

The lean gene

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Your friend can eat whatever she wants and still fit into her prom dress, but you gain five pounds if you just look at that chocolate cake. Before you sign up for Weight Watchers and that gym membership, though, you may want to look at some recent research from Tel Aviv University and save yourself a few hundred dollars.

A woman's waistline may have less to do with rigorous exercise and abstaining from sweets than it does with the genes of her parents, according to a new study by Prof. Gregory Livshits from the Sackler Faculty of Medicine at Tel Aviv University and colleagues from King's College in London. Dr. Livshits and his colleagues have found a scientific link between the lean body mass of a woman and her genes. They've determined that thinness – like your smile or the color of your eyes – is an inheritable trait.

Prof. Livshits, whose findings were published in the *Journal of Clinical Endocrinology and Metabolism* (2007), says, "The bad news is that many of our physical features, including our weight, are dependent on our genes. The good news is that women still have an opportunity to go against their genetic constitution and do something about it."

Until now, scientists were not sure to what extent environmental influences and genetics played a role in a woman's body size. When controlling for the variance of age, the differences in women's body sizes can be predicted in the genes more than 50 percent of the time, the researchers found.

Prof. Livshits conducted his study on more than 3,000 middle-aged women in the United Kingdom who belonged to either an identical or fraternal twin pair. He measured their “total lean mass,” one of the three major components of body weight, and compared it to markers in their genes.

Additional collaborative research between the two teams, which builds on the past study, is to be published in the next few months. It may help pave the way for a “skinny gene test,” which one day may help women trying to lose weight understand what kind of battle they can expect.

Those without the lean genes, however, will always find it harder to stay slim, predicts Prof. Livshits. But before your diet falls by the wayside, consider Prof. Livshits’ contention that genetics can be overcome.

It’s important to not have high expectations, he warns. “Women need to know that what they can do about their body weight – especially when they age – is relatively little, and they will do it only with much difficulty.”

Very few studies to date have been able to associate a body’s lean mass with genetics. The topic is a specialty at the Tel Aviv University lab, one of the top labs in the world to study the genetics of aging of body composition. This area includes the study of bone, fat and lean mass as it develops in a person over time.

Research on body composition components — their growth, degradation and genes — is part of Prof. Livshits’ ongoing work on aging and health. Issues such as weight gain are complex, he says, especially when age is factored in.

So don’t get too jealous of your friend’s dress size. It may be mostly out of your hands — and in your DNA.

Source: American Friends of Tel Aviv University

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