

High serum omega-6 polyunsaturated fatty acid concentrations linked to lower risk of type 2 diabetes

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A new study from the University of Eastern Finland shows that high serum omega-6 polyunsaturated fatty acid concentrations are linked to a significantly reduced risk of type 2 diabetes. The findings were published in the *American Journal of Clinical Nutrition*.

It has been speculated that a high intake of omega-6 polyunsaturated fatty acids may increase the risk of several chronic diseases, as these fatty acids have been suggested to promote low-grade inflammation, among other things. However, studies conducted on humans have not established a link between even a high intake of omega-6 fatty acids and inflammation. Furthermore, omega-6 fatty acids have beneficial effects on, for example, [glucose metabolism](#). Earlier research has systematically linked especially linoleic [acid](#), which is the most common omega-6 fatty acid, to a reduced risk of cardiovascular diseases and type 2 [diabetes](#). However, scientific evidence relating to the health effects of other omega-6 polyunsaturated fatty acids is not as inconclusive.

The serum fatty acid concentrations of 2,189 men aged between 42 and 60 years and with no baseline type 2 diabetes diagnosis were analysed at the onset of the Kuopio Ischaemic Heart Disease Risk Factor Study, KIID, in 1984–1989 at the University of Eastern Finland. During a follow-up of 19 years, 417 men were diagnosed with type 2 diabetes.

The study found that high serum omega-6 polyunsaturated fatty acid

concentrations were associated with a 46% lower risk of developing type 2 diabetes during the follow-up. When analysing the independent associations of different omega-6 polyunsaturated fatty acids, a similarly significant association was found between high serum linoleic and arachidonic acid concentrations and a lower risk of type 2 diabetes. However, high serum gamma-linolenic and dihomo- γ -linolenic acid concentrations were linked to a higher risk.

The study indicates that high serum linoleic and arachidonic acid concentrations are linked to a lower risk of type 2 diabetes. The serum linoleic acid concentration is determined by the person's diet, and the main sources of linoleic acid are vegetable oils, nuts and seeds. Arachidonic acid is present in meat and eggs; however, the human body can also make arachidonic acid from linoleic acid.

Gamma-linolenic acid and dihomo- γ -linolenic acid are mainly formed in the human body from linoleic acid. Their concentrations in serum are very low in comparison to, for example, linoleic acid. The association of gamma-linolenic acid and dihomo- γ -linolenic acid with a higher risk of type 2 diabetes has been observed in some earlier studies, but the underlying reason remains unknown.

All in all, however, this study as well as several earlier ones suggest that polyunsaturated omega-6 [fatty acids](#) have a beneficial impact on the risk of type 2 diabetes.

More information: T. Yary et al. Serum n-6 polyunsaturated fatty acids, 5- and 6-desaturase activities, and risk of incident type 2 diabetes in men: the Kuopio Ischaemic Heart Disease Risk Factor Study, *American Journal of Clinical Nutrition* (2016). [DOI: 10.3945/ajcn.115.128629](#)

Provided by University of Eastern Finland

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