

Debate Pack

Number 2021/0091
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15 June 2021

The value of vitamin D as a defence against Covid-19 infection

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Summary

A Westminster Hall debate on the value of vitamin D as a defence against Covid-19 infection has been scheduled for Thursday 17 June 2021. The debate has been initiated by Jim Shannon MP.

1 Background

Vitamin D helps to regulate the amount of calcium and phosphate in the body. These nutrients are needed to keep bones, teeth and muscles healthy.

Children who do not have sufficient levels of vitamin D in their body are at risk of bone deformities such as rickets whilst adults may experience bone pain caused by a condition called osteomalacia.¹

The body creates vitamin D from direct sunlight on the skin when outdoors. Vitamin D is also found in a small number of foods including oily fish, red meat and fortified foods such as fat spreads and breakfast cereals.²

In the UK, most people should be able to produce sufficient vitamin D from sunlight between March and September. However, between October and March, people generally do not produce enough vitamin D.³

The National Institute of Health and Care Excellence (NICE) outlined the potential role of vitamin D with respect to Covid-19 infection:

Vitamin D is hypothesised to have a role in the immune response to respiratory viruses and can potentially mitigate the inflammatory response. During the COVID-19 pandemic, treatments are being explored as options for managing the disease. Therefore, it has been suggested vitamin D could improve outcomes in people diagnosed with confirmed COVID-19.⁴

1.1 Government guidance on vitamin D supplementation

In November 2020, Public Health England (PHE) and NICE issued [guidance on vitamin D supplementation during winter](#).⁵

The guidance referred to reports about vitamin D potentially reducing the risk of Covid-19 and said, at the time, that there was “insufficient evidence to

¹ NHS, [Vitamin D](#), accessed 14 Jun 2021

² Ibid

³ Ibid

⁴ NICE, Vitamin D for Covid-19, [\[A\] Evidence reviews for the use of vitamin D supplementation as prevention and treatment of COVID-19](#), Dec 2020

⁵ PHE, [Statement from PHE and NICE on vitamin D supplementation during winter](#), 28 Nov 2020

prove that it helps people respond to Covid-19, but as more evidence is accumulated, our understanding may change”.⁶

The guidance advised that everyone should take a supplement of vitamin D during winter months and set out the recommended dosage:

There are a range of products and doses available at supermarkets, pharmacies and other retailers; the recommended dose of vitamin D is 10 micrograms (400 International Units (IU)) per day. Taking more than this dose is not necessary, but if you are unable to find a vitamin D supplement providing 10 micrograms (400 IU), products providing up to 25 micrograms (1000 IU) are suitable for everyone.⁷

During the Covid-19 pandemic, the Government [announced](#) that it would offer free vitamin D supplements to clinically extremely vulnerable people and care home residents.⁸ The Government acknowledged the higher risk of vitamin D deficiency due to the fact that these groups were likely to have spent more time indoors over the course of the year.⁹

An [NHS webpage](#) advises that the service for applying for free vitamin D supplements has now closed.¹⁰

⁶ PHE, [Statement from PHE and NICE on vitamin D supplementation during winter](#), 28 Nov 2020

⁷ Ibid

⁸ DHSC press release, [At-risk groups to receive free winter supply of Vitamin D](#), 28 Nov 2020

⁹ Ibid

¹⁰ NHS, [Free vitamin D supplements for people at high risk from coronavirus \(Covid-19\)](#), accessed 14 Jun 2021

2 Reviews and guidance on the role of vitamin D in Covid-19 infection

2.1 SACN reviews

The Scientific Advisory Committee on Nutrition (SACN) advises PHE and other UK government organisations on nutrition and related health matters.

Prior to SACN's establishment, the Committee on Medical Aspects of Food Nutrition and Policy (COMA) advised the UK government on matters relating to food and nutrition.

In 1991 COMA published two reports, [Dietary Reference Values](#)¹¹ and [Dietary Reference Values for Food Energy and Nutrients for the United Kingdom](#)¹² which made recommendations regarding vitamin D supplementation.

[In 2016 SACN reviewed the evidence on vitamin D and health](#) “to see if dietary recommendations set in 1991 were still appropriate.”¹³

The review set out that serum 25-hydroxyvitamin D (25(OH)D) concentration, a form of vitamin D which is present in the blood, is widely used as an indicator of vitamin D status. SACN recommended that the serum 25(OH)D concentration of all individuals in the UK should not fall below 25 nmol/L at any time of the year.

The review considered evidence on vitamin D's role in infectious disease and concluded that there was insufficient evidence to draw any firm conclusions:

6.362 RCTs [randomised controlled trials] do not generally show a beneficial effect of vitamin D supplementation on infectious disease risk. Evidence on vitamin D and infectious disease risk is mainly observational and suggests an inverse association between serum 25(OH)D concentration and infectious disease risk. However, these studies are difficult to interpret since it is unclear if low serum 25(OH)D concentration is a cause or consequence of the infection. The evidence is insufficient to draw any firm conclusions.¹⁴

¹¹ COMA, [Dietary Reference Values, A Guide](#), 1991

¹² COMA, [Report on Health and Social Subjects 41, Dietary Reference Values for Food Energy and Nutrients for the United Kingdom](#), 1991

¹³ PHE, [SACN vitamin D and health report](#), 21 Jul 2016

¹⁴ SACN, [Vitamin D and health](#), 21 Jul 2016

PHE, SACN and NICE published an initial [rapid review on vitamin D and acute respiratory tract infections \(ARTIS\) in June 2020](#),¹⁵ followed by a [December 2020 update](#).

The June 2020 review sought to:

- assess evidence from RCTs [randomised controlled trials] on vitamin D and risk of ARTIs published since the SACN report on vitamin D and Health (2016).
- consider if evidence on vitamin D and ARTIs published since the SACN report (2016) changes its previous conclusions on vitamin D and ARTIs¹⁶

The review referred to SACN's 2016 assessment on vitamin D and ARTIs which had concluded that the evidence on vitamin D supplementation and infection risk for ARTIs and tuberculosis was "inconsistent and generally did not show a beneficial effect of vitamin D supplementation on infectious disease risk".¹⁷

Considering a range of academic research on vitamin D and ARTIs, the June 2020 review concluded that:

Overall, the evidence at this time does not support recommending vitamin D supplementation to prevent ARTIs in the general UK population. This conclusion does not impact on existing government advice on vitamin D [...].¹⁸

The review also referred to UK Government advice on vitamin D:

UK Government advice on vitamin D was reissued in April 2020 during the national lockdown. Whilst advice to stay at home remains largely in place it is recommended that, in order to protect musculoskeletal health, everyone should consider taking a daily vitamin D supplement of 10µg since people may not be getting enough from sunlight exposure.¹⁹

In considering the research published after the June 2020 review, [SACN's December 2020 update](#) produced the following conclusions, including that there "may be some benefit from daily, low dose vitamin D supplementation":

75. Evidence considered in this update suggests, overall, that there may be some benefit from daily, low-dose vitamin D supplementation (between 10 and 25 µg/day; 400 to 1000 IU/day) in reducing risk of acute

¹⁵ SACN, [Rapid review: Vitamin D and acute respiratory tract infections](#), Jun 2020

¹⁶ Ibid

¹⁷ Ibid

¹⁸ Ibid

¹⁹ Ibid

respiratory tract infections (ARTI). The size of any potential benefit of vitamin D in reducing ARTI risk may be small.

76. In subgroup analysis by age, the beneficial effect of vitamin D supplementation in reducing ARTI risk was only observed in children and young people (ages 1 up to 16 years). No effect of vitamin D supplementation was observed in other age groups (under 1 year or 16 years and above).

77. In subgroup analysis, the beneficial effects of vitamin D supplementation on ARTI prevention were not observed with higher doses (>25 µg/1000 IU per day or more) or when vitamin D supplementation was weekly or monthly.

78. It is not known if reported effects apply equally to populations from black, Asian and minority ethnic groups or people living with overweight or obesity since data were not available for these populations.²⁰

SACN made a number of recommendations, including that the UK population aged 1 year and above take a vitamin D intake of 10 µg/d (400 IU/d) and that the topic be kept under urgent review.

2.2

NICE evidence review

In December 2020, NICE published a number of [evidence reviews for the use of vitamin D supplementation as prevention and treatment of Covid-19](#).²¹

One of three questions that the review sought to address was determining the clinical effectiveness and safety of vitamin D supplementation for the prevention of Covid-19 infection and illness in adults, young people and children. The review protocol sets out the inclusion criteria for literature that was considered in answering this question.

After conducting a literature search and considering 2 studies at full text, NICE reported that no evidence relevant to the protocol was found for this question.

²⁰ SACN, [Update of rapid review: Vitamin D and acute respiratory tract infections](#), Dec 2020

²¹ NICE, [Vitamin D for Covid-19. \[A\] Evidence reviews for the use of vitamin D supplementation as prevention and treatment of COVID-19](#), Dec 2020

2.3

NICE guideline

In December 2020, NICE published its [Covid-19 rapid guideline on vitamin D \(NG187\)](#).²² NICE guidelines are aimed at supporting professionals in their delivery of health and care. In forming the guideline, NICE considered evidence reviews and academic research.

The guideline states that vitamin D “may also have a role in the body’s immune response to respiratory viruses”. Referring to existing Government guidance, NICE advised that people should consider taking a daily vitamin D supplement between October and early March:

1.1 Encourage people to follow [UK government advice on taking a vitamin D supplement](#) to maintain bone and muscle health. The advice is that:

- Adults (including women who are pregnant or breastfeeding), young people and children over 4 years should consider taking a daily supplement containing 10 micrograms (400 units; also called international units [IU]) of vitamin D between October and early March because people do not make enough vitamin D from sunlight in these months.
- Adults, young people and children over 4 years should consider taking a daily supplement containing 10 micrograms (400 units) of vitamin D throughout the year:
 - if they have little or no sunshine exposure including because they:
 - ◇ are not often outdoors, for example, if they are frail, housebound or living in a care home
 - ◇ usually wear clothes that cover up most of their skin when outdoors
 - ◇ are spending most of their time indoors because of the COVID-19 pandemic
 - if they have dark skin, for example, if they are of African, African-Caribbean or south Asian family origin, because they may not make enough vitamin D from sunlight.
- Babies from birth to 1 year should have a daily supplement containing 8.5 micrograms (340 units) to 10 micrograms (400 units) of vitamin D throughout the year if they are:

²² NICE, [COVID-19 rapid guideline: vitamin D NICE guideline \[NG187\]](#), 17 Dec 2020

- breastfed
- formula-fed and are having less than 500 ml of infant formula a day (because infant formula is already fortified with vitamin D).
- Children aged 1 year to 4 years should have a daily supplement containing 10 micrograms (400 units) of vitamin D throughout the year.
- Some people have a medical condition that means they cannot take vitamin D or should take a different amount from the general population.²³

The guideline warned against the use of vitamin D supplementation for the prevention or treatment of Covid-19:

1.2 Do not offer a vitamin D supplement to people solely to prevent COVID-19, except as part of a clinical trial.

1.3 Do not offer a vitamin D supplement to people solely to treat COVID-19, except as part of a clinical trial²⁴

NICE also made a recommendation for research to establish the clinical effectiveness of vitamin D supplements for treating Covid-19 in adults, young people and children.

NICE advises that it is reviewing the guidelines as new evidence, policy and practice emerges.

²³ NICE, [COVID-19 rapid guideline: vitamin D NICE guideline \[NG187\]](#), 17 Dec 2020

²⁴ Ibid

3

Parliamentary material

Debate

House of Commons adjournment debate: [Vitamin D: Covid-19](#)

HC Deb 14 January 2021 | Vol 687 cc593-9

Early Day Motion

[Vitamin D supplements and covid-19](#)

That this House notes recognises the positive role vitamin D can play in mitigating against the incidence and severity of Covid-19; welcomes the proactive stance of the Scottish Government in providing free vitamin D supplements to clinically vulnerable people who are shielding and notes that more than 71,300 people have opted to accept this offer; highlights the ongoing public information campaign in Scotland encouraging the wider population to consider taking a daily supplement of vitamin D, particularly in winter months; notes that free supplements area also available to pregnant and breastfeeding women and young children in Scotland; and urges the UK Government to match this effort to raise awareness and support people across the UK to maintain their vitamin D levels.

22 Feb 2021 | Early day motion 1510 (session 2019-21)

PQs

[Coronavirus: Vitamin D](#)

Asked by: Sheerman, Mr Barry

To ask the Secretary of State for Health and Social Care, what assessment he has made of the effect of the provision of free vitamin D supplements to people at high risk from covid-19 infection on the health of those people during winter 2020-21.

Answering member: Jo Churchill | Department: Department of Health and Social Care

The free vitamin D supplement scheme was introduced to benefit those asked to stay indoors more than usual over the spring and summer 2020 due to national restrictions. The supplements were provided to help support their general health, in particular bone and muscle health.

In collaboration with Public Health England and the Scientific Advisory Committee on Nutrition, the National Institute for Health and Care Excellence conducted a rapid evidence review evaluating evidence from recent studies on vitamin D in relation to COVID-19. The expert panel supported current Government advice for everyone to take the supplement throughout the autumn and winter for bone and muscle health. However, the panel concluded that there is currently not enough evidence to support taking vitamin D solely to prevent or treat COVID-19.

HC Deb 18 May 2021 | PQ 616

[Coronavirus: Nutrition](#)

Asked by: Cameron, Dr Lisa

To ask the Secretary of State for Health and Social Care, whether his Department has consulted with clinicians, dieticians and relevant organisations on the nutritional needs of patients with covid-19.

Answering member: Jo Churchill | Department: Department of Health and Social Care

Public Health England, the Scientific Advisory Committee on Nutrition (SACN) and the National Institute for Health and Care Excellence published a rapid guideline on vitamin D and COVID-19 in December 2020. The guideline development process included consultation with key stakeholder groups such as the Royal Colleges, the Nutrition Society and the British Dietetic Association. The rapid guideline on vitamin D and COVID-19, which considers both prevention and treatment, is available at the following link:

<https://www.nice.org.uk/guidance/ng187>

In June 2020, the SACN published a scoping exercise on nutrition and immune function in relation to COVID-19. This scoping exercise may be updated or a more formal assessment undertaken, if robust evidence becomes available. The scoping paper is available at the following link:

<https://app.box.com/s/ivrivaemf7fgeo9a17xdmv167c4uvteu/file/683666967452>

HC Deb 09 March 2021 | PQ 160695

[Coronavirus: Vitamin D](#)

Asked by: Baroness Masham of Ilton

To ask Her Majesty's Government what research they are (1) undertaking, or (2) supporting, into (a) the use, and (b) the benefits, of taking vitamin D supplements to help people who are susceptible to (i) COVID-19, (ii) the long term effects of COVID-19, and (iii) osteoporosis, to keep well.

Answering member: Lord Bethell | Department: Department of Health and Social Care

Existing United Kingdom vitamin D recommendations are based on advice from the Scientific Advisory Committee on Nutrition (SACN). The SACN carried out an extensive and robust assessment of the evidence on vitamin D and a wide range of musculoskeletal and non-musculoskeletal health outcomes, including fractures and falls which are a consequence of osteoporosis. The SACN recommended a reference nutrient intake of 10 micrograms vitamin D per day for adults and children over the age of one year.

Public Health England (PHE), the SACN and the National Institute for Health and Care Excellence (NICE) concluded that there is currently not enough evidence to support taking vitamin D solely to prevent or treat COVID-19. The expert panel supported current Government advice for everyone to take a daily 10 microgram supplement throughout the autumn and winter for bone and muscle health. NICE, PHE and the SACN are continuing to monitor evidence as it is published and will review and update guidance if necessary.

HL Deb 17 February 2021 | PQ HL13113

[Vitamin D: Bread](#)

Asked by: Pollard, Luke

To ask the Secretary of State for Health and Social Care, what representations he has received on fortifying bread in England with Vitamin D to help tackle the covid-19 outbreak.

Answering member: Jo Churchill | Department: Department of Health and Social Care

A rapid evidence review was published in June 2020, concluding that there is currently no evidence to support the use of vitamin D supplements to reduce the risk or severity of COVID-19. This review was followed by a second review in December 2020 which concluded that the evidence does not support vitamin D supplementation to prevent acute respiratory tract infections.

Following these reviews there is currently no evidence to suggest that supplementing vitamin D through fortified bread would reduce the risk or severity of COVID-19. However, companies are free to fortify certain products

with vitamin D and already do so for several foods including many fats and spread, breakfast cereals, and some powdered milk.

Public Health England (PHE) have re-issued advice on vitamin D supplementation, advising that people who do not go outdoors often should consider taking a daily supplement containing 10 micrograms of vitamin D to prevent deficiency. The Government has also announced that over two and a half million vulnerable people across England will be offered free vitamin D supplements for the winter. However, this advice is not about reducing the risk of COVID-19 or mitigating its effects; vitamin D is needed to keep bones and muscles healthy.

PHE is monitoring any new, high quality evidence on nutrition and COVID-19 and is seeking further advice from the Scientific Advisory Committee on Nutrition as appropriate.

HC Deb 12 Feb 2021 | PQ 133169

[Dietary Supplements: Coronavirus](#)

Asked by: Rosindell, Andrew

To ask the Secretary of State for Health and Social Care, whether he has made an assessment of the potential merits of offering free (a) zinc and (b) vitamin D supplements to the general population during the covid-19 outbreak.

Answering member: Jo Churchill | Department: Department of Health and Social Care

The Scientific Advisory Committee on Nutrition (SACN) carried out a rapid scoping exercise on nutrition and immune function in relation to COVID-19 which included consideration of zinc. The National Institute for Health and Care Excellence (NICE), Public Health England (PHE) and the SACN also carried out assessments of the available evidence on vitamin D and COVID-19. None of the studies found robust evidence to support taking zinc or vitamin D supplements to reduce the risk or severity of COVID-19. NICE, PHE and the SACN are continuing to monitor evidence as it is published and will review and update guidance if necessary.

The longstanding Government advice is that between October and early March everyone is advised to take a supplement containing 10 micrograms (400 international units) of vitamin D a day to protect their bone and muscle health. This is because we cannot make vitamin D from sunlight in the United Kingdom at this time of year. From January, the Government is providing a free four-month supply of daily vitamin D supplements to adults on the clinically extremely vulnerable list that have opted in to receive the supplements and residents in residential and nursing care homes in England.

The Government has prioritised groups that were asked to stay indoors more than usual over the spring and summer due to national restrictions.

HC Deb 03 February 2021 | PQ 137891

[Coronavirus: Vitamin D](#)

Asked by: Baroness Lister of Burtersett

To ask Her Majesty's Government what assessment they have made of the report by Royal Society Open Science Vitamin D and COVID-19: evidence and recommendations for supplementation, published on 1 December 2020; and what plans they have to adopt any actions as a result of any such assessment.

Answering member: Lord Bethell | Department: Department of Health and Social Care

Public Health England (PHE) is aware of the Royal Society's paper but has made no formal assessment.

Current Government advice on vitamin D and health is based on recommendations from the Scientific Advisory Committee on Nutrition (SACN).

The National Institute for Health and Care Excellence, Public Health England and the SACN published *COVID-19 rapid guideline: vitamin D* in December 2020 which concluded that there is currently not enough evidence to support taking vitamin D solely to prevent or treat COVID-19. The expert panel supported current Government advice for everyone to take the supplement throughout the autumn and winter for bone and muscle health. A copy *COVID-19 rapid guideline: vitamin D* is attached.

From this month the Government is providing a free four-month supply of daily vitamin D supplements to adults on the clinically extremely vulnerable list that have opted in to receive the supplements and residents in residential and nursing care homes in England to help support general health, in particular bone and muscle health.

HL Deb 01 February 2021 | PQ HL12058

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Journal articles and press releases

PLOS Medicine

[Vitamin D and COVID-19 susceptibility and severity in the COVID-19 Host Genetics Initiative: A Mendelian randomization study](#)

1 June 2021

BMJ

[Editorial: Vitamin D and Covid-19](#)

4 March 2021, BMJ 2021;372:n544

National Institute for Health and Care Excellence press release

[NICE, PHE and SACN publish rapid COVID-19 guidance on vitamin D](#)

17 December 2020

Royal Society Open Science

[Vitamin D and COVID-19: evidence and recommendations for supplementation](#)

Received: 30 October 2020 Accepted: 18 November 2020

The Lancet Diabetes & Endocrinology

[Editorial: Vitamin D and Covid-19: why the controversy?](#)

11 January 2021

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