

# **Vitamin D –The Sunshine Vitamin**

Vitamin D is really not a vitamin but a hormone and one of the most important immune modulators in the body. **Having enough is critical for good health.**

**Vitamin D is not the only benefit we get from sunshine.** Ultraviolet light makes up 10% of the light we absorb. It is this light that produces vitamin D but it also produces  $\alpha$ -MSH (alpha melanocyte-producing hormone). This has a string of benefits including reducing inflammation, suppressing appetite and increasing energy and arousal). Infrared light makes up 50% of the light we absorb and also has many benefits. It increases nitric oxide (which reduces heart disease), cytochrome C (which increases energy) and melatonin (the body's most powerful anti-oxidant). **However, the biggest benefit is the production of Vitamin D.**

## **Vitamin D and Respiratory Infections**

Vitamin D has been shown to reduce the incidence of respiratory infection in adults and children in 3 meta-analyses, and asthma in 5 studies. Low levels of Vitamin D have been associated with lung disease, tuberculosis, sinus infections and exacerbations of COPD. **Vitamin D protects against infections.** Please note **it takes two weeks for the Vitamin D to become fully activated** after starting Vitamin D3 supplements. See also the ***boosting immunity leaflet*** to see how Vitamin D protects infants from life-threatening illness from the respiratory syncytial virus.

## **Vitamin D and Covid 19**

There is clear evidence from 217 studies in 17 countries that Vitamin D reduces the risk of Covid. It studies show with very high confidence that it reduces mortality, hospitalisation, recovery and viral clearance in Covid 19.

*See Vdmeta.com for results of all trials.*

Five meta-analyses since December 2021 have shown strong, consistent, statistically significant results that low Vitamin D levels increase and supplements decrease all stages of Covid risk (infection risk, hospitalisation risk, ITU risk, mortality risk) by 1.5 -3 times. *Authors: Dissanayake (Dec 21) , Chiodini (Dec 21), D'Ecclesiis (X2, Jul 22), Tentolouris (Jan22)*

I believe it was no coincidence that as Covid 19 swept through the UK, of the first 26 doctors to tragically die, 25 were from the BAME community (Black, Asian, Minority Ethnic). It is well-established that those with darker skin have lower vitamin D levels which can markedly increase the risk from serious infections.

Another thing happened during Covid. Long before the vaccination program, death rates started to drop unexpectedly. They peaked in April 2020 (29,388 deaths in England and Wales), were much lower in June and July but by August numbers of deaths had dropped to a fraction (just over 1%) of the April peak (407 deaths in England and Wales). In the winter of 2020, they rose again (12,172 deaths in England and Wales). Why was there such a big difference?

The government's medical advisors were completely baffled by what happened and had no explanation. Yet the answer was staring them in the face. It was the rise and fall of vitamin D. By August, vitamin D had reached its maximum protective levels but then fell again as winter approached. What about the official advice to stay indoors? You can make your own mind about that one.

## **Vitamin D and Chronic Diseases**

Vitamin D improves heart disease, stroke, diabetes, birth defects and depression.

There is also a link between low vitamin D levels and chronic pain and Vitamin D has been shown to ease symptoms of back pain in 95% of one group studied. Another study found vitamin D gave a 33% reduction in type 2 diabetes and another found it reduced fractures by one third. Sunlight strengthens muscles (in one study reducing falls in the elderly by 19%) and increases heart output by 40%. It also lowers cholesterol, lowers sugar, lowers blood pressure, strengthens muscles, protects against multiple sclerosis, improves absorption of calcium and magnesium, boosts immunity, protects from infections, and doubles the lifespan of laboratory mice.

It has been estimated that the NHS could save £2 billion by reducing falls. Vitamin D reduces the incidence and severity of ulcerative colitis. Lower Vitamin D levels are linked with lower mood and supplementing Vitamin D improves depression.

A 2023 study followed 12,000 healthy 71 years olds. Those who took Vitamin D supplements had 40% less cases of dementia over 10 years and were 49% less likely to develop it. Women benefitted more than men. <https://doi.org/10.1002/dad2.12404>.

A major meta-analysis of people with pre-diabetes in 4000 men and women compared the results of taking Vitamin D 4000 iu daily for three years or taking nothing. Those taking Vitamin D lowered the risk of developing type 2 diabetes by 15%: <https://doi.org/10.7326/M22-3018>.

Another study looked at coloured US veterans and found those given Vitamin D were 50% less likely to attempt suicide or self-harm. <https://doi.org/10.1371/journal.pone.0279166>.

## **Reducing Mortality and Saving the NHS Billions**

There is a 26% difference in mortality between those in the highest and lowest quadrants in blood levels of Vitamin D.

How many lives and how much money could be saved if we all too enough Vitamin D. An attempt to answer this question was done in Canada. They estimated that increasing the average level of vitamin D from 67nmol/l (which is low) to 105 nmol/l (which is in the middle of the normal range) would save 37,000 lives (a drop in overall deaths by 16%) and would save \$ 14.4 billion. The population of the UK is over one and half times that of Canada and so the number of lives and the money saved in the UK would likely be much greater.

<https://doi.org/10.1002/mnfr.200900420>

## **Vitamin D and Cancer**

There is now strong evidence that moderate sunbathing and having higher levels of Vitamin D in the blood **lowers the incidence of 17 types of cancers** (including breast, ovary, prostate, colon, bladder, non-Hodgkins lymphoma). It also increases survival times in cancer.

Chemotherapy drugs, have been shown to greatly reduce Vitamin D levels. Cancer does the same. Boston Medical School found the dose needs to be higher in these situations, ideally 5000 iu daily when cancer is active and 10,000 IU daily during chemotherapy.

A cohort of over 5000 women, those with serum 25OHD of >150nmol/l were found to have 20% of the risk of getting breast cancer compared to those with levels of <50 nmol/l.

It also illustrates how little attention Vitamin D gets in mainstream medicine, considering its huge potential to relieve illness.

## **High-dose Vitamin D, Multiple Sclerosis and Auto-Immune Disease**

**Some of the most dramatic benefits of Vitamin D have been seen with multiple sclerosis.** Professor Cicero Coimbra, a neurologist and professor of neuroscience at the Federal University of Sao Paulo, Brazil, has pioneered the use of high-dose Vitamin D in multiple sclerosis and other auto-immune disease including psoriasis, Crohn's disease, vitiligo, ankylosing spondylitis and rheumatoid arthritis. He

believes that there is resistance to Vitamin D in auto-immune diseases and high doses are needed.

**His results have been remarkable.** In multiple sclerosis this treatment typically switches off the disease and lesions under two years old resolve over time. The doses he uses are typically 50-200,000 IU daily. His regime requires special monitoring with regular blood and urine tests. Adverse effects are rare and typically the treatment gives a feeling of well-being.

## **Vitamin D and the Prevention of Type 1 Diabetes**

**One of the most fascinating studies on Vitamin D ever comes from Finland.** This showed that taking 2000 IU Vitamin D in pregnancy reduced the rate of type 1 diabetes in their children by 80%. **The implication of this study is enormous. If 2000 IU of Vitamin D was routinely given in pregnancy then type 1 diabetes would become a rare disease.**

## **Vitamin D and Drugs**

Some drugs lower Vitamin D including antacids, statins and anticonvulsants.

## **How much Vitamin D?**

Vitamin D levels **should be above 75nmol/l** but levels are typically lower than this in the UK. It is difficult to get adequate Vitamin D from food although oily fish and mushrooms do contain a little. Typically sunbathing, long enough to get slightly red, in a bathing costume, will provide 10,000 of Vitamin D within half an hour to an hour on a summer's day. Much more sun than this is unlikely to help. This Vitamin D stays in the body for 5 to 6 weeks. I am a great advocate of sun exposure but please be aware that excess sunbathing in the middle of the day in the middle of summer can increase the risk of some skin cancers. **So get plenty of sunshine but don't binge on it** and avoid the most dangerous times. **The ideal level is probably above 125 nmol/l.**

A study by Kaufman was particularly revealing. He analysed the vitamin D levels of 190,000 patients admitted to hospitals in the USA with Covid-19 (Kaufman, 2020). What he found was that the lower the vitamin D level the higher the risk of serious disease. This was no big surprise, as numerous other studies had shown the same, but what was unexpected was the level of vitamin D needed to stay safe. Even those in the lower part of the normal range (75 nmol/l) had double the risk of those in the upper part of the normal range (>125nmol/L). My take on this is that we all need levels above 125nmol/l, especially during epidemics.

**Most people need supplements of Vitamin D to achieve high enough levels.** Dr John Cannell, founder of the Vitamin D Council and researcher on Vitamin D has stated that there has never been a case of toxicity seen in people taking 10,000 IU vitamin D daily even for prolonged periods.

How much vitamin D do we need to reach a blood level in the high part of the normal range. Heaney attempted to answer this question. In this study, they gave a group of 67 men, living in Idaho, at the beginning of winter (when levels of vitamin D would not have dropped too much), different doses of vitamin D and measured their blood levels before and after. The baseline levels before supplementation were 65-70 nmol/L.

What the study found is that those taking 1000 iu increased their blood level by an extra 12 nmol/L (on top of baseline). Notice this is not much. Taking 5000 iu daily increased blood levels by an extra 91 nmol/L of vitamin D and taking 10,000 daily increased blood levels by an extra 158 nmol/L of vitamin D.

If you do the calculations, you will find that each 400 iu (or 10 mcg) increased blood vitamin D by approximately 7 nmol/L (Heaney, 2003). This suggests that **if you can't get a blood test, then taking 5000 iu daily would be a good compromise and give you maximum benefits (giving a level in this study of approximately 150 nmol/l).** (Notice this is far higher than the official recommendations of 400 iu daily which would not take the majority of people into normal range as it would only increase the blood level by only 7 nmol/l.)

How much is too much. A review of toxicity by Hathcock noted that studies of people taking 40,000 and 50,000 iu (100 -125 mcg) of vitamin D daily did lead to very high levels of vitamin D (385 and 643 nmol/L respectively) but not to hypercalcaemia and neither group suffered any adverse symptoms. Of course, with these very high doses, monitoring is essential but let's note these doses caused no problems. It seems best to keep to 10,000 iu daily or below but even doses of 30,000 iu daily seem to cause few problems (but would need medical supervision). It seems to me that doctors are unnecessarily worried about people overdosing on vitamin D even though it is remarkably safe.

**Note 25µg is the same as 1000 IU.** If you are likely to be in the sun, take your supplement in the evening, after food, otherwise after any meal.

There is another form of vitamin D called D2 or ergocalciferol. It is best not to use this form as it has only a quarter of the strength of Vitamin D3 (colecalciferol). You can buy supplements containing 1000 IU (25µg) and sometimes 4000 or 5000 iu at health food shops. I personally take 4000 iu daily. For children drops are available. Children with low levels can have up to 5000 IU daily if under 6 months and up to 8000 IU if over 6 months. Take this for 2 months then use 200-400 IU for routine use in children under 6 months and 400-800 IU in those over 6 months.

**These studies illustrate the huge potential of Vitamin D to relieve illness but also how little attention Vitamin D gets in mainstream medicine.**