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Walking May Lessen the Influence of Genes On Obesity by Half

ScienceDaily (Mar. 14, 2012) — Watching too much TV can worsen your genetic tendency towards obesity, but you can cut the effect in half by walking briskly for an hour a day, researchers report at the American Heart Association's Epidemiology and Prevention/Nutrition, Physical Activity and Metabolism 2012 Scientific Sessions.

"While previous studies have looked at how physical activity affects genetic predispositions, this is the first study that directly looked at the effect of the sedentary behavior of television watching on the body mass index (BMI) of individuals with a genetic predisposition to obesity," said Qibin Qi, Ph.D., study author and a post doctorate research fellow in the Department of Nutrition at Harvard School of Public Health in Boston, Mass.

"In our study, a brisk one-hour daily walk reduced the genetic influence towards obesity, measured by differences in BMI by half. On the other hand, a sedentary lifestyle marked by watching television four hours a day increased the genetic influence by 50 percent."

The study included 7,740 women and 4,564 men from the Nurses' Health Study and Health Professionals Follow-up Study. Researchers collected data on physical activity and TV watching two years prior to assessing BMI.

BMI is the ratio of weight in kilograms to square of height in meters; a score of 30 or more is obese.

The researchers calculated a genetic predisposition score based on 32 established BMI-predisposing genetic variants. The effect of genes on obesity was measured by differences in BMI per point of the genetic predisposition score, corresponding to each BMI-increasing gene.

Each BMI-increasing gene was associated with 0.13 kilograms/meter squared (kg/m^2) in BMI. That effect was reduced in people in the highest level of physical activity compared to those in the lowest, 0.08 versus 0.15 kg/m^2. The genetic effect on BMI was more pronounced in people who spent 40 hours a week watching television than those who spent an hour or less, 0.34 versus 0.08 kg/m^2.

The equivalent of brisk walking one hour a day was associated with a 0.06 kg/m^2 reduction in the genetic effect on BMI and each two-hour-a-day increment in television watching was associated with 0.03 kg/m^2 increase in genetic effect on BMI.

Gene testing for obesity is not available to the general public yet, and Qi advised physicians to ask patients about a family history of obesity.

The average American watches television about four to six hours a day, he said.

How the function of these genes affect BMI isn't clear, Qi said. "These genes were just identified in the past five years and the exact functions of the genetic variants are still unknown. Future studies will be needed to uncover the underlying mechanisms."

Co-authors are Yanping Li, Ph.D.; Andrea K. Chomistek, Sc.D.; Jae Hee Kang, Sc.D.; Gary Curhan, M.D., Sc.D.; Louis R. Pasquale, M.D.; Walter Willett, M.D.; Eric B. Rimm, Sc.D.; Frank B. Hu, M.D., Ph.D.; and Lu Qi, M.D., Ph.D. Author disclosures are on the abstract. The National Institutes of Health funded the study.

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