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Vitamin K may slash diabetes risk: Study

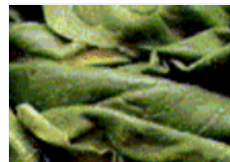
By Stephen Daniells, Contact the editor, 09-Oct-2012

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Increased intakes of vitamin K1 may lower the risk of developing type-2 diabetes in elderly people with a high risk of cardiovascular disease, says a new study.

Spanish scientists report that for every 100 microgram per day increase in the intake of vitamin K1 the risk of developing diabetes decreased by 17%.

In addition, the highest average intakes of vitamin K1 were associated with a total reduction in the risk of diabetes of 51%, compared with people with the lowest average levels, according to findings published in the *American Journal of Clinical Nutrition*.



Phylloquinone is found naturally in green leafy vegetables

"The results of this study show that dietary phylloquinone intake is associated with reduced risk of type-2 diabetes, which extends the potential roles of vitamin K in human health."

Vitamin K

The study adds to the ever-growing body of potential health benefits of vitamin K intakes. Despite the positive impacts, vitamin K deficiency may be more common than previously thought, according to findings from a Dutch study in 2007 (*Thrombosis and Haemostasis*, Vol. 98, pp. 120-125).

There are two main forms of vitamin K: phylloquinone, also known as phytonadione, (vitamin K1) which is found in green leafy vegetables such as lettuce, broccoli and spinach, and makes up about 90 per cent of the vitamin K in a typical Western diet; and menaquinones (vitamins K2), which make up about 10 per cent of Western vitamin K consumption and can be synthesised in the gut by microflora.

Menaquinones (MK-n: with the n determined by the number of prenyl side chains) can also be found in the diet; MK-4 can be found in animal meat, MK-7, MK-8, and MK-9 are found in fermented food products like cheese, and natto is a rich source of MK-7.

Study details

The Spanish researchers analyzed data from 1069 men and women with an average age of 67.5 participating in the Prevention with the Mediterranean Diet trial. While none of the subjects had diabetes at the start of the study, and 5.5 years later 131 people had developed type-2 diabetes.

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After crunching the numbers, the researchers report that phylloquinone levels at the start of the study were linked to type-2 diabetes risk, with higher levels linked to a lower risk.

"We showed, for the first time to our knowledge, that a higher intake of phylloquinone was associated with a reduced risk of new-onset type 2 diabetes," wrote the researchers.

"Moreover, an increase in the amount of phylloquinone intake during the follow-up was associated with a 51% lower risk of diabetes in elderly subjects at high cardiovascular risk after a median follow-up of 5.5 years."

The potential mechanism of action is still to be identified, said the researchers. They noted that there is possible biological plausibility related to vitamin K's role in the carboxylation of osteocalcin, a protein involved in the bone mineralization and the control of calcium in the body. Recent data suggests that osteocalcin may also be related to insulin metabolism, they added.

"We have recently shown a positive association between changes in serum osteocalcin or uncarboxylated osteocalcin concentrations and improvements in glucose metabolism, insulin resistance, and b cell dysfunction in the frame of the PREDIMED study, which supported the potential role of dietary vitamin K in type 2 diabetes prevention," they said.

Source: *American Journal of Clinical Nutrition*

Published online ahead of print, doi: 10.3945/ajcn.111.033498

"Dietary phylloquinone intake and risk of type 2 diabetes in elderly subjects at high risk of cardiovascular disease"

Authors: N. Ibarrola-Jurado, J. Salas-Salvado, M.A. Martínez-Gonzalez, M. Bullo

Keywords: vitamin K, diabetes, phylloquinone

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