

Feeling heavy, light, or about right? Your genes may be to blame

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A depiction of the double helical structure of DNA. Its four coding units (A, T, C, G) are color-coded in pink, orange, purple and yellow. Credit: NHGRI

Do you feel overweight, about right, or too skinny? Your answer to that question may be tied to genes you inherited from your parents, especially if you are a female, according to a new study led by the University of Colorado Boulder.

"This study is the first to show that [genes](#) may influence how people feel about their weight," said CU Boulder doctoral student Robbee Wedow, lead study author. "And we found the effect is much stronger for women than men."

The research measured the heritability of subjective weight status, which indicates what proportion of variation in a given trait is due to genes versus the environment. Heritability estimates range from 0 to 1, with 0 indicating that genetics are not a contributing factor at all, and 1 indicating that genetics are the only contributing factor.

The study showed that perceived weight status was 0.47 heritable, said Wedow, who along with co-author Jason Boardman is in the Department of Sociology and a member of CU Boulder's Institute of Behavioral Science.

"The heritability estimates provided us with the first evidence that weight identity may have [genetic underpinnings](#)," Wedow said.

A paper on the subject was just published online in the journal *Social Science & Medicine*.

The team used data from the National Longitudinal Study of Adolescent to Adult Health, or Add Health, that has sampled more than 20,000 adolescents into adulthood, including hundreds of twins who were first quizzed about their health beginning in 1994. All participants in the national study were re-sampled during four subsequent in-home interviews running through 2008.

First, the body mass index (BMI), or the height-to-weight ratio, of each person was calculated during each of the four Add Health interviews. Then, the participants were asked how they felt about their own weight. Response options included "very underweight," "slightly underweight," "about the right weight," "slightly overweight" and "very overweight."

The researchers paid special attention to the Add Health twin data as a way to get at the genetic part of perceived [weight status](#), looking at information from more than 700 twin pairs in the database. They included identical twins and fraternal twins, the latter including both same-sex and opposite-sex siblings. Identical twins share 100 percent of their genes with each other, while fraternal twins share about 50 percent of their genes.

Boardman said the new study and others like it are important since researchers have repeatedly shown that health assessments are strong predictors of adult mortality. Some studies have shown that self-health assessments are at least as accurate as health assessments of the subjects made by their physicians, he said.

"One's own perception about his or her health is a gold standard measure - it predicts mortality better than anything else," said Boardman. "But those who are less flexible in assessing their changing health over time may be less likely than others to make significant efforts to improve and maintain their [health](#)."

The researchers emphasized that even when there is a genetic connection to particular human behaviors or traits, social environments and personal choices will always play a major role in shaping outcomes.

Provided by University of Colorado at Boulder

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