

# Risk of obesity from regular consumption of fried foods may depend on genetic makeup

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People with a genetic predisposition to obesity are at a higher risk of obesity and related chronic diseases from eating fried foods than those with a lower genetic risk, according to a new study from researchers from Harvard School of Public Health, Brigham and Women's Hospital, and Harvard Medical School. It is the first study to show that the adverse effects of fried foods may vary depending on the genetic makeup of the individual.

"Our study shows that a higher [genetic risk](#) of [obesity](#) may amplify the [adverse effects](#) of [fried food](#) consumption on body weight, and high intakes of fried food may also exacerbate the deleterious genetic effects," said Lu Qi, lead author and assistant professor in the Department of Nutrition at HSPH and Brigham and Women's Hospital and Harvard Medical School.

The study appears online March 18, 2014 in the *British Medical Journal*.

The researchers analyzed data from 9,623 women in the Nurses' Health Study, 6,379 men in the Health Professionals Follow-up Study, and 21,426 women in the Women's Genome Health Study. Participants filled out food frequency questionnaires that asked how often they ate fried foods both at home and away from home. Body mass index (BMI) and lifestyle factors, such as physical activity, were also assessed. Genetic risk scores were calculated based on genetic variants associated with BMI.

The results showed that regular consumption of fried foods was associated with higher BMI, after taking into account other dietary and lifestyle factors. In addition, the study showed that the association between overconsumption of fried foods and obesity was particularly pronounced among people with a greater [genetic predisposition](#) to obesity. On the other hand, the genetic effect on BMI among those who ate fried foods more than four times a week was about twice as large compared with those who ate them less than once a week.

"Our findings indicate that genetic risk of obesity could be mitigated by simply changing an eating habit," said Frank Hu, co-author and professor of nutrition and epidemiology at HSPH. "From a [public health](#) point of view, everyone should be encouraged to adopt healthy eating habits, not just those who are genetically susceptible."

**More information:** "Fried food consumption, genetic risk, and body mass index: gene-diet interaction analysis in three U.S. cohort studies," Qibin Qi, Audrey Y. Chu, Jae H. Kang, Jinyan Huang, Lynda M. Rose, Majken K. Jensen, Liming Liang, Gary C. Curhan, Louis R. Pasquale, Janey L. Wiggs, Immaculata De Vivo, Andrew T. Chan, Hyon K. Choi, Rulla M. Tamimi, Paul M. Ridker, David J. Hunter, Walter C. Willett, Eric B. Rimm, Daniel I. Chasman, Frank B. Hu, Lu Qi, *British Medical Journal*, online March 18, 2014.

[www.bmj.com/cgi/doi/10.1136/bmj.g1610](http://www.bmj.com/cgi/doi/10.1136/bmj.g1610)

Editorial: [www.bmj.com/cgi/doi/10.1136/bmj.g1900](http://www.bmj.com/cgi/doi/10.1136/bmj.g1900)

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