

Eat Less, Live Longer?



1 TOPIC PREVIEW

A Which of these food groups should you eat the most of? Which should you eat the least of? Number the food groups from 1 (the most) to 6 (the least). Share your answers with your classmates.

- ___ whole grains
- ___ meat, fish, and poultry
- ___ fruit
- ___ dairy products, such as milk and yogurt
- ___ sweets, such as cake and cookies
- ___ vegetables

B Read the title of this chapter, look at the picture, and discuss the following questions.

- 1 Do you think there is a relationship between the foods you eat and your health?
- 2 Do you usually read food labels? Why or why not?
- 3 What do you think the reading is going to be about?

2 VOCABULARY PREVIEW

- A** Read the word lists. Put a check (✓) next to the words that you know and can use in a sentence. Compare your answers with a partner. Then look up any unfamiliar words in a dictionary.

Food and Nutrition	Academic Word List	Biology
calorie diet (n.) fast (v.)	benefit (n.) consume data process (n.) restrict significantly	gene lab animal life expectancy

The chart shows selected words from the reading related to food and nutrition, biology, and the Academic Word List (AWL). For more information about the AWL, see page 121.

- B** Fill in the blanks with words from Part A.

- 1 The _____ of humans has increased because of modern medicine.
- 2 The mouse is the most common _____.
- 3 He is trying to lose weight, so he is counting every _____.
- 4 A healthy _____ includes a lot of fruit and vegetables.
- 5 Losing weight takes a long time. It is a slow _____.
- 6 Scientists analyze the _____ from their experiments.
- 7 People with red hair have a _____ that makes their hair red.
- 8 Young people usually _____ more candy than older people.
- 9 In some religions, people do not eat anything on certain days. They _____.
- 10 They did a lot of exercise and ate less. Their health improved a lot. It improved _____.
- 11 There is a health _____ to eating lots of fruits and vegetables.
- 12 Many parents _____ the amount of sugar their children eat.



3 READING

Preview the questions in Reading Check Part A on page 68. Then read the story.

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- 1 Owen and Canto live near each other. They lead similar lives and are close in age, but they look very different. Canto is strong and healthy. Owen, on the other hand, is slow and heavy. He is losing his hair, and he moves like an old man.
- 2 The biggest difference between Owen and Canto, however, is their life expectancy. Scientists expect Canto to live 30 percent longer than Owen. Why? Every day for 17 years, Canto has eaten a diet with many fewer calories than Owen. Scientists think this is the reason Canto does not have heart disease or diabetes,¹ common health problems in old age. It seems that eating less has kept Canto's body younger.
- 3 Owen and Canto are not people – they are monkeys. They live in a scientific research laboratory at the University of Wisconsin in the United States. Scientists at the lab are studying the effects of low-calorie diets. Does eating a diet with many fewer calories in it have health benefits? Does eating less also increase life expectancy?
- 4 Scientists in other laboratories around the world are doing similar research. So far, the results suggest the same thing. If you restrict the number of calories that an animal eats, it will live longer than an animal that eats a lot. In one study, mice ate 30 percent fewer calories than normal. These mice lived 40 percent longer than the mice that had a normal diet. They also had fewer age-related problems and diseases.

¹ *diabetes*: a disease in which the body cannot control the level of sugar in the blood

Scientists are beginning to understand the reason for the benefits of eating less. When the body gets less food, the body produces a substance called *sirtuin*. This substance acts on the genes in the body that control aging. Sirtuin seems to slow down the aging process.

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Humans, of course, are not lab animals. Will a very low-calorie diet give humans the same health benefits as lab animals? Scientists are beginning to study the effects of calorie restriction on humans, too. In one study, scientists studied two groups of people for three years. In the first group, people ate a normal diet. They consumed between 2,000 and 3,500 calories a day. In the second group, people ate a healthy, low-calorie diet. They consumed only 1,000 to 2,000 calories a day. After three years, the people in the second group were significantly healthier. They had lowered their risk of diabetes and heart disease.

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Will eating fewer calories lead to a greater life expectancy for humans? It will take scientists much longer to find this out. Humans live much longer than laboratory animals, such as mice and monkeys.

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There is a group of people, however, who already believe they will live longer by eating less. They are members of the Calorie Restriction

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Society. They have studied the data about animals. They believe that restricting their calories will increase their life expectancy and help them live healthier lives. On some days, they fast, and they rarely eat more than 2,000 calories a day.



Dean Pomerleau, member of the Calorie Restriction Society

Scientists don't expect many people to follow such an extreme diet. They also don't expect a huge increase in human life expectancy. Many scientists expect an increase of about 9 percent, but others expect only 2 percent. They believe the major benefit of a low-calorie diet is a healthier, more active life, as Canto the monkey has. A 90-year-old may feel like a 65-year-old.

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We are still waiting for scientists to tell us if calorie restriction really works. So, the best advice is to eat well. Just don't eat too much!

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4 READING CHECK

A Are these statements true or false? Write *T* (true) or *F* (false).

- 1 ___ Canto and Owen both eat what they want.
- 2 ___ A low-calorie diet causes age-related diseases.
- 3 ___ People who eat less may have longer lives.

B Circle the letter of the best answer.

- 1 Owen and Canto ___ the same age.
a are b look c are almost
- 2 Canto ___ common health problems of old age.
a has many b has some c does not have
- 3 Researchers think ___ will live 30 percent longer on the low-calorie diet.
a Owen b Canto c people
- 4 In a research study, mice on a restricted diet lived ___ longer than normal mice.
a 20 percent b 30 percent c 40 percent
- 5 When does the body produce sirtuin?
a all the time
b when genes slow the body down
c when the body does not have a lot of food
- 6 What was the difference between the two groups of people in the research study?
a One group consumed only 500 calories per day.
b One group was healthier at the end of the study.
c One group was three years older.
- 7 Members of the Calorie Restriction Society _____.
a fast on some days
b believe they will live 200 years
c eat more than 2,000 calories per day
- 8 Scientists expect ___ if they consume fewer calories.
a people will live 30 percent longer
b people will live healthier lives
c people will feel 60 years younger

5 VOCABULARY CHECK

A Retell the story. Fill in the blanks with the correct words from the box.

calories	consumed	data	diet	fast
lab animals	life expectancy	process	restriction	significantly

Will you live longer if you eat less? Scientists are studying the relationship between a low-calorie _____¹ and _____² in animals. In one experiment, one group of mice _____³ fewer _____⁴ than a second group. The first group lived _____⁵ longer than the second and appeared much healthier.

Scientists now want to know if there are benefits to people as well as to _____⁶. They are looking at the _____⁷ from a research study involving humans. Members of the Calorie _____⁸ Society eat a limited amount of very nutritious food. Some days they _____⁹ instead of eating. Scientists think that a substance called *sirtuin* is more active when the body gets less food. Sirtuin may slow down the aging _____¹⁰. So does eating less help people live longer? Possibly. However, we still need to wait for scientists to do more research.

B Fill in the blanks with the correct form of the word.

Verb	Noun	Adjective
benefit	benefit	beneficial
restrict	restriction	restricted
—	gene	genetic

- The color of your eyes is _____.
- A low-calorie diet may be _____ to people.
- It is difficult to follow a _____ diet.
- How does calorie restriction _____ people?
- The doctor told the patient to _____ the amount of sugar he eats.

6 APPLYING READING SKILLS

Some readings contain mathematical information, especially percentages. **Understanding mathematical information** can lead to a deeper understanding of a reading.

A Work with a partner. Read the questions below. Then go back to the text to find the information that you will need to answer the questions. The information in the box below the questions will help you calculate percentage increase or decrease.

- 1 Monkeys usually live 27 years. To what age do scientists expect Canto to live?
- 2 Mice usually live for 12 months. How many months do scientists expect the mice that ate fewer calories to live?

Working with percentages

$$10\% = .10$$

$$10\% \text{ of } 30 = (.10 \times 30) = 3$$

$$\text{A } 10\% \text{ increase of } 30 = 30 + (.10 \times 30) = 33$$

$$\text{A } 10\% \text{ decrease of } 30 = 30 - (.10 \times 30) = 27$$

B Show your understanding of percentage data. Answer the questions below.

- 1 Average life expectancy in the United States is 77 years. How long do scientists expect average Americans on low-calorie diets to live if they expect them to increase their life expectancy by 2 percent?
- 2 How long do scientists expect average Americans on low-calorie diets to live if they expect them to increase their life expectancy by 9 percent?
- 3 If a woman who normally eats 2,000 calories a day restricts her calories a day by 35 percent, how many calories a day will she eat?

7 DISCUSSION

Discuss the following questions in pairs or groups.

- 1 Do you think scientists should use monkeys to do scientific experiments? Explain.
- 2 Does the research make you want to restrict the number of calories you eat? Why or why not?
- 3 In addition to having a healthy diet, what else can you do to increase your life expectancy?