

Study of more than 330,000 genomes indicates 34 genes potentially involved in vegetarianism

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Certain variations in genes involved in lipid metabolism and brain function may be associated with choosing a vegetarian diet, according to

a new study led by Nabeel Yaseen of Northwestern University, published in the open-access journal *PLOS ONE*.

A small percentage of the population chooses to eat a vegetarian diet for a variety of religious, ethical, environmental, and health-related reasons. A person's dietary choices may also involve a combination of personal taste, their [metabolism](#) and the effects of different foods on the body. All of these factors are strongly influenced by genetics, but the role of a person's genes in choosing a vegetarian diet is not well understood.

In the new study, researchers performed a genome-wide association study where they screened thousands of genomes to identify genetic variations linked to being vegetarian. The researchers compared genomes from 5,324 strict vegetarians to 329,455 non-vegetarians who are participants in the UK Biobank, a large-scale biomedical database.

They identified variants associated with 34 genes that may contribute to choosing a vegetarian diet. Several of these genes have important functions in [lipid metabolism](#) and [brain function](#), which raises the possibility that differences in how the body processes lipids and the resulting effects on the brain may underlie the ability and choice to subsist on a vegetarian diet.

These results add to existing research pointing to a role for genetics in dietary choices. However, the researchers note that more research is needed into potential differences between lipid synthesis and metabolism in vegetarians and non-vegetarians, as well as other physiologic pathways which might underlie vegetarianism. A better understanding of these pathways may help nutritionists design more effective dietary recommendations based on a person's individual genetics.

The authors add, "Our data indicate that adherence to a strict [vegetarian diet](#) is influenced by genetics. Using a [genome-wide association study](#),

we identified 34 [genes](#) with possible roles in vegetarianism."

More information: Genetics of vegetarianism: A genome-wide association study, *PLoS ONE* (2023). [DOI: 10.1371/journal.pone.0291305](#)

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