LESSON 3

Nutrition for Individual Needs

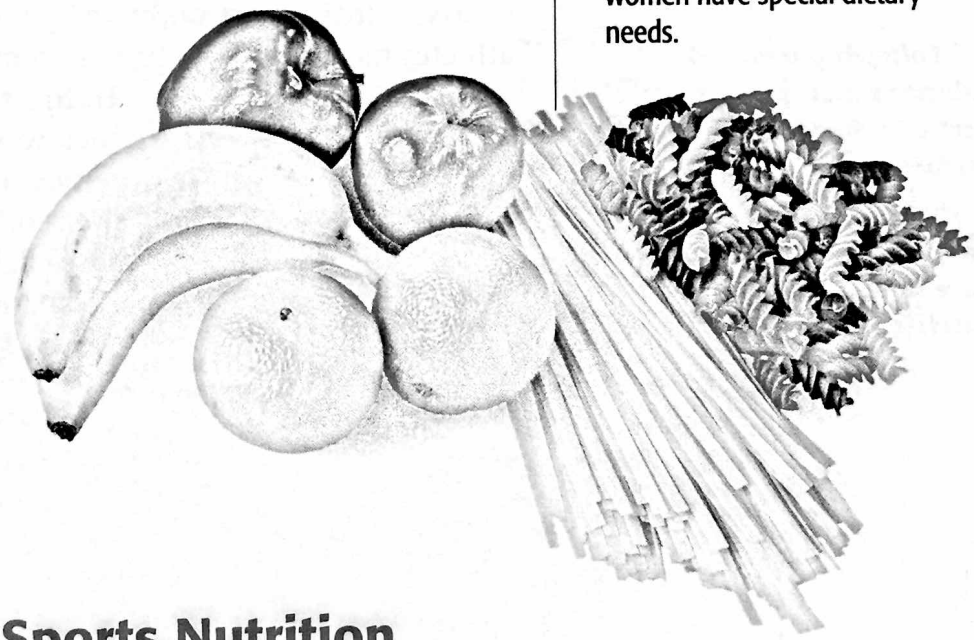
Are you physically active? Do you engage in sports in and out of school and in other physically demanding activities? In this lesson you will explore the special nutritional requirements of athletes, vegetarians, and two other groups of people with special nutritional needs—aging persons and pregnant women.

HEALTH TERMS

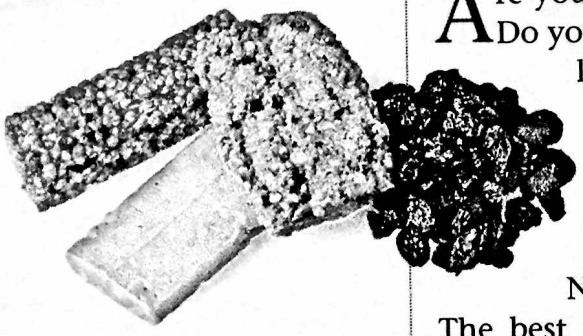
electrolytes
rehydration
carbohydrate loading
vegans
nutrient supplements
megadoses

HEALTH CONCEPTS

- Nutrient-dense foods contribute to an athlete's diet by providing energy as well as nutrients.
- The vegetarian diet offers a number of benefits, although vegetarians need to ensure that they get all the necessary nutrients.
- Aging persons and pregnant women have special dietary needs.



Sports Nutrition



Are you a serious athlete? Do you engage in basketball or tennis? Do you swim for fun and relaxation? No matter what type of athlete you are, good nutrition can help you do your best. Smart food choices can help you reach your top physical performance.

The Training Diet

No one food or nutrient builds muscles or increases speed. The best training diet is balanced, moderate, and varied. Athletic training does not significantly alter the body's requirements for protein, vitamins, or minerals. The main difference is the athlete's increased need for calories, or food energy. Nutrient-dense foods are the best sources of energy and nutrients together.

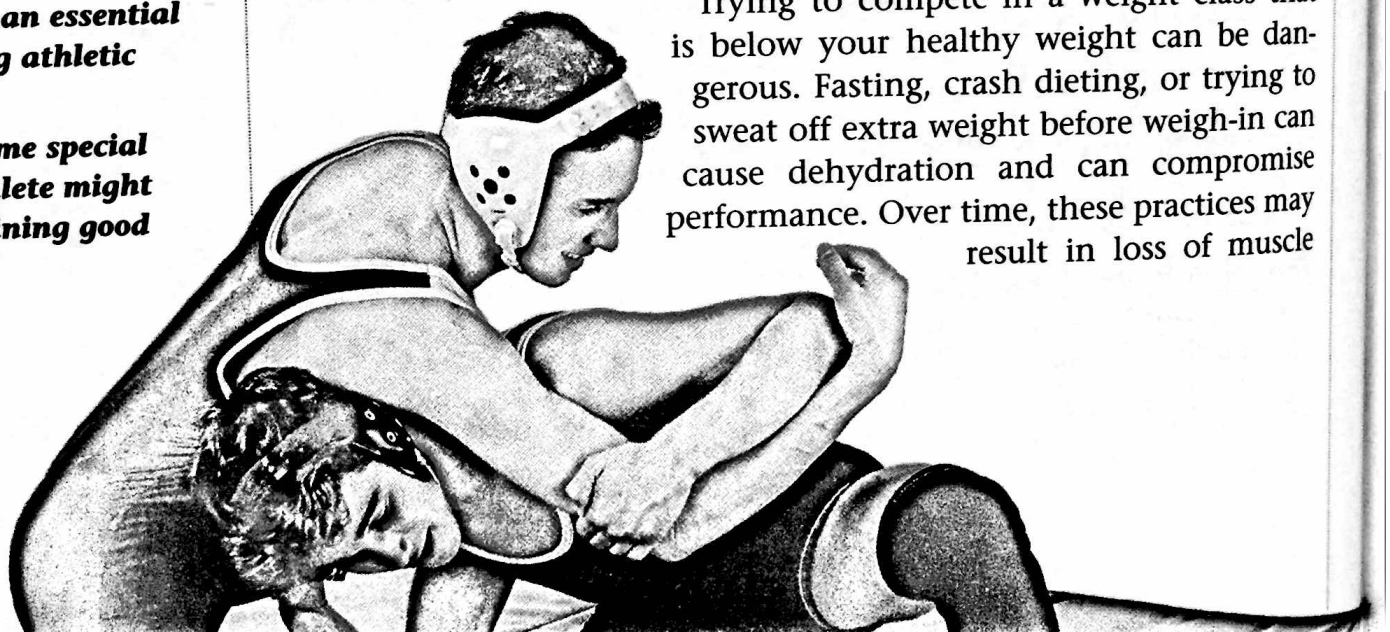
Physical activity requires an increase in fluids, especially during hot weather, to prevent dehydration and heatstroke. Dehydration leads to an imbalance of **electrolytes.** These are *minerals that become electrically charged when in solution*—as they are in bodily fluids. Examples of electrolytes include sodium, potassium, and chloride. Electrolytes play an important role in regulating body fluids.

Electrolyte balance requires that the intake of water and electrolytes equal the amounts eliminated through perspiration and body wastes. For an athlete, this means drinking several cups of fluid two hours, and then 15 minutes, before a heavy workout. **Rehydration,** or *restoring lost body fluids,* is important after exercise or competition. Drink two cups of fluid for every pound of body weight lost through sweat. Water is the best source of fluid to replenish losses experienced during exercise.

"Making Weight"

In some sports, maintaining a certain body weight is important. Wrestlers, for example, compete in a specific weight class. In contact sports, a little extra body weight may offer some advantages. Wise athletes meet their weight requirements in a healthful way.

Trying to compete in a weight class that is below your healthy weight can be dangerous. Fasting, crash dieting, or trying to sweat off extra weight before weigh-in can cause dehydration and can compromise performance. Over time, these practices may result in loss of muscle



Following a varied, balanced diet is an essential part of achieving athletic performance.

ACTIVITY ***List some special concerns an athlete might have in maintaining good nutrition.***

Making Responsible Decisions

Is Making the Right Weight Right?

Terry's boyfriend, Carlos, is the star of the school's varsity wrestling team and a top prospect for a college scholarship. Terry loves the excitement of the sport and is proud of Carlos, but she has mixed emotions. Carlos's natural weight is about 10 pounds over the 157 pounds at which he wrestles. To lose weight before wrestling season, he severely limits his food intake, exercises, and tries various other tricks. Terry knows that this is not healthy. While trying to lose weight, Carlos becomes irritable, sullen, and sometimes mean. He is counting on winning the scholarship in order to be able to attend college. His coach believes that he would not be successful wrestling in a higher weight class. Terry has spoken to Carlos about her concerns. He says he has the situation under control, but he really doesn't. What should Terry do?

What Would You Do?

Apply the six steps of the decision-making process to Terry's problem.

1. **State the situation.**
2. **List the options.**
3. **Weigh the possible outcomes.**
4. **Consider your values.**
5. **Make a decision and act.**
6. **Evaluate the decision.**

mass, too. If you must lose weight, follow the sensible plan—one-half to one pound (0.2 to 0.5 kg) a week.

Athletes who train to gain weight need to eat in a healthful way and to exercise to build muscle mass. Extra calories should come mainly from nutrient-dense foods. Slow, steady weight gain, no more than two pounds (0.9 kg) a week, is best. Using hormones such as steroids to increase muscle mass is not healthy. Hormones may stunt growth and damage the body's reproductive system.

Eating Before Competitions

Many athletes ask, "What should I eat before competing, and how far ahead of the event?" Eating three to four hours before an event allows the stomach to empty, yet keeps the athlete free from hunger pangs while competing.

Before competing, choose a meal high in carbohydrates and low in fat and protein. Fats and proteins stay in the digestive tract too long. Good sources of carbohydrates are pasta, rice, breads, vegetables, and fruits. Drinking plenty of fluids before a workout is important, too.

Carbohydrates are stored in the body in the form of glycogen. Athletes who participate in endurance sports, such as cross-country running or long-distance bicycling, may benefit by **carbohydrate**

loading, or *storing extra glycogen in the muscle,* before strenuous exercise. Several days ahead, the athlete eats a high-carbohydrate diet to store plenty of muscle glycogen. At the same time, training is tapered and often eliminated the day before the event to allow for maximum glycogen storage. Carbohydrate loading is not advised for teen athletes. Growing bodies are still developing and need an even balance of nutrients. Glycogen storage upsets this necessary balance.

SPORTS NUTRITION MYTHS

MYTH Vitamin pills give extra energy.
FACT Because vitamins do not supply calories, extra amounts will not give extra energy.

MYTH Consuming extra protein or taking amino acid supplements build extra muscle.
FACT The only way to build muscle mass and strength is through exercise.

MYTH Eating a high-fat, high-protein meal before competition improves performance.
FACT A high-fat, high-protein meal will not digest as quickly as one high in carbohydrates and will lower performance.

MYTH Eating a candy bar before a workout provides quick energy.
FACT Energy for physical activity comes from foods you ate several days, not an hour or so, before a workout.

MYTH Drinking tea, colas, or coffee before a workout will improve performance.
FACT All three beverages contain caffeine, which can cause headaches, stomach upset, nervousness, irritability, and diarrhea.

Vegetarianism

More and more Americans, including teenagers, are choosing to follow a vegetarian eating pattern. Those who avoid eating meat, fish, and poultry but eat dairy foods and eggs are called lacto-ovo vegetarians. *Lacto* refers to milk, and *ovo* refers to eggs. Some people turn to vegetarianism out of concern for the environment or for the conditions under which food animals are raised and slaughtered. Others have a belief in nonviolence or a desire for a healthier lifestyle.

Vegetarian eating can have health benefits. By reducing saturated fats and cholesterol from animal products, vegetarians may reduce the risk of **lifestyle diseases** such as heart disease, high blood pressure, and some forms of cancer. Be aware, however, that vegetarians still need to watch fat intake.

At the same time, following a vegetarian food style requires greater nutritional awareness. Vegetarians must take care to consume incomplete proteins in a way that will yield complete protein during the day. It is not necessary to have the combinations at one meal as once believed, but just sometime during the day. Vegetarians must also be sure they are getting enough iron, zinc, and B vitamins. The key to a healthful vegetarian diet is to eat a wide variety of foods in adequate amounts, including fruits, vegetables, leafy greens, whole-grain products, nuts, seeds, and legumes, as well as dairy foods and eggs.

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lifestyle diseases For more information on lifestyle diseases, as well as their causes and dangers, see Chapter 31, page 676.

Vegans

Most vegetarians eat dairy products and eggs. The type of vegetarians known as **vegans** (VEE-gunz)—*vegetarians who eat only foods of plant origin*—do not. Because animal products are the only food sources of vitamin B_{12}, vegans must supplement their food choices with vitamin B_{12}. Since vegans do not use milk or other dairy products, they must make sure to get adequate vitamin D and calcium from other sources.

Nutrient Supplements

Will the time ever come when people can get all the nourishment they need from pills? Probably not, but nutrient supplements *can* provide dependable sources of some vitamins and minerals. **Nutrient supplements** are *pills, powders, liquids and other nonfood forms of nutrients.* Under some health conditions or during certain stages of life, some groups of people may benefit from nutrient supplements. These groups include pregnant women and the elderly.

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Looking at the Issues

Nutrient Supplements, Pro and Con

Annual sales of nutrient supplements have more than doubled during the last decade. This growth has spurred a debate among nutrition experts and supplement manufacturers.

ANALYZING DIFFERENT VIEWPOINTS

Viewpoint One

Most nutrition experts are in agreement that basic nutritional needs for most people can be met by following the guidelines of the Food Guide Pyramid. Foods, they argue, also contain substances your body requires that supplements do not provide, such as fiber and phytochemicals, including beta carotene, lycopene, and others. Eating some vegetables such as broccoli and cabbage, appear to lessen the risks of some types of cancer. No nutrient supplements can make the same claim. Moreover, some supplements, such as melatonin, are potentially dangerous. At present, labeling of nutrient supplements is regulated by the FDA for the protection of the consumer. However, the FDA is not responsible for determining the effectiveness of supplements.

Viewpoint Two

Supplement manufacturers note that antioxidant vitamins—vitamins C and E and beta carotene—may help reduce the risk of diseases and illnesses such as some cancers, heart disease, cataracts, and even the common cold. Yet, they say, to get the amount of antioxidants needed through food, a person would have to consume many more servings of fruits and vegetables than most people consume. The only way they say to ensure an adequate amount is through taking nutrient supplements.

EXPLORING YOUR VIEWS

1. Do you agree that healthful eating can give you all the vitamins and other nutrients you need, or do you feel that you should also take nutrient supplements? Explain your response.
2. A spokesperson for the American Dietetic Association has stated: "If you decide you have met your nutritional needs by taking a few tablets in the morning, you may not pay attention to how you eat the rest of the day." Do you agree or disagree?

Nutrition During Pregnancy

Healthful eating is an important aspect of prenatal care, along with avoiding tobacco, alcohol, and other drugs. Pregnant women have somewhat increased nutritional needs because they are supplying nutrients for the developing fetus as well as their own additional needs. In particular, they may need more iron, calcium, and folic acid.

Nutrition and Aging

A Tufts University study on nutrition and aging reveals that people 60 and older may need even more of certain vitamins—B_6 and vitamin D, for example—than young adults do. Older adults may not be able to process and synthesize vital nutrients as efficiently as younger people. In addition, some medications commonly prescribed for the elderly can interfere with nutrient absorption. Nutrient supplements may therefore be beneficial for older adults.

Risks Associated with Nutrient Supplements

With vitamins, as with nutrition as a whole, moderation is the key. **Megadoses**, or *very large amounts of nutrient supplements,* are potentially dangerous. Excess amounts of the fat-soluble vitamins A, D, E, and K, for example, stay in the body and become toxic. Too much vitamin A can lead to liver damage, hair loss, blurred vision, and headaches. Excess vitamin C puts a heavy strain on the kidneys.

Throughout the teen years and much of adulthood, the safest and most healthful approach to getting the micronutrients you need is through the foods you eat.