

## New review associates vitamin D with lower rates of tooth decay

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A new review of existing studies points toward a potential role for vitamin D in helping to prevent dental caries, or tooth decay.

The review, published in the December issue of *Nutrition Reviews*, encompassed 24 controlled clinical trials, spanning the 1920s to the 1980s, on approximately 3,000 children in several countries. These trials showed that <u>vitamin D</u> was associated with an approximately 50 percent reduction in the incidence of <u>tooth decay</u>.

"My main goal was to summarize the clinical trial database so that we could take a fresh look at this vitamin D question," said Dr. Philippe Hujoel of the University of Washington, who conducted the review.

While vitamin D's role in supporting <u>bone health</u> has not been disputed, significant disagreement has historically existed over its role in preventing caries, Hujoel noted. The American Medical Association and the U.S. National Research Council concluded around 1950 that vitamin D was beneficial in managing <u>dental</u> caries. The American Dental Association said otherwise – based on the same evidence. In 1989, the National Research Council, despite new evidence supporting vitamin D's caries-fighting benefits, called the issue "unresolved."

Current reviews by the Institute of Medicine, the U.S. Department of <u>Human Health</u> and Service and the <u>American Dental Association</u> draw no conclusions on the vitamin D evidence as it relates to dental caries.



"Such inconsistent conclusions by different organizations do not make much sense from an evidence-based perspective," Hujoel said. The trials he reviewed increased vitamin D levels in children through the use of supplemental <u>UV radiation</u> or by supplementing the children's diet with cod-liver oil or other products containing the vitamin.

The clinical trials he reviewed were conducted in the United States, Great Britain, Canada, Austria, New Zealand and Sweden. Trials were conducted in institutional settings, schools, medical and dental practices, or hospitals. The subjects were children or young adults between the ages of 2 and 16 years, with a weighted mean age of 10 years.

Hujoel's findings come as no surprise to researchers familiar with past vitamin D studies. According to Dr. Michael Hollick, professor of medicine at the Boston University Medical Center, "the findings from the University of Washington reaffirm the importance of vitamin D for dental health." He said that "children who are vitamin D deficient have poor and delayed teeth eruption and are prone to dental caries."

The vitamin D question takes on greater importance in the light of current public health trends. Vitamin D levels in many populations are decreasing while <u>dental caries</u> levels in young children are increasing.

"Whether this is more than just a coincidence is open to debate," Hujoel said. "In the meantime, pregnant women or young mothers can do little harm by realizing that vitamin D is essential to their offspring's health. Vitamin D does lead to teeth and bones that are better mineralized."

Hujoel added a note of caution to his findings: "One has to be careful with the interpretation of this systematic review. The trials had weaknesses which could have biased the result, and most of the trial participants lived in an era that differs profoundly from today's environment. "



Hujoel has joint appointments as a professor in the University of Washington School of Dentistry's Department of Oral Health Sciences and as an adjunct professor of epidemiology in the UW School of Public Health. His research has concentrated on nutrition with a focus on lowcarbohydrate diets, harmful effects of diagnostic radiation, and evidencebased methodology and applications.

His research has also covered sugar substitutes, the use of antibiotics in the treatment of periodontal disease, and cleft lip and cleft palate. He has also studied the link between dental disease and systemic disease, as well as trends in disease prevalence.

Provided by University of Washington

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