

# Vitamin D research reveals bone health concerns

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Credit: University of Manchester

Adolescents are risking their bone health because they have low levels of vitamin D, new research with schoolchildren in Manchester has shown.

It found that 16 per cent of the white 12-15-year-olds tested had very low vitamin D levels (vitamin D deficiency) in at least one season of the

year – which is remarkable as this light skinned population is thought to gain enough vitamin D from sunlight. Nearly one quarter failed to reach the level many experts recommend at the end of summer (when levels are normally at their peak), rising to nearly three quarters in the winter.

Vitamin D is essential for [bone health](#) in adolescence, a critical time for bone development with around a third of adult bone mineral content laid down at this time. A lack of vitamin D – sometimes known as the sunshine vitamin – can cause rickets in children and osteomalacia (a softening of the bones) in teenagers and adults.

The study backs up new advice from Public Health England that everyone over the age of one should take 10 micrograms of vitamin D daily, particularly in the autumn and winter. Limited amounts are found in foods such as oily fish, eggs and fortified cereals but most people get the bulk of their vitamin D from the action of sunlight on their skin.

The advice followed research by the Government's Scientific Advisory Committee on Nutrition (SACN) into vitamin D and health which found that one in five people were getting too little.

The Manchester study, led by Professor Lesley Rhodes, (Consultant Dermatologist at Salford Royal and Professor of Experimental Dermatology at The University of Manchester, looked at vitamin D levels of 130 white 12-15-year-olds at six schools in Greater Manchester. It assessed their exposure to sunlight and the amount of vitamin D they were getting through food. The youngsters kept sun exposure and diet records and wore special sun-sensitive badges.

Notably, bone assessments of 19 pupils who had vitamin D deficiency found they had significantly lower bone mineral density in their thigh bones compared to an age- and sex-matched reference group in Manchester.

Professor Rhodes said: "It is alarming that so many of the teenagers we assessed fell below recommended levels of vitamin D and some had levels so low they were classed as deficient. Vitamin D is hugely important for bone health and development and may also have other health benefits. Low amounts of [sunlight exposure](#) and dietary vitamin D are the cause."

The SACN report also advised certain groups, such as care home residents with little outdoor exposure, to take a daily vitamin D supplement all year round. But it recognised that more research is needed to understand the impact of ageing on the skin's production of vitamin D from sunlight. This is increasingly important with the growing numbers of people aged over 65.

Further research, supported by the Dunhill Medical Trust, is now being carried out by researchers at The University of Manchester's photobiology unit based at Salford Royal into vitamin D status and the effect of sunlight in people aged 65-84.

Prof Rhodes added: "Maintaining good vitamin D levels is important for muscle and bone health in older people, and [sunlight](#) exposure of the skin is a major source of vitamin D. The skin of older adults may have reduced capacity to make vitamin D, but we don't understand how this, or their sun-exposure behaviour, influences their [vitamin D levels](#). A better understanding allows appropriate health advice to be given."

Provided by University of Manchester

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