

'Apple-shaped' body? 'Pear-shaped'? Your genes may tell

18 February 2019, by Amy Norton, Healthday Reporter



better understand why some people develop diabetes or heart disease when they gain weight, while others do not.

The findings, published online Feb. 18 in *Nature Genetics*, come from a huge international research effort, looking at over 476,000 people at 70 research centers around the world.

Loos and her colleagues focused on hunting down so-called coding variations—differences within [genes](#) that have the potential to alter the way that genes and their proteins function.

In the end, the scientists discovered two dozen coding variations that were associated with [body fat distribution](#). Some of those variations have already been linked to processes such as blood sugar control and fat metabolism.

(HealthDay)—A large, new study has uncovered 24 genetic variations that help separate the apple-shaped people from the pear-shaped ones.

In general, Loos said, genes linked to obesity can be separated into two broad groups. One group acts on the brain, influencing how much you eat by regulating hunger and satiety.

Researchers said the findings help explain why some people are prone to carrying any excess weight around the belly. But more importantly, they could eventually shed light on the biology of diseases linked to obesity—particularly abdominal obesity.

"The gene variations we identified in this study don't act in the brain," Loos said. "They work at the [cellular level](#), determining where fat will be stored in the body."

While obesity is linked to a range of health conditions, [excess fat](#) around the middle seems to be a particular risk factor for certain diseases—like type 2 diabetes and [heart disease](#).

It all raises the possibility of developing medications that can "tweak" those genetic pathways so that body fat is redistributed in a healthier way, according to Loos.

"But we haven't really known why," said lead researcher Ruth Loos, a professor at Mount Sinai's Icahn School of Medicine, in New York City.

But that's a long way off, she stressed.

So, her team dug into the genetics underlying body fat distribution. If researchers can learn about the important gene variants, Loos explained, they can

The next step, Loos said, is to learn more about how these gene variations function in the body.

No one, however, is saying that body weight and shape are genetically set in stone.

Dr. Carl Lavie is medical director of cardiac

rehabilitation and preventive cardiology at the Ochsner Heart and Vascular Institute, in New Orleans.

"Genes are involved in the development of obesity and where the fat is distributed," said Lavie.

"However, the evidence is much stronger for environmental causes."

Those causes are no surprise: Lavie pointed to [sedentary lifestyles](#) and sugary, high-calorie diets.

"Regardless of a person's genetic profile," he said, "[physical activity](#) and reducing calorie intake can prevent [obesity](#) and [abdominal obesity](#)—and prevent it from progressing."

Plus, Lavie noted, exercise boosts a person's cardiovascular fitness level—which is a critical factor in the risk of developing or dying from heart disease.

Loos agreed that genes are not destiny. "Obesity is partly genetic," she said. "We should not forget that diet and exercise are very important."

However, she added, people with a genetic predisposition toward storing belly fat will have a harder time keeping a trim, heart-healthy waistline.

More information: Ruth Loos, Ph.D., professor, Charles Bronfman Institute for Personalized Medicine, Icahn School of Medicine at Mount Sinai, New York City; Carl Lavie, M.D., medical director, cardiac rehabilitation and preventive cardiology, John Ochsner Heart and Vascular Institute, New Orleans; Feb. 18, 2019, *Nature Genetics*, online

The Harvard School of Public Health has more on [obesity and genes](#).

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APA citation: 'Apple-shaped' body? 'Pear-shaped'? Your genes may tell (2019, February 18) retrieved 18 April 2021 from <https://medicalxpress.com/news/2019-02-apple-shaped-body-pear-shaped-genes.html>

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