

## LESSON 16



# Keeping the Balance

## Background

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A balanced diet is important because different foods contain different combinations of nutrients. No single food can supply all the nutrients the body needs to maintain good health. This is why balance and variety go hand in hand. For example, oranges provide vitamin C but not vitamin B<sub>12</sub>, whereas cheese provides vitamin B<sub>12</sub> but not vitamin C. Remember that foods in one food group cannot replace those in another. Choosing a variety of foods among groups and within groups will make your diet more interesting as well as balanced.

The carbohydrate, fat, and protein in food supply energy, which is measured in calories. Carbohydrate and protein provide 4 calories per gram. Fat provides 9 calories per gram. Part of building a healthy meal requires having enough calories, but not too many. People must balance the amount of energy in food eaten with the amount of energy the body uses. The other part of building a healthy meal is focusing on food quality, which means choosing nutritious foods such as whole grains, healthy protein, foods with healthy fat (and using healthy oils), and plenty of fruits and vegetables. Focusing on both food quality and calories helps people create healthy, balanced meals. It's important to note that you don't have to balance your "energy in" (energy in food eaten) and "energy out" (energy the body uses) every day, but you should do so generally, such as over a few days.

Physical activity is an important way to use up food energy. Most Americans spend much of their working days in activities that require little energy. In addition, many Americans of all ages now spend a lot of daily leisure time being inactive—watching television, spending time online, or playing computer or video games. To use up dietary energy, people must spend less time in sedentary activities that involve sitting and more time being active, such as walking to the store or around the block and climbing stairs rather than using elevators. Less sedentary activity and more moderate and vigorous activity help reduce body fat and the risk of disease.

The kinds and amounts of food people eat affect their ability to maintain a healthy weight. Soda, energy drinks, fruit punch, cookies, candy, and other drinks and foods with a lot of added sugar are filled with empty calories because they provide many calories but few of the nutrients the body needs to stay healthy and grow strong. Eating too much of these foods makes it difficult to meet other nutrient needs without eating excessive calories, and this can contribute to unhealthy weight gain. However, even when people focus on food quality and eat nutrient-filled, healthy foods, they can gain weight from eating too much of them. One way to avoid eating too much is to choose sensible portion sizes at meals. However, choosing the right sizes can be a challenge given the dramatic growth in portion sizes over the past few decades.

The pattern of eating is also important. Snacks provide a large percentage of daily calories for many Americans. Unless nutritious snacks are part of the daily meal plan, snacking may lead to the intake of lots of unhealthy foods. Children need enough food for proper growth. To promote proper growth and development and good health, and to prevent kids from gaining unhealthy weight, teach children to choose whole grains, vegetables, fruits, and more plant-based foods rich in healthy protein and healthy fat. And when choosing dairy, unflavored and unsweetened dairy products are best. Also, teach them to participate in at least an hour of physical activity every day and to remember to drink plenty of water. Limiting television and other recreational screen time and encouraging children to play actively in a safe environment are helpful steps.



## Procedure

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### Part I

1. Set up the following demonstration so that all students can see it. Place the drinking glass in the baking dish (the dish is for catching any overflow of water), and fill the glass to the top with colored water. Explain that this full glass represents a person who is full of the nutrients needed to remain healthy and active.
2. Ask the students what happens to the level of nutrients in the person's body throughout the day. (The level goes down.) Pour some of the water back into the pitcher to show a partially empty glass.
3. Ask the students what the person needs to do to get back to the right level of nutrients. (Eat nutritious foods.) Fill the glass to the top again.
4. Ask the students what happens when a person regularly eats more than he needs for his daily energy requirements for body growth and maintenance. (He gains weight beyond the healthy range.) Pour extra water into the already full glass, allowing it to overflow. Explain that the overflowing water represents extra energy that the body needs to store, usually in the form of extra fat.
5. Explain that in today's lesson, the students will take a closer look at how they can get the nutrients their bodies need without getting more calories than they need for growth and maintenance.

### Part II

1. Ask the students, "What are nutrients, and why are they important?" The answer is that nutrients are the parts of foods that give you energy and allow your body to grow and repair itself.
2. Project Overhead 16.1, Food, Nutrients, and You, and discuss the six types of nutrients, their functions, and their food sources. Explain that we must eat a variety of foods to get all the nutrients our bodies need. You may want to make an extra laminated copy of Overhead 16.1 (for increased durability) and create a game that allows students to review the contents of the overhead with each other.
3. Write the word *calorie* on the board. Explain that a calorie is a measure of how much energy a food provides. Some foods, such as fruits and vegetables, are full of nutrients and are also low in calories. Other foods, such as junk foods, can have many calories and very few nutrients.

Tell the students: "If a food contains 100 calories, it gives you 100 units of energy. Most women need 1,800 to 2,000 calories a day, and most men need 2,200 to 2,400 calories a day. Active men and women need more calories than average men and women need. Girls probably need about 1,600 calories a day, and boys need 1,800 calories a day; girls and boys who are very physically active may need more than that, up to 2,000 calories a day for girls and 2,200 calories per day for boys." Emphasize that although calories are important, it's not just *how many* calories they eat, but *where they come from* that matters as well. Energy balance is important, but they must also make sure that their energy from food (calories) comes from nutritious, healthy sources.
4. Project Overhead 16.2, Energy Balance, and explain that if the nutrients and calories taken into the body do not equal the nutrients and energy used by the body, the body can have problems. Even though food quality is a big part of the picture when it comes to being healthy, energy balance is also important. Point to the box at the top of the overhead, and review how teeter-totters work (the lighter side

goes up and the heavier side goes down). Point to the picture labeled “not enough nutrients and calories” and ask, “What can happen if the nutrients and energy used are greater than the nutrients and calories taken in?” (Answer: The body gets tired, can’t grow or repair tissue, begins to break down lean body tissue and fat stores, and loses weight.) Ask, “What can a person do to fix the imbalance?” (Answer: Eat more nutrients and calories.)

5. Point to the picture labeled “too many nutrients and calories” and ask, “What might happen if the amount of calories taken in is consistently greater than the amount of energy used?” (Answer: Excess energy will be stored as fat, and the body will gain weight beyond the healthy range.) Ask, “What can this person do to fix the imbalance?” (Answer: Eat fewer calories; exercise more.)
6. Point to the picture labeled “nutrient and calorie balance,” and explain that eating the right amount of nutrients and calories for their body size and activity level creates an energy and nutrient balance. Maintaining this energy balance, and choosing healthy, nourishing foods that they enjoy, is the way to maintain a healthy body.
7. Have the students form pairs, and then distribute Worksheet 16.1, Keeping the Balance. Explain that everything a person does, even sleeping, requires calories for energy. Some activities require a lot more units of energy than others do. The chart shows approximately how many calories a 100-pound (45 kg) person requires to do various activities. Instruct each pair of students to use the chart and their combined knowledge to answer the questions on the worksheet.
8. Once the students have completed the worksheet, discuss their answers. Encourage them to think about how they might use this information to improve their own energy balance.
9. For an optional activity, distribute Worksheet 16.2, How Is My Balance?, and have students fill it out for a day. You may want to repeat this activity more than once.

