

Further doubt cast on benefit of vitamin D supplementation for disease prevention

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A comprehensive review of the evidence suggests that low vitamin D levels are not a cause but a consequence of ill health, casting strong doubt on the value of vitamin D supplements to protect against acute and chronic disorders such as cancer, cardiovascular disease, diabetes, Parkinson's disease, and even death.

The findings of the large systematic review, published in *The Lancet Diabetes & Endocrinology*, challenge the prevailing wisdom among many scientists that [vitamin D](#) has a potential role in disease prevention, and will have important implications for nearly half of US adults who take vitamin D supplements at an overall cost of \$600 million every year.

It is well known that vitamin D promotes the uptake of calcium and bone formation, but observational evidence also suggests a link between inadequate levels of vitamin D and greater risks of many acute and chronic diseases. But whether this is a cause-and-effect relationship is unknown, which has prompted large randomised trials to test whether vitamin D supplementation can reduce the risk of disease development.

"If the health benefits of high vitamin D concentrations shown by data from observational studies are not reproduced in randomised trials (the gold standard method for assessing a causal relation between an exposure and an outcome) then the relation between vitamin D status and disorders are probably the result of confounding or physiological events involved in these disorders", explains lead author Professor Philippe Autier from the International Prevention Research Institute in Lyon,

France.

Autier and colleagues analysed data from 290 prospective observational studies and 172 randomised trials examining the effects of vitamin D levels on non-bone health outcomes up to December 2012.

They found that the benefits of high vitamin D concentrations from observational studies—including reduced risk of cardiovascular events (up to 58%), diabetes (up to 38%), and colorectal cancer (up to 34%)—were not confirmed in randomised trials. Indeed, meta-analyses of recent randomised trials failed to identify any effect of raising vitamin D concentrations with supplementation on disease occurrence, severity, or clinical course.

According to Autier, "What this discrepancy suggests is that decreases in vitamin D levels are a marker of deteriorating health. Ageing and inflammatory processes involved in disease occurrence and clinical course reduce vitamin D concentrations, which would explain why vitamin D deficiency is reported in a wide range of disorders."

A linked *Lancet Diabetes & Endocrinology* Editorial says that the odds are stacked against vitamin D being of use in preventing non-skeletal disorders, but adds that, "Large [ongoing] clinical trials to assess the effects of vitamin D on non-skeletal health outcomes are therefore justified. It would be a real boon to patients if the results are positive, but unless effect sizes for clinically important outcomes are large, the results will only confirm the neutral effect reported by most clinical [trials](#) thus far."

More information: [www.thelancet.com/journals/lan ... \(13\)70165-7/abstract](http://www.thelancet.com/journals/lan... (13)70165-7/abstract)

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