

Omega-3 may prevent obesity-related complications: Study

13-Feb-2009—Increased consumption of omega-3 fatty acids may protect against obesity-related damage of the liver, which may lead to diabetes, says a new study from Spain.

Two types of lipids derived from omega-3 fatty acids - protectins and resolvins - were the cause of the protective effect, according to new findings from an animal study published in *The FASEB Journal*.

If the results are repeated in additional studies, particularly in humans, the data does suggest that

"Our study shows for the first time that lipids called protectins and resolvins derived from omega-3 fatty acids can actually reduce the instance of liver complications, such as hepatic steatosis and insulin resistance, in obese people," said researcher Joan Claria from the University of Barcelona.

Previous studies have implicated omega-3 in protective benefits against both obesity and diabetes, and the new study adds to this small but growing body of evidence. A considerable number of studies already support the benefits of the omega-3 fatty acids eicosapentaenoic acid (EPA, C20:5 n-3) and docosahexaenoic acid (DHA, C22:6 n-3) for cardiovascular health, and cognitive health. Other areas of potential for the fatty acids include mood and behaviour, eye health, cancer risk reduction, and improved infant development.

Study details

The Barcelona-based researchers studied four groups of mice with an altered gene making them obese and diabetic (ob/ob mice). One group of animals was given an omega-3-enriched diet, another group was given a control diet, a third group was given DHA, and the last group received only the lipid resolvin.

The interventions lasted for five weeks, after which the researchers report that mice in the omega-3-rich diet group experienced less liver inflammation and improved insulin tolerance.

Moreover, fatty liver (hepatic steatosis) was alleviated in the animals fed the omega-3.

Deeper analysis

Further analysis showed that the omega-3s inhibited the formation of omega-6-PUFA-derived eicosanoids, related to inflammation, while the formation of omega-3-derived resolvins and protectins was also triggered.

"Taken together, these findings uncover beneficial actions of omega -3-PUFAs and their bioactive lipid autacoids in preventing obesity-induced insulin resistance and hepatic steatosis," concluded the researchers.

Commenting independently on the research, Gerald Weissmann, MD, editor-in-chief of *The FASEB Journal* said: *"Doctors are always looking for simple and easy ways to counter the harmful effects of obesity, and the great thing about this study is that the information can be used at dinner tonight."*

"It's not unlikely that eating lots more fish or a simple switch to canola oil will make a difference."

Source: *FASEB Journal*

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"Obesity-induced insulin resistance and hepatic steatosis are alleviated by -3 fatty acids: a role for resolvins and protectins"

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