Omega-3s may reduce diabetes risk: 3 studies compare plant & marine sources

Increased blood levels of omega-3 fatty acids from plant or marine sources are associated with reduced risk of type-2 diabetes, according to three new studies in the *American Journal of Clinical Nutrition*.

Two studies in Chinese populations and one in the US reported that intakes or blood levels of omega-3 from plants, seafood, or both were associated with reduced risks of developing diabetes.

In an accompanying editorial, Edith Feskens from Wageningen University writes: *"ALA, the vegetable oil omega-3 FA, has so far been studied less frequently in relation to diabetes and glucose metabolism.*

"The 2 studies in this issue of the Journal suggest that ALA can be protective, and this is a good hypothesis, which merits more attention.

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Burden

According to the World Health Organisation (WHO), diabetes affects over 220 million people globally and the consequences of high blood sugar kill 3.4 million every year. If such statistics weren't scary enough, the WHO is predicting deaths to double between 2005 and 2030.

The total costs associated with the condition in the US alone are thought to be as much as $174 billion, with $116 billion being direct costs from medication, according to 2005-2007 American Diabetes Association figures.

Plant, marine or both?

The Chinese population studies – Singapore Chinese Health Study and the Shanghai Health Studies – included data from over 150,000 men and women. The former found that only plant-derived omega-3 intakes (alpha-linolenic acid, or ALA) were associated with a reduction in the risk of diabetes (21 percent reduction).

The Shanghai study reported different results – concluding that seafood intake was associated with a reduction in the risk of diabetes. In addition, the association was stronger for women than men, said the researchers.

In her editorial, Dr Feskens said: *"ALA, the vegetable oil omega-3 FA, has so far been studied less frequently in relation to diabetes and glucose metabolism. The 2 studies in this issue of the Journal suggest that ALA can be protective, and this is a good hypothesis, which merits more attention.*

"The obvious variation in intake and sources between various countries suggests that additional cohort analyses may provide some interesting evidence. But additional biomarker studies are equally welcome," she added.

The US study – the Cardiovascular Health Study involving over 3,000 older men and women – found that both marine and plant sourced omega-3s were associated with a lower risk of diabetes. In this instance, however, the association was not observed for intakes of omega-3s, but for blood levels of ALA, eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA).

"[The US results are] interesting," wrote Dr Feskins, "*they confirm recent observations that intake of fish or EPA/DHA is not associated with diabetes risk but in contrast show that plasma EPA/DHA is associated with a reduced incidence. The risk is especially reduced in the highest quartile of plasma EPA/DHA."*

"A good trial using ALA is so far lacking but does not seem impossible. Finally, studies on dietary patterns and diabetes should also take a closer look at ALA and its main sources," concluded Dr Feskins.

Sources

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