COVID-19: THE BENEFITS OF VITAMIN D – AN EVIDENCE-BASED INFORMATION LEAFLET

Vitamin D is essential for proper immune functioning Studies and reviews show the importance of adequate vitamin D for a healthy immune system and to fight infection[1,2,3]. Low levels have been found in pneumonia and acute respiratory distress syndrome, and are associated with high levels of inflammation and increased risk of death[4,5,6,7,8,9]. Supplementing vitamin D can protect against acute respiratory tract infection[10,].

Are certain groups more at risk of low vitamin D? Members of the black, African and minority ethnic (BAME) community are particularly at risk because the melanin pigment in darker skin reduces sun effects and vitamin D production. UK NHS healthcare workers from the BAME community were nearly nine times more likely to have vitamin D deficiency; while only 21% of NHS healthcare workers come from the BAME community, they accounted for 63% of COVID-19 deaths. [11,12] Poor vitamin D status is regularly observed in black and Asian people, in teenagers and the elderly[13].

Could I have low vitamin D? Studies show Vitamin D levels should be at least 75 nmol/l to provide optimum immune protection[14]. You can get a vitamin D test from your GP (and you need to ask for a copy of your results because some laboratories consider 50 nmol/l to be adequate). In a large Europe-wide study, the UK had the second lowest mean vitamin D levels[15].

How can I increase my vitamin D levels? Unfortunately, very little vitamin D is found in food. The principal source is sunshine during the summer months, however you can cheaply supplement with Vitamin D3[16].

How much Vitamin D3 supplementation do experts recommend? Despite the government recommendation of only 400 IU/day, many experts recommend 4,000 IU/day (10,000 IU/day for the first two weeks to bring blood levels up quickly). These levels are safe and effective. [17,18,19] The elderly, those with COVID-19 risk factors or members of the BAME community are recommended to take 8,000 IU/day (15,000 IU/day for the first two weeks to bring blood levels up quickly). Toxicity may only occur at doses of >30,000 IU/day taken over a prolonged period[20].

Low Vitamin D levels in COVID-19 patients
Subjects, including children with low vitamin D levels were more likely to test positive for COVID-19[21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40] and had more severe symptoms[41,42,43,44,45,46,47,48,49] or a longer hospital stay[50,51]. A meta-analysis of 23 studies containing 11,901 participants found that in patients with vitamin D deficiency, the risk of being infected with COVID was 3.3 times higher and the risk of developing severe COVID was around 5 times higher compared to those with more healthy vitamin D levels[52]. Patients with low vitamin D may also have worse outcomes[53], including increased inflammation[54,55,56,57,58,59], admission to intensive care or high dependency unit[60,61,62,63], blood clotting[64,65,66] and acute respiratory distress syndrome/need for mechanical ventilation[67,68,69,70]. Most studies show increased risk of death with low vitamin D[71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86]. A meta-analysis of 8 studies found low vitamin D levels were associated with increased risk of death; regression analysis suggested that death could theoretically be avoided at vitamin D blood levels of 125 nmol/l[87].
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Vitamin D for COVID prevention and treatment Two large UK studies found that use of vitamin D supplements was associated with a significantly lower risk of COVID-19 infection[88,89]. A Spanish study found that achieving blood levels of 75 nmol/l reduced infection incidence, severity and death[90]. A meta-analysis of 4 studies found a consistently lower mortality rate among those given oral vitamin D; 1 study showed lower admissions to intensive care and 2 studies showed reduced disease severity and inflammation levels[91]. Vitamin D-deficient patients given 280,000 IU vitamin D over 7 weeks suffered significantly fewer deaths[92], while 200,000 IU administered over two consecutive days significantly reduced transfer to intensive care and/or death[93]. Vitamin D is now included in several successful COVID-19 treatment protocols. [94,95,96,97,98,99]

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Are certain groups more at risk of low vitamin D?

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Could I have low vitamin D?

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