



## Health Supplements Information Service

### Nearly three quarters of youngsters with diabetes have inadequate vitamin D levels

Over three quarters of youngsters with type 1 diabetes were found to have insufficient levels of vitamin D according to a recent US study.<sup>1</sup> These findings suggest that youngsters with type 1 diabetes may need vitamin D supplementation to prevent bone fragility.

The study measured blood levels of 25-hydroxyvitamin D in 128 children and teenagers with type 1 diabetes aged from 1.5 to 17.5 years. The participants included those with recent onset diabetes and those with long established disease.

Commenting on this new study, Dr Carrie Ruxton, independent nutritionist and scientific advisor to the Health Supplements Information Service notes: “Only 24 per cent of the study sample had adequate vitamin D levels, and these were mostly younger subjects. Overall, 60 per cent of the youngsters had **inadequate levels of vitamin D while 15 per cent were clinically deficient. Vitamin D deficiency was found mainly in older children. Indeed, 85 per cent of adolescents had inadequate vitamin D levels.**

“Poor vitamin D levels affect the health of the bones at several stages of life. Vitamin D deficiency in children is associated with bone malformation, including the vitamin D deficiency disease, rickets. Inadequacy of vitamin D also prevents youngsters from reaching their optimal peak bone mass, which occurs before the third decade of life. Sub-optimal peak bone mass is a risk factor for bone fragility and osteoporosis in later life.

Dr Ruxton adds: “The researchers also noted that diabetes itself can have a negative impact on bone health. The condition is thought to reduce bone mineral density and strength, as well as increase fracture risk among middle-aged diabetes sufferers. For these reasons, vitamin D deficiency or insufficiency threatens the future bone health of children with diabetes.

“The researchers were interested in looking at vitamin D levels because of the vitamin's presumed role in stabilising immune function, and because it is thought to play a role in the development of type 1 diabetes. Indeed, vitamin D supplementation in children has been linked with a reduced risk of type 1 diabetes.<sup>23</sup>”

In summary Dr Ruxton adds: “The risk of vitamin D deficiency is higher in Northern climates due to lack of sunlight and low intakes of oily fish. This study took place in Boston, US, which is at latitude of approximately 42 degrees. At latitude of 51 degrees, London is further north, making these findings even more relevant to the UK.

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<sup>1</sup> Svoren BM, Volkening LK, Wood JR, Laffel LMB. Significant vitamin D deficiency in youth with type 1 diabetes mellitus. *The Journal of Pediatrics* 2009;154:132-134.

<sup>2</sup> Hyppönen, E .Läärä, E, Reunanen, A et al. Intake of vitamin D and risk of type 1 diabetes: a birth-cohort study. *The Lancet* 2001; 358 1500-1503.

<sup>3</sup> Zipitis S, Akobeng AK. Vitamin D supplementation in early childhood and risk of type 1 diabetes: a systematic review and meta-analysis. *Archives of Disease in Childhood* 2008;93:512-517

“We need to make sure all youngsters get enough vitamin D. But, given that those with type 1 diabetes are at particular risk of vitamin D deficiency, parents and health professionals should encourage children to eat vitamin D rich foods and, as a back-up, offer a vitamin D supplement. “

### **Vitamin D – THE FACTS**

Description: A fat-soluble vitamin

Function: Helps the body to absorb and use calcium and phosphorus. It is therefore essential for maintaining strong and healthy bones.

Deficiency Symptoms: Poor growth, bone pain and deformities (ie rickets in children and osteomalacia in adults), constipation and muscle weakness.

Human Requirements: EU RDA: 5mcg

Food Sources: All dairy products (apart from low fat), oily fish, eggs and fortified margarine. Food alone is unlikely to provide sufficient vitamin D and it is also formed by the action of sunlight on the skin.

References 1. Mason, P. Dietary Supplements. Pharmaceutical Press, London, 2001.

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