What Do You Prefer? Meals High in Fat, Protein or Carbohydrates?

Genetic signals active in dozens of areas in the brain affect dietary choices.

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When faced with a smorgasbord of tasty delights, why do people pick one dish over another? Blame it on gene variants found in certain areas of the brain. At least that's what new study findings published in the journal Nature Human Behavior suggest, according to a Boston University press release. When activated, these changes in a gene's DNA sequence prompt individuals to reach for foods that contain certain nutrients their bodies need and use in larger quantities.

For the inquiry, an international team of researchers assessed genetic health information from 282,271 people of European ancestry who participated in two large-scale, long-term studies: 191,157 individuals from the UK Biobank and 91,114 others from the Cohorts for Heart and Aging Research in Genomic Epidemiology Consortium.

Scientists reviewed the data and pinpointed 26 areas of the brain linked with a predisposition for fatty, high-protein or carb-laden foods.

"When [those areas of the brain] are activated, [it] may explain why people are more likely to prefer foods or meals with higher amounts of fat, protein or carbohydrate," explained study coauthor Jordi Merino, PhD, a research associate at the Massachusetts General Hospital Diabetes Unit and Center for Genomic Medicine.

Researchers also identified two main clusters of genes that were differently associated with obesity and coronary artery disease and that showed variation by dietary intake. In the future, scientists could employ these genes to definitively establish whether the foods people eat are triggers for metabolic illnesses, such as type 2 diabetes and obesity.

"The average daily intake of nutrients and foods, a major contributor of obesity, is partly influenced by our genetics," said Chloé Sarnowski, PhD, a faculty associate at the University of Texas Health Science Center at Houston and the study's co–lead author. (She was a biostatistician at Boston University when she conducted the study.)

"Our results could also help identify people more likely to follow specific dietary recommendations for the prevention of obesity or diabetes," said study coauthor Hassan Dashti, PhD, an associate

professor of anesthesia at Harvard University.

“For example, if someone has a higher genetic susceptibility for preferring fatty foods, this information can be used to help this individual to choose foods with higher amounts of healthy fats rather than recommending other dietary approaches that might compromise adherence to these interventions.”

This understanding might provide new ways to prevent and treat commonplace complex metabolic diseases, concluded researchers.

To learn more about how genes may control people’s predilection for specific foods, read "Your Genes May Determine Whether You Favor Certain Foods Over Others."

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