

Food habits are more important than the most important obesity risk gene

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The risk of becoming obese is 2.5 times higher for those who have double copies of the best known risk gene for overweight and obesity. However, this is only true if the fat consumption is high. A low fat diet neutralizes the harmful effects of the gene.

“This means that the critical factor is what you eat. At least in the case of the FTO gene, the most important obesity gene identified so far” says Emily Sonestedt, member of Marju Orho-Melanders research group at Lund University Diabetes Centre.

She is the main author of a study that is currently being published in the [American Journal of Clinical Nutrition](#). Several studies have found that exercise diminishes the effect of the risk gene but this is the first study where the effect of the gene has been studied in relation to food habits. The risk variant of the FTO gene (fat mass and obesity associated) is common in the general population. 17 percent have double copies, meaning they have inherited it from both parents. Another 40 percent have a single copy.

“It is difficult to calculate how much people eat with any certainty, which is one of the reasons why no one has done this before. But we have good data” says Emily Sonestedt.

The information comes from the large Malmö Diet and Cancer study where food habits were carefully documented using, among other things, an extensive questionnaire, a long interview and a food diaries kept by

the participants themselves. When the [eating habits](#) of the carriers of the double risk variant for obesity was analyzed the pattern was clear. The risk of obesity was dramatically increased only in the case of high fat consumption.

“Yes, for those who had a diet where less than 41 percent of the energy consumed came from fat, obesity was not more common, in spite of the inherited risk” says Emily Sonestedt.

The FTO genes acts in the hypothalamus, the part of the brain that regulates appetite and satiety, and the risk variant has been connected to an increased [energy intake](#), especially in the form of fat.

“It could be that the carriers of the risk gene don’t feel as full from eating fat and therefore consume more and gain weight” says Emily Sonestedt.

The finding that the harmful effects of the gene can be cancelled by changing eating habits could, combined with mapping of the effects of other obesity genes, lead to better and more individualized nutritional counseling for those that want to avoid gaining weight.

“This shows that we are not slaves to our [genes](#). Even if we are born with an inherited predisposition to obesity, life style is important” says Emily Sonestedt.

More information: The study is published in the *American Journal of Clinical Nutrition*:

Fat and carbohydrate intake modify the association between genetic variation in the FTO genotype and [obesity](#)

www.ajcn.org/cgi/rapidpdf/ajcn.2009.27958v1

Source: Lund University

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