Vegetarianism can lead to heart disease and cancer

By Sarah Knapton

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Scientists have found vegetarianism can cause a genetic mutation that can lead to cancer.

Long term vegetarianism can lead to genetic mutations that raise the risk of heart disease and cancer, scientists have found.

Populations who have had a primarily vegetarian diet for generations were found to be far more likely to carry DNA that makes them susceptible to inflammation.

Scientists in the US believe that the mutation occurred to make it easier for vegetarians to absorb essential fatty acids from plants.

But it has the knock-on effect of boosting the production of arachidonic acid, which is known to increase inflammatory disease and cancer. When coupled with a diet high in vegetable oils - such as sunflower oil - the mutated gene quickly turns fatty acids into dangerous arachidonic acid.

The finding may help explain previous research which found vegetarian populations are nearly 40 per cent more likely to suffer colorectal cancer than meat eaters, a finding that has puzzled doctors because eating red meat is known to raise the risk.

Researchers from Cornell University in the US compared hundreds of genomes from a primarily vegetarian population in Pune, India to traditional meat-eating people in Kansas and found there was a significant genetic difference.

"Those whose ancestry derives from vegetarians are more likely to carry genetics that more rapidly metabolise plant fatty acids," said Tom Brenna, Professor of Human Nutrition at Cornell.

"In such individuals, vegetable oils will be converted to the more pro-inflammatory arachidonic acid, increasing the risk for chronic inflammation that is implicated in the development of heart disease, and exacerbates cancer.

"The mutation appeared in the human genome long ago, and has been passed down through the human family."

To make the problem worse, the mutation also hinders the production of beneficial Omega 3 fatty acid which is protective against heart disease. Although it may not have mattered when the mutation first developed, since the industrial revolution there has been a major shift in diets away from Omega 3 - found in fish and nuts - to less healthy Omega 6 fats - found in vegetable oils.

"Changes in the dietary Omega 6 to Omega 3 balance may contribute to the increase in chronic disease seen in some developing countries," added Dr Brenna.

"The message for vegetarians is simple. Use vegetable oils that are low in omega-6 linoleic acid such as olive oil."

The mutation is called rs66698963 and is found in the FADS2 gene which controls the production of fatty acids in the body.

Previous studies have shown that vegetarianism and veganism can lead to problems with fertility by lowering sperm counts.

Separate research from Harvard University also found that a diet high in fruit and vegetables may impact fertility because men are consuming high quantities of pesticides.

Many vegetarians also struggle to get enough protein, iron, vitamin D, vitamin B12 and calcium which are essential for health. One study found that vegetarians had approximately five percent lower bone-mineral density (BMD) than non-vegetarians.
However other research suggests vegetarianism lowers the risk of diabetes, stroke and obesity.

The new research was published in the journal Molecular Biology and Evolution

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