Can't lose weight? You may have obesity genes to blame

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Some people who are overweight report that they eat no more than slender friends and exercise just as much, but still can't drop pounds.

Now researchers think they know why this experience is entirely possible, an explanation they hope will help destigmatize obesity and offer new paths to prevent a condition linked with killers including cancer in ever-younger Americans.

Scientists at the Broad Institute of Massachusetts Institute of Technology and Harvard University found that there is a genetic tendency to obesity. The results were published Thursday in the journal *Cell*.

"We've known for a long time that some people are born with DNA predisposing them to obesity," said lead author Amit V. Khera, a cardiologist at the Massachusetts General Hospital Center for Genomic Medicine, in a press release. "Now, we can quantify those differences in a meaningful way, and potentially explore new routes for achieving better health."

Obesity is a major global health issue. Nearly 40 percent of U.S. adults and about 18.5 percent of children are considered obese, the Centers for Disease Control and Prevention reported.

The researchers looked at published data on how more than 2.1 million places in the genome affect body weight. They distilled the information into a single score for each individual. They validated the score by comparing it to data from nearly 120,000 people in a number of large scale studies including the UK Biobank, an open access database of health information collected from a half million participants and used for research. They found that the 10 percent of adults with the highest scores were 25 times as likely to be severely obese, compared to those with the lowest scores.

"Your susceptibility to obesity is based on the variants you inherited from your parents," said researcher Sekar Kathiresan, director of the Cardiovascular Disease Initiative at the Broad institute, in a press

release.

But Kathiresan also said that genetics don't necessarily ordain your weight—though some people do indeed have to work much harder than others to be slim.

When researchers compared the weight of those who had an inherited risk for obesity and those who did not at ages 18 and 50, they found there was a 30 pound difference, on average. But when they looked at the birth weights from the two groups, there was no difference, he said.

The inherited difference in weight gain begins to show up when people are about three or four years old, Kathiresan said.

"There is a golden period of intervention that can reduce risk for obesity, and that period is childhood," he said.

But even after childhood, exercise and proper nutrition can modify the risk that comes from inheritance, Kathiresan said.

The research findings give more insight into the biology of obesity and why some people stay thin. Studying thin individuals might help develop new treatments to help others avoid becoming overweight, Kathiresan said.

"We are hoping that this research really destigmatizes obesity," he said.

The study looked primarily at people with European ancestry. Additional research is needed into different ancestral backgrounds, researchers stated.