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Consumption of omega-3 fatty acids associated with decreased risk of type 1 diabetes

Preliminary research suggests that in children at increased risk for type 1 diabetes, dietary intake of omega-3 fatty acids was associated with a reduced risk of pancreatic islet autoimmunity, which is linked to the development of diabetes, according to an article in the Sept. 26 issue of JAMA.

Type 1 diabetes mellitus is an autoimmune disease that is characterized by the destruction of insulin-producing beta cells in the pancreatic islets. Although it is not yet known what initiates the autoimmune process, it is likely that both genetic background and environmental factors contribute to the disease process,' the authors write. Certain dietary factors have been associated with the onset of type 1 diabetes as well as the autoimmune process that leads to the disease.

Jill M. Norris, M.P.H., Ph.D., of the University of Colorado at Denver and Health Sciences Center, Denver, and colleagues examined whether consumption of omega-3 and omega-6 fatty acids are associated with the development of pancreatic islet autoimmunity (IA; development of antibodies against the cells in pancreas that produce insulin) in children. The study, conducted between 1994 and 2006, included 1,770 children at increased risk for type 1 diabetes, defined as either possession of a high diabetes risk HLA (human leukocyte antigen) genotype or having a sibling or parent with type 1 diabetes. The average age at follow-up was 6.2 years. Islet autoimmunity was assessed in association with reported dietary intake of polyunsaturated fatty acids starting at age 1 year. Fish is the primary source of marine polyunsaturated fatty acids. Childhood diet was measured using a food frequency questionnaire (FFQ).

A case-cohort study (n = 244) was also conducted in which risk of IA by polyunsaturated fatty acid content of erythrocyte membranes (outer portion of the red blood cell) was examined.

Fifty-eight children became positive for IA during follow-up. Adjusting for HLA genotype, family history of type 1 diabetes, caloric intake, and total omega-6 fatty acid intake, total omega-3 fatty acid intake was inversely associated with IA risk (a 55 percent reduced risk). The

association was strengthened when the definition of the outcome was limited to those positive for two or more autoantibodies. In the case-cohort study, omega-3 fatty acid content of erythrocyte membranes was associated with a 37 percent decreased risk of IA.

Our study suggests that higher consumption of total omega-3 fatty acids, which was reported on the FFQ, is associated with a lower risk of IA in children at increased genetic risk of type 1 diabetes," the researchers write.

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Editor's Note:

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