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Gut bacteria may protect against stroke



By
8th Jan 2013

Some recent research has found that there may be an association between altered gut [bacteria \(/live-cultures/glossary#bacteria\)](#) and the occurrence of atherosclerosis and stroke.

Researchers compared a group of healthy subjects with a group of stroke patients and found some major differences between their gut [microbiota \(/live-cultures/glossary#microbiota\)](#). They focused on looking at differences in the gut metagenome in the participants, a term which refers to the vast array of genes which are present within the bacteria that reside in the human digestive system.

The researchers looked at the gut metagenomes of 12 patients with signs of atherosclerotic plaques, or hardenings of the artery wall which are due to the accumulation of fatty substances such as cholesterol. The researchers then matched the stroke participants with a group of 13 gender and age- matched control subjects, who did not exhibit any noticeable arterial plaques or signs of atherosclerosis.


One of the biggest differences in the bacterial genomes between the control and stroke groups involved genes which are required for carotenoid production. Interestingly, the healthy subjects revealed a higher frequency of carotenoid producing bacteria than those who had suffered a stroke. The healthy subjects also had higher circulating levels of carotenoids in the blood when compared to the stroke group.

Carotenoids are a type of [antioxidant \(/live-cultures/glossary#antioxidants\)](#) which may protect against cardiovascular conditions such as stroke and atherosclerosis, which can be characterised by [free radical \(/live-cultures/glossary#free-radicals\)](#) damage and inflammation. The increased incidence of carotenoid producing bacteria in the control group may have contributed positively to the absence of stroke and atherosclerosis in the healthy subjects.

Although the research only used a small population size, it does provide some exciting possible future implications for identifying potential disease risk by studying an individual's gut bacteria. The researchers concluded that the introduction of these techniques may help to develop disease- prevention paradigms in the future, such as the launch of effective new [prophylactic \(/live-cultures/glossary#prophylactic\)](#) probiotic supplements.

Reference: Karlsson et al.(2012) 'Symptomatic atherosclerosis is associated with an altered gut metagenome.' *Nature Communications*, vol. 3, no. 1245.

<http://www.nature.com/ncomms/journal/v3/n12/full/ncomms2266.html> (<http://www.nature.com/ncomms/journal/v3/n12/full/ncomms2266.html>)

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