

# CLAHRC BITE

A bite-sized summary of a piece of research supported by Peninsula CLAHRC

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BITE 05

## Can vitamin D supplements be used to prevent cognitive decline and dementia in older adults?



“The causes of dementia remain unclear although our research establishes that low vitamin D levels are a risk factor, raising new possibilities for treatment and prevention.”

Dr David Llewellyn, Senior Research Fellow in Clinical Epidemiology, University of Exeter Medical School and PenCLAHRC

### » Who is this relevant to?

Clinicians looking after elderly patients with low vitamin D levels, and policy makers.

### » Background

More than half of elderly adults in England are estimated to be vitamin D deficient, whilst the evidence linking vitamin D levels to extraskeletal health is growing. Vitamin D receptors are found throughout the human brain and supplementation protects against age-related cognitive decline in rodents. We conducted a series of meta-analyses and prospective studies in order to investigate potential clinical relevance. We also presented at policy meetings in order to update European recommendations regarding appropriate daily intake.

## » Findings

- Consensus on the definition of vitamin D deficiency has not yet been reached due to emerging extra skeletal benefits
- Vitamin D levels are considerably lower in Alzheimer's disease patients in comparison with their cognitively healthy contemporaries
- Severe vitamin D deficiency (<25 nmol/L) is linked with a 60% increased risk of cognitive decline over six years in comparison with those with high levels (≥75 nmol/L)
- Ongoing analyses suggest a similar relationship with the risk of Alzheimer's disease and all-cause dementia.

## » Recommendations

- Current evidence suggests that the recommended daily intake for elderly adults should be 800 IU (20 µg), which is best achieved with a supplement
- Trials are warranted to investigate the potential of vitamin D supplements to prevent and treat Alzheimer's disease and other forms of dementia. Trials are now underway in Europe and the US to discover whether daily supplements (2,000 IU) are effective at minimizing cognitive decline

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## References

Anweiler C, Llewellyn DJ, Beauchet O. Low serum vitamin D concentrations in Alzheimer's disease: a systematic review and meta-analysis. *J Alzheimers Dis* 2013;33:659-74

Llewellyn DJ, Lang IA, Langa KM, et al. Vitamin D and risk of cognitive decline in elderly persons. *Arch Intern Med* 2010;170:1135-41

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## What is Peninsula CLAHRC?

The CLAHRC (Collaboration for Leadership in Applied Health Research and Care) for the South West Peninsula is a partnership between the University of Exeter, Plymouth University and the NHS in the South West.

We are funded by the National Institute for Health Research (NIHR) with a mission to undertake high-quality applied health research focused on the needs of patients and a requirement to improve health services locally and further afield.

## Website

[www.clahrc-peninsula.nihr.ac.uk](http://www.clahrc-peninsula.nihr.ac.uk)

**For further project information, please visit:**

<http://clahrc-peninsula.nihr.ac.uk/project/14-vitamin-d-and-cognitive-health--the-dcog-project.php>

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