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Headlines report that Vitamin D can cure everything from cancer to multiple sclerosis. Is this sensationalist science or are they telling the truth?

Benefits beyond bones?

Vitamin D (consumed in the diet or made in the skin in response to sunlight) is essential for strong bones; deficiency can result in rickets in children and osteomalacia in adults. Beyond bones, headlines suggest that vitamin D could be a miracle cure. Is this hype or is there room for hope?

I turned to the Cochrane Library [7] (and other sources) to investigate: it's an online library where scientific papers are shared and reviews written (including an easy-read summary and sometimes an associated blog [8]).

Vitamin D & multiple sclerosis

Reasons for hope

After diagnosis with MS, vitamin D is sometimes taken: reduced relapses and slowed symptoms have been reported.

That MS is more common in countries with less sunlight, where vitamin D levels are lower, has further raised hopes that vitamin D could be useful in the management of MS. (MS is also more common in babies born in the spring [9], when late stages of pregnancy will have coincided with darker months and less vitamin D production).

In one trial [10], 25 people with MS took high dose vitamin D; some clinical improvement, and no side effects, were seen.

Vitamin D [11] might act to promote nerve cell development or to protect nerve cells from attack (MS is considered an autoimmune disease in which the immune system attacks nerves); vitamin D may even regulate genes affecting MS risk.

Results from trials

In one trial [10], 25 people with MS took high dose vitamin D; some clinical improvement, and no side effects, were seen. Bigger trials [12] are underway. Hope has its reasons when it comes to the use of vitamin D in MS.

Vitamin D and cancer

Reasons for hope

"Living at higher altitudes with lower exposure to sunlight [and so less vitamin D] is linked to increased cancer risk". "Studies have associated increased vitamin D intake with decreased risk of cancer" says the Cochrane Library, drawing on research data.

Vitamin D is actually a hormone – and can bind to cells and affect their ability to divide. When it comes to cancer [13] (when cells grow and divide in an uncontrolled manner), it's possible that vitamin D might curtail cell division, and even kill cancer cells.

Results from trials

"The available evidence on vitamin D and cancer occurrence is intriguing but inconclusive" says the Cochrane Library [14]. After studying 18 trials, involving more than 50,000 patients, vitamin D did not affect rates of cancer.

Occasionally a study will show lower rates of cancer in people with higher levels of vitamin D. Beware the hype in the headlines though: it could be that low vitamin D levels are a consequence of having cancer (since you are more likely to stay indoors and be sun-deprived) – rather than a cause.

The vitamin D/cancer question remains a *vital* one – and the VITAL study [15], at Harvard Medical School is currently testing just that, among more than 25,000 people.

Vitamin D and asthma

Reasons for hope

During an asthma attack your airways become inflamed and it's harder to breathe; a common trigger is a respiratory infection such as a cold or the flu. Vitamin D could defend through its anti-inflammatory, antiviral and antibacterial powers in the lungs.

Results from trials

In trials [16] involving adults and children with mild to moderate asthma, vitamin D reduced the average number of asthma attacks. Whether vitamin D helps all asthmatics – or just those who are D-deficient – is still in doubt. 1 billion people worldwide are deficient in vitamin D: a daily dose might just help some to breathe easier.

Vitamin D and the heart

Reasons for hope

Scientists have often observed that those with lower vitamin D levels have a higher risk of heart attack – but are not yet sure whether there's a direct link between vitamin D levels and heart health since other factors that control heart attack risk (such as your weight, your diet and whether you lead an outdoor lifestyle) can also affect your vitamin D level.

Results from trials

The evidence just isn't there yet – and in fact the results are conflicting. One study [17] showed that vitamin D might help the heart to beat more strongly; another [18] showed no effect on blood pressure or heartbeat.

Doctors are though worried that enthusiasm for vitamin D is outpacing the evidence when it comes to the heart. People are self-prescribing the vitamin, without yet knowing the effects of excess, making it harder to find people for clinical trials who have not already altered their vitamin D levels.

The Verdict on Vitamin D

Vitamin D could be a miracle nutrient – but we don't yet have the definitive answer. Hope is deferred but definitely not dashed. As scientists delve deeper into the D-vitamin, they're even debating whether it might have a role in infection, pain and autism [19]. Watch this space.

MEDICAL JOURNALISTS' ASSOCIATION

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