

Eating your greens can change the effect of your genes on heart disease, say researchers

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A long-held mantra suggests that you can't change your family, the genes they pass on, or the effect of these genes. Now, an international team of scientists, led by researchers at McMaster and McGill universities, is attacking that belief.

The researchers discovered the gene that is the strongest marker for [heart disease](#) can actually be modified by generous amounts of fruit and raw vegetables. The results of their study are published in the current issue of the journal [PLoS Medicine](#).

"We know that 9p21 genetic variants increase the risk of heart disease for those that carry it," said Dr. Jamie Engert, joint principal investigator of the study, who is a researcher in cardiovascular diseases at the Research Institute of the McGill University Health Centre (RI-MUHC) and associate member in the Department of Human Genetics at McGill University. "But it was a surprise to find that a healthy diet could significantly weaken its effect."

The research, which represents one of the largest gene-diet interaction studies ever conducted on [cardiovascular disease](#), involved the analysis of more than 27,000 individuals from five ethnicities -- European, South Asian, Chinese, Latin American and Arab -- and the affect that their diets had on the effect of the 9p21 gene. The results suggest that individuals with the high risk genotype who consumed a prudent diet, composed mainly of raw vegetables, fruits and berries, had a similar risk of heart attack to those with the low risk genotype.

"We observed that the effect of a high-risk genotype can be mitigated by consuming a diet high in [fruits and vegetables](#)," said Sonia Anand, joint principal investigator of the study, and a researcher at the Population Health Research Institute and a professor of medicine and epidemiology at the Michael G. [DeGroot](#)e School of Medicine at McMaster University. "Our results support the public health recommendation to consume more than five servings of fruits or vegetables as a way to promote good health."

"Our research suggests there may be an important interplay between genes and diet in cardiovascular disease," says the study's lead author Dr. Ron Do, who conducted this research as part of his PhD at McGill and is now based at the Center for [Human Genetics](#) Research at the Massachusetts General Hospital, Boston, Massachusetts. "Future research is necessary to understand the mechanism of this interaction, which will shed light on the underlying metabolic processes that the 9p21 gene is involved in."

More information: The Effect of Chromosome 9p21 Variants on Cardiovascular Disease May Be Modified by Dietary Intake: Evidence from a Case/Control and a Prospective Study, *PLoS Medicine* 9(10): e1001106. doi:10.1371/journal.pmed.1001106

Provided by McMaster University

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