Scientists discover how a gene can work to make some people fat

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Like many people, Lauren Brush works out regularly in an effort to slim down. Researches are looking at many other factors that may contribute to weight gain. Photo: Terrence Antonio James/Chicago Tribune/MCT

Being overweight is a serious problem for many people. People who are very overweight are considered obese. Various diseases are caused by obesity. More than one-third of adult Americans are obese. Scientists once blamed obesity just on what people eat and how much they exercise. Now, scientists have figured out how a gene tied to obesity can make people fat.

Genes are a section of DNA that tells the body how to grow and what to do. For instance, they decide what eye color or hair color a person has.

For a long time scientists knew that a gene called FTO was related to obesity, but they did not know how.

Body May Store Energy, Not Burn It

Now experiments show that the FTO gene can be flawed in some people. The result is that energy from food gets stored in the body as fat, rather than burned. Studies on mice and on human cells show how this could be reversed.

The work was led by scientists at MIT and Harvard University in Massachusetts.

Melina Claussnitzer is a genetics expert and the leader of the study. She says that scientists used to believe when people became obese "it was basically their own choice because they choose to eat too much or not exercise." Claussnitzer says the new study shows how genes play a part, too. It's like a third explanation for the causes of obesity, after food choices and exercise.

Scientists can now start working on a drug to help lower obesity.

A "Magic Pill" Won't Happen Soon

The new findings are exciting. Still, it will be awhile before any kind of new weight loss treatment is found. A "magic pill" for losing weight is not likely anytime soon, either. Medicines can sometimes have bad effects. Much more research needs to be done before scientists find a safe treatment. Eating right and doing plenty of exercise will continue to be very important.

The flawed gene doesn't explain weight gain in everyone, either. The gene was found in nearly half of all Europeans tested. However, it was found in only a very small number of black people. That means other genes are clearly at work, too.

Having the flawed gene doesn't mean a person will definitely become obese, but may make it more likely. Genes come in pairs. Some people in the study had two copies of the gene. One copy came from their mom. The other came from their dad. They weighed an average of 7 pounds more than people without two copies. Yet some people weighed much more than that.

The study was done on people in Sweden, Norway and other parts of Europe.

Obesity affects more than 500 million people worldwide. It leads to many diseases, including diabetes and heart problems.

Experiments Done With Mice, Human Cells

Scientists call brown-colored fatty tissue "good fat" because it burns calories from food and drinks. White fat is the more common type, and it stores calories. The body constantly makes fat cells of both kinds. Different genes determine whether they become brown or white ones. The FTO gene acts like a switch. It affects the genes that cause brown or white fat cells.

The scientists tried different experiments on the genes. In one they blocked the FTO gene's effect in mice. The mice became much leaner than other mice, even though they were eating fattier foods. The mice on the fatty food diet even burned more energy when they slept.

In other tests on human cells, blocking the gene's effect helped fat cells burn energy. Another test in the lab blocked the FTO gene in human cells. Then the cells worked normally.

Scientists do not know the effect of having just one flawed copy of the gene. They think it probably causes less weight gain than having two copies.

Several companies are trying to develop treatments to grow calorie-burning brown fat. The new study might help them do that.

Dr. Sam Klein is a scientist who studies obesity. He called the work "an amazing study."

Quiz

1 Which of the following details belongs in a summary of the article?

(A) Some people in the study had two copies of the gene. One copy came from their mom. The other came from their dad.

(B) The FTO gene acts like a switch. It affects the genes that cause brown or white fat cells.

(C) Genes are a section of DNA that tells the body how to grow and what to do. For instance, they decide what eye color or hair color a person has.

(D) Dr. Sam Klein is a scientist who studies obesity. He called the work "an amazing study."

2 Which of the following is the MAIN idea of this article?

(A) New weight-loss treatments will be created and available in the future.

(B) Scientists discovered how a flawed gene can be one of the causes of obesity in people.

(C) The flawed gene is not found in most black people, meaning other genes affect obesity as well.

(D) Scientists found that experiments done on mice can also be effective for humans who are obese.

3 Based on the following sentence, which of the following answer choices defines the word "lean"?

The mice became much leaner than other mice, even though they were eating fattier foods. The mice on the fatty food diet even burned more energy when they slept.

(A) thin, especially healthily so

(B) having a high proportion of air

(C) efficient and with no waste

(D) be in or move into a sloping position

4 Read the paragraph below.

Still, it will be awhile before any kind of new weight loss treatment is found. A "magic pill" for losing weight is not likely anytime soon, either. Medicines can sometimes have bad effects. Much more research needs to be done before scientists find a safe treatment.

What does the author mean by the phrase "magic pill"?

(A) a pill that uses witchcraft to speed up weight loss

(B) a fast-acting, easy weight-loss treatment

(C) a medicine made with a secret recipe that leads to good health

(D) a weight-loss treatment that has no bad effects