

## Vitamin D Deficiency Predicts Cognitive Decline

Megan Brooks | November 20, 2014

A new study supports a link between low levels of vitamin D and increased risk for cognitive decline, prompting calls for clinical trials to test whether vitamin D supplementation may delay or prevent dementia.

In a group of cognitively intact older adults, serum 25-hydroxyvitamin D (25OHD) levels below 75 nmol/L at the outset predicted cognitive decline over roughly the next 4 years, independent of other factors.

"[N]eurologists and geriatricians should be aware of the possibility that in elderly individuals, vitamin D supplementation might be a potential cost-effective strategy for preventing neurodegenerative diseases," Elena D. Toffanello, MD, from University of Padova, Italy, and colleagues say.

Their study was published online November 5 in *Neurology*.

For this analysis, the researchers looked at data on 1927 community-dwelling elderly individuals (mean age, 73.9 years) participating in the Italian population-based cohort study, Progetto Veneto Anziani (Pro.V.A.).

At baseline, participants had a mean serum 25OHD level of 84.1 nmol/L. Roughly 28% of the cohort had 25OHD deficiency (<50 nmol/L), and it was severe (<25 nmol/L) in 6.5%.

Participants with 25OHD deficiency or insufficiency (50 to 75 nmol/L) were more likely to have declining Mini-Mental State Examination (MMSE) scores over 4.4 years of follow-up than their peers with sufficient 25OHD levels (75 nmol/L or greater).

Among participants with intact cognitive function at baseline (MMSE score of at least 24), 25OHD insufficiency was strongly and independently associated with a higher risk for onset of cognitive decline over 4 years compared with those with normal 25OHD levels, the researchers say.

**Table. Risk for Cognitive Decline by Vitamin D Level**

Serum 25OHD Level	Adjusted Relative Risk (95% Confidence Interval)	P Value
50 to <75 nmol/L	1.29 (1.00 - 1.76)	.03
<50 nmol/L	1.36 (1.04 - 1.80)	.02

In individuals already cognitively impaired at baseline, vitamin D deficiency was also associated with a higher risk for decline in cognitive function, but the association became nonsignificant after adjustment for other medication conditions.

It's possible, say the researchers, that the role of vitamin D on further cognitive decline may be less obvious because of the presence of other comorbidities and disabilities that might accelerate cognitive decline regardless of the starting levels of vitamin D.

### Supplementation Trials Warranted

Dr Toffanello and colleagues say studies are needed to evaluate whether vitamin D supplementation might help to delay the cognitive decline, especially in patients who already have cognitive impairment.

David J. Llewellyn, PhD, from the University of Exeter Medical School in the United Kingdom, who has studied vitamin D and cognitive function but wasn't involved in this study, agrees.

He told *Medscape Medical News* that this new study "effectively replicates" a 2010 study by his group showing a link between low vitamin D levels and an increased risk for cognitive decline.

He said the Pro.V.A . study results are also consistent with a study his group published just this year in *Neurology*. That study suggested older patients with vitamin D levels below 50 nmol/L have about a 122% increased risk for dementia compared with those with higher levels.

"Taken together, this rapidly evolving body of evidence suggests clinical trials are warranted to investigate whether vitamin D supplementation helps to delay or prevent dementia in elderly adults," Dr Llewellyn concluded.

*The study had no commercial funding, and the authors have disclosed no relevant financial relationships.*

*Neurology*. Published online November 5, 2014. Abstract

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Cite this article: Vitamin D Deficiency Predicts Cognitive Decline. *Medscape*. Nov 20, 2014.