MedicalXpress

Low vitamin D levels may increase risk of Type 1 diabetes

February 4 2013

Having adequate levels of vitamin D during young adulthood may reduce the risk of adult-onset type 1 diabetes by as much as 50%, according to researchers at Harvard School of Public Health (HSPH). The findings, if confirmed in future studies, could lead to a role for vitamin D supplementation in preventing this serious autoimmune disease in adults. The study was published online February 3, 2013 and will appear in the March 1 print edition of the *American Journal of Epidemiology*.

"It is surprising that a serious disease such as type 1 diabetes could perhaps be prevented by a simple and safe intervention," said lead author Kassandra Munger, research associate in the Department of Nutrition at HSPH.

This study provides the strongest findings to date to suggest that vitamin D may be protective against type 1 diabetes.

In type 1 diabetes (once called juvenile-onset or insulin-dependent diabetes), the body's immune system attacks and permanently disables the insulin-making cells in the pancreas. About 5% of the estimated 25.8 million people in the United States with diabetes have type 1, according to the American Diabetes Association. Although it often starts in childhood, about 60% of type 1 diabetes cases occur after age 20.

Previous studies have suggested that a shortage of vitamin D might boost type 1 diabetes risk, although those studies mostly examined the link between vitamin D levels in pregnancy or childhood and the risk of type

1 diabetes in children. Other research, in young adults, uncovered an association between high vitamin D levels and a lowered risk of multiple sclerosis—an autoimmune disease genetically and epidemiologically related to type 1 diabetes—suggesting that inadequate vitamin D in adulthood may be an important risk factor for autoimmune diseases in general.

Long-term study of military personnel

The researchers conducted a prospective case-control study of U.S. military personnel on active duty, using blood samples from the Department of Defense Serum Repository, which contains more than 40 million samples collected from 8 million military personnel since the mid-1980s. Identifying 310 individuals diagnosed with type 1 diabetes between 1997 and 2009, the team examined blood samples taken before onset of the disease, and compared the samples with those of 613 people in a control group.

The researchers found that white, non-Hispanic, healthy young adults with higher serum levels (>75 nmol/L) of vitamin D had about half the risk of developing type 1 diabetes than those with the lowest levels of vitamin D (