

Clinical Update

Omega 3 Fatty Acids Guard Against Type I Diabetes

High-risk kids who ate more fatty acids were less likely to develop diabetes, study says

(*Journal of the American Medical Association*, September 2007)

Youngsters at high risk for developing type 1 diabetes might be able to prevent the disease by eating foods rich in omega-3 fatty acids, a new study suggests. Reporting in the Sept. 26 issue of the *Journal of the American Medical Association*, researchers from the University of Colorado found that high-risk children with the highest omega-3 intake had up to a 55 percent reduced risk of type 1 diabetes.

"The kids with more omega-3 in their diets were about half as likely to develop type 1 diabetes than those with less," said study author Jill Norris, a professor in the department of preventive medicine and biometrics at the Barbara David Center for Childhood Diabetes at the University of Colorado at Denver and Health Sciences Center. Omega-3 fatty acids are found in fish, walnuts and certain plant oils, such as canola and olive. Omega-3 fatty acids have anti-inflammatory properties and are believed to help reduce the incidence of heart disease.

Type 1 diabetes is an autoimmune disease in which the body mistakenly attacks the islet cells in the pancreas. Insulin, which regulates blood sugar levels, is produced by the islet cells. In past research, scientists discovered that Norwegian children who were regularly given cod liver oil supplements, which are rich in omega-3 fatty acids and vitamin D, had a lower incidence of type 1 diabetes. It wasn't clear, however, whether the vitamin D or the omega-3 was responsible for the reduced risk.

To assess the affect of omega-3 and omega-6 fatty acids on the risk of type 1 diabetes, Norris and her colleagues recruited 1,770 children who were at high risk for developing type 1 diabetes, either because they had a family member with the disease or because they had genetic markers that put them at a higher risk for developing type 1 diabetes.

Parents began periodically reporting dietary intake when the children were a year old. The average age at follow-up was 6.2 years. During that time period, 58 children developed type 1 diabetes, according to the study. The researchers found no statistically significant differences in the rate of diabetes based on omega-6 consumption, however, there was a 55 percent reduced risk in those who reported consuming the most omega-3 fatty acids.

Because self-reported dietary information isn't always the most reliable indicator of actual consumption, the researchers conducted an analysis that included 244 children and measured a biomarker of omega-3 consumption from the blood. In this subgroup, the researchers found that omega-3 fatty acid consumption reduced the risk of type 1 diabetes by 37 percent.

Norris said the anti-inflammatory properties of omega-3s may be behind this potentially protective effect. "Inflammation is part of the very early process of diabetes," she explained. "In type 1 diabetes, there is an inflammatory response that causes [islet] cell destruction, and it may be that omega-3 is a modulator of that inflammation," said Dr. Stuart Weiss, an endocrinologist at New York University Medical Center. Weiss cautioned that this effect may not be permanent, however. "It may just be that omega-3s have delayed the onset of the disease, but the longer those cells function, the better."

Weiss said he hopes the findings prompt a large, randomized, controlled study to confirm whether or not omega-3 consumption can truly prevent diabetes. Norris said it's too soon to recommend that children, even those at high risk of diabetes, consume more omega-3s for the prevention of diabetes.