

Vitamin D-fortified yoghurt improves cholesterol levels and heart disease biomarkers for diabetics

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People with diabetes are known to have an increased risk of heart disease. New research published in BioMed Central's open access journal *BMC Medicine* shows that regular consumption of a vitamin D-fortified yoghurt drink improves cholesterol levels and biomarkers of endothelial dysfunction, a precursor of heart disease, in diabetics.

Not having enough vitamin D affects the inner lining of blood vessels ([endothelial cells](#)) eventually leading to atherosclerosis and cardiovascular disease. Endothelial dysfunction can be measured by the increased levels of a set of biomarkers, such as serum endothelin-1, E-Selectin and MMP-9. In a double-blind trial, researchers from Tehran investigated the effect of vitamin D on the glycemic status, cholesterol levels and endothelial biomarkers of diabetics. Patients were given either a plain yoghurt drink (Doogh) or the same drink fortified with vitamin D twice a day for 12 weeks.

Researchers from the National Research Institute and Faculty of Nutrition and Food Technology had previously shown that a vitamin D-fortified yoghurt drink could improve the glycemic status of people with [type 2 diabetes](#). In collaboration with Tehran University of Medical Sciences their new trial showed that vitamin D improved the [fasting glucose](#), insulin, QUICK1 (a measure of [insulin resistance](#)), and found some improvement in long term HbA1c.

Dr Neyestani explained, "The patients who had taken the vitamin D yoghurt also had improved [cholesterol levels](#) with lower total cholesterol and LDL levels and an increase in HDL. All the improvements in cholesterol seemed to be due to the reduction in insulin resistance. The biomarkers of [endothelial dysfunction](#), serum endothelin-1, E-Selectin and MMP-9, levels were also lower for the patients taking vitamin D."

Prof Djazayeri continued, "Most of our patients were deficient in vitamin D at the start of the trial but the fortified yoghurt drink elevated most of their levels to normal. However, even amongst those who took the vitamin D supplement, some people (about 5%) remained deficient at the end of the 12 weeks. These people did not show the same improvements. Nevertheless for most diabetics with vitamin D deficiency this is an easy way to improve their outcome."

More information: Regular consumption of vitamin D-fortified yogurt drink (Doogh) improved endothelial biomarkers in subjects with type 2 diabetes: A randomized double-blind clinical trial Sakineh Shab-Bidar, Tirang R Neyestani, Abolghassem Djazayeri, Mohammad-Reza Eshraghian, Anahita Houshiarrad, A'azam Gharavi, Ali Kalayi, Nastaran Shariatzadeh, Malihe Zahedirad, Niloufar Khalaji and Homa Haidari *BMC Medicine* (in press)

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