * Do not label certain foods as “bad”. All foods are acceptable in moderation.
- * Keep mealtimes pleasant. Include family members in mealtimes regularly.
- * Have fun. Talk about hobbies, abilities, feelings, and interests. Do not dwell on foods, weight, or diets.
- * Foster self-esteem in your teenager.
- * Avoid buying products that convey messages that appearance makes a person more valuable. Talk about these messages with your adolescent.
- * If a person shows signs of having an eating disorder, talk with a health care provider or tell a concerned adult who can help. Early intervention is best.

Clinical eating disorders usually begin to affect people when they are in their teens and twenties. Approximately 1% of teenage girls have anorexia nervosa while 4% of college-aged women are diagnosed with bulimia. About half of the people with anorexia later develop bulimia. Males are less likely to have problems with an eating disorder. They have a rate that is only 5-10% of the incidence found among females. Many more people may have an eating disorder, but it is never diagnosed, or it is a case that is not severe enough to be diagnosed.

Eating disorders are very serious conditions. They can lead to brittle bones and damage vital organs such as the heart and kidneys. Treatment lasts about five years, on average. With treatment by a medical team, 60% of people with eating disorders can expect to recover fully, while 2 to 3 % of patients who are in medical treatment die from complications of the eating disorder. In contrast, many people (about 20%) with serious eating disorders who do not seek treatment die from its complications.

Source: Anorexia and Related Eating Disorders (ANRED), Inc., at the web site: <http://www.anred.com>

**Need a quick tasty breakfast idea?
Try these Peanut Butter Balls!**

Peanut Butter Breakfast Balls

Makes 45

1/2 cup peanut butter
1/2 cup honey
1 cup nonfat dry milk
1/2 cup quick oats
1/2 cup crisp rice cereal
2 tablespoons raisins, optional

In a large bowl, mix all ingredients well. Knead with hands until smooth and form into 1-inch balls.

Balls can be rolled in crushed cereal, coconut or chopped peanuts if desired.

Nutrition Facts			
Serving Size 1 piece (14 g)			
Servings Per Container 45			
Amount Per Serving			
Calories	50	Calories from Fat	15
% Daily Value *			
Total Fat	1.5g		2%
Saturated Fat 0g			0%
Cholesterol	0mg		0%
Sodium	45mg		2%
Total Carbohydrate	8g		3%
Dietary Fiber 0g			
Sugars 6g			
Protein	3g		
Vitamin A	2%		Vitamin C 0%
Calcium	6%		Iron 0%
*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs. If your calorie needs are much different, you adjust the amounts recommended for calories, fats, carbohydrate, and fiber.			
		Calories	2,000
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400 mg	2,400mg
Potassium		3,500mg	3,500mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g
Calories per gram:			
Fat	9	Carbohydrate	4
			Protein 4

When in Doubt...Throw it Out!

“It won’t happen to me!” Is that what teens think about foodborne illness? Maybe you or a family member had an upset stomach, diarrhea, vomiting, fatigue, abdominal discomfort or a fever. These are all possible symptoms of foodborne illness that can appear anywhere from 30 minutes to 2 weeks after eating contaminated food. Most often, though, symptoms appear within 4 to 48 hours after eating.

There are several steps you can take to prevent foodborne illness. One very important step is to always wash hands thoroughly before handling food - especially after using the bathroom or touching your school books, dog or the phone.

Grabbing a fast-food burger at a restaurant? If the ground beef is still pink inside it, don’t eat it. For bacteria like E-coli to be killed, the internal temperature of 160° must be reached during cooking. Also, remember to cook hotdogs before eating - don’t eat them raw.

Ordered pizza for supper and have extra? Put leftovers in the frig as soon as possible. If you leave leftovers out for more than two hours at room temperature, bacteria can quickly multiply. If for some reason the time exceeds two hours, it’s safer to get rid of the food. So don’t even ask for a “doggie bag” for those chicken wings you couldn’t finish if you are not able to refrigerate them right away!

Thawing hamburger meat on the counter to use in tacos? NO! Always thaw food in the refrigerator so bacteria does not have a chance to grow.

In a hurry to grab a snack? Remember to scrub that apple with plain water to remove any leftover pesticides or dirt before munching the first bite.

How long has THAT been in the frig? If you’re not sure about a food’s safety, toss it out! Food may look, taste and smell OK - even when it’s no longer safe to eat. **“When in doubt...throw it out!”**

With proper food handling and sanitation, most foodborne illness can be prevented.

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This issue of “Nutrition Spotlight” focuses on nutrition during the adolescent years. It is the fourth in our ‘Nutrition Through the Life Cycle’ series.

Flexibility and freedom are vital concepts to the adolescent. Discovering that healthy eating “fits in” with their active, varied pace is key to their building positive lifelong food attitudes.

