

# Low vitamin D levels increase mortality

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New research from the University of Copenhagen and Copenhagen University Hospital shows that low blood vitamin D levels increase mortality. The study included 96,000 Danes and was recently published in the distinguished *British Medical Journal*.

Vitamin D deficiency is generally associated with an increased risk of poor bone health. However, recent studies have shown that low levels of this important vitamin also involve an increased risk of other diseases and higher [mortality rates](#). For the very first time, a brand new scientific study has established a causal relationship between low vitamin D levels and increased mortality. The researchers have not only established a statistical relationship as in previous studies.

- We have conducted a major Danish study, in which we have examined the connection between genes associated with permanent low levels of vitamin D and mortality. We can see that genes associated with low vitamin D levels involve an increased mortality rate of 30 per cent and, more specifically, a 40 per cent higher risk of cancer-related deaths. An important factor in our study is that we have established a [causal relationship](#), says Shoaib Afzal, Medical Doctor at Herlev Hospital, Copenhagen University Hospital.

## 96,000 Danes from large-scale population studies

In the scientific study, which is based on the Copenhagen City Heart Study and the Copenhagen General Population Study, vitamin D levels were measured using blood samples from both studies, and specific

genetic defects were examined. All participants were followed in the 100% complete Danish registers for mortality from 1976 until today.

- In previous studies, a close statistical relationship has been established between low vitamin D levels and [increased mortality](#) rates. However, the fact that vitamin D deficiency can be a marker for unhealthy lifestyles and poor health in general may have distorted the results. This led to our current study, which was based on an examination of the participants' genes - genes which cannot be explained by unhealthy lifestyles, says Børge Nordestgaard, Clinical Professor at the Faculty of Health and Medical Sciences, University of Copenhagen, and Chief Physician at Copenhagen University Hospital.

### **Preventive treatment?**

- Our study shows that low vitamin D levels do result in higher mortality rates, but the best way of increasing vitamin D levels in the population remains unclear. We still need to establish the amount of vitamin D to be added, as well as how and when it is most effective: Should we get vitamin D from the sun, through our diet or as vitamin supplements? And should it be added in the foetal stage via the mother, during childhood or when we have reached adulthood? Børge Nordestgaard continues.

When the sun shines on our skin, the skin produces vitamin D. Evidence suggests that sunshine has a positive effect on our health, but sunburns must be avoided as they increase the risk of skin cancer. A diet rich in vitamin D or the intake of vitamin D supplements can also cover our need to some extent.

The researchers define 'a low level' of [vitamin D](#) as 'a level that is 20 nmol/L lower than normal'. In Denmark, a minimum level of 50 nmol per litre plasma is currently recommended.

**More information:** [www.bmj.com/cgi/doi/10.1136/bmj.g6330](http://www.bmj.com/cgi/doi/10.1136/bmj.g6330)  
[www.bmj.com/cgi/doi/10.1136/bmj.g6599](http://www.bmj.com/cgi/doi/10.1136/bmj.g6599)

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