Vitamin D and the prevention of COVID-19 and acute respiratory infections

No. 2021/09, The Hague, March 3, 2021

Executive summary

Health Council of the Netherlands

Since the beginning of 2020, the world has been facing a COVID-19 pandemic caused by coronavirus (SARS-CoV-2). People with COVID-19 often develop severe respiratory problems. Vitamin D plays a role in the normal functioning of the immune system. Because of this, there has been attention from both the scientific community and the public regarding the potential role of vitamin D in combating the COVID-19 pandemic. The State Secretary for Health, Welfare and Sport (VWS) has therefore asked the Health Council of the Netherlands to issue advice as soon as possible on the use of vitamin D supplements for the prevention of COVID-19 and other respiratory infections.
The advice only addresses whether vitamin D supplementation can help prevent COVID-19 and other respiratory infections, not the clinical treatment of COVID-19.

Vitamin D is important for proper bone formation. Vitamin D also plays a role in the proper functioning of muscles and the immune system. Vitamin D occurs naturally in a limited number of foods, such as fatty fish, liver, meat, eggs and dairy products, and has been added to margarine and cooking fats for decades. Between March and November, vitamin D is produced in the skin under the influence of sunlight. Groups at risk of a vitamin D deficiency are advised to take vitamin D supplements throughout the year, see Table 1. Groups that are not at risk do not need to take vitamin D supplements, even in the winter months.
The underlying principle is that during the winter months, these groups can utilise the supply in the body that they have built up during the rest of the year.

Table 1. Summary of existing supplementation advice for vitamin D in the Netherlands

Group	Recommended intake in µg per day
Children aged 0 to 4 years	10
Women aged 4 to 50 years and men aged 4 to 70 years with insufficient exposure to sunlight or with dark skin	10
Women aged 50 to 70 years	10
Men and women aged 70 years and older	20
Pregnant women	10

In response to the Secretary of State's request for advice, the Health Council's Permanent Committee on Nutrition considered whether the current state of scientific knowledge on the relationship between vitamin D supplementation and the risks of contracting COVID-19 or other acute respiratory infections, or developing a severe clinical course thereof, warrants also recommending extra vitamin D for those groups for whom supplementation advice does not currently apply. This includes people with adequate exposure to sunlight, light skin and

aged between 4 and 50 (women) or between 4 and 70 (men).

Very little research of sufficient quality is available on vitamin D in relation to the prevention of COVID-19. A number of intervention studies (RCTs: randomised controlled trials with an intervention group and a control group) are currently being conducted on the prevention of COVID-19, but their results are not yet available. However, observational studies are available. Some of these studies have found an association between vitamin D deficiency and the onset or severe clinical course of COVID-19, but these studies had limitations. For example, the results did not adequately account for the influence of factors that may explain both vitamin D deficiency and the severe clinical course of COVID-19.

Due to the lack of available research of sufficient quality on vitamin D and the prevention of COVID-19, the committee is unable to make any statement on it. Once the results of the ongoing RCTs are known, the committee may issue advice again. The committee considered whether, pending those results, it could make a statement about vitamin D and the prevention of other acute respiratory infections and thus possibly indirectly about the prevention of COVID-19. More research is available on vitamin D in relation to acute respiratory infections and much of this is intervention research. There are indications that daily vitamin D supplementation in low doses can help prevent respiratory infections, but the effect is small and mainly in children between 1 and 16 years of age, in whom the course of a respiratory infection is generally not very serious. The potential health benefits therefore appear to be limited. Also from a COVID-19 perspective, this age group is not the most vulnerable group.

Based on the current state of scientific knowledge, the committee concludes that it cannot assess whether vitamin D supplementation may have a beneficial effect on the prevention of COVID-19. Based on the available research, it can neither be demonstrated or ruled out. Little research of sufficient quality is available on the prevention of COVID-19. The research on the prevention of other acute respiratory infections is insufficient reason to modify the existing supplementation advice, both for the respiratory infections themselves and for indirect evidence of a possible preventive effect for COVID-19.

Although insufficient research is available to assess whether vitamin D supplements can help prevent COVID-19, the committee notes that for the sake of optimal bone health, it is important for everyone to meet the dietary reference intakes for vitamin D. It is for good reason that a supplementation recommendation exists for young children, pregnant women, women aged 50 and older and men aged 70 and older, people who get little or no sunlight and people with a dark skin tone. The committee recommends that more attention be paid to following up on that supplementation advice.

For example, it appears that half of women aged 50 and older and only one-fifth of men over 70 follow the current vitamin D supplementation advice and take vitamin D throughout the year.

The committee also recommends that the current supplementation advice includes more attention to groups who spend less time outside due to the COVID-19 pandemic. As a result, they may – without realising it – now fall into the risk category due to insufficient sunlight exposure. People who are unable to spend 15 to 30 minutes a day outside between 11:00 and 15:00 with their faces and hands exposed could benefit from taking a vitamin D supplement and are advised to maintain a daily dose of 10 µg.

The Health Council of the Netherlands, established in 1902, is an independent scientific advisory body. Its remit is “to advise the government and Parliament on the current level of knowledge with respect to public health issues and health (services) research...” (Section 22, Health Act).
The Health Council receives most requests for advice from the Ministers of Health, Welfare and Sport, Infrastructure and Water Management, Social Affairs and Employment, and Agriculture, Nature and Food Quality. The Council can publish advisory reports on its own initiative. It usually does this in order to ask attention for developments or trends that are thought to be relevant to government policy.
Most Health Council reports are prepared by multidisciplinary committees of Dutch or, sometimes, foreign experts, appointed in a personal capacity.
The reports are available to the public.

This publication can be downloaded from www.healthcouncil.nl.

Preferred citation:
Health Council of the Netherlands. Vitamin D and the prevention of COVID-19 and acute respiratory infections. The Hague: Health Council of the Netherlands, 2021; publication no. 2021/09.