

How obesity affects vitamin D metabolism

February 21 2019



Credit: CC0 Public Domain

A new *Journal of Bone and Mineral Research* study confirms that vitamin D supplementation is less effective in the presence of obesity, and it uncovers a biological mechanism to explain this observation.

The study reveals that obese mice have very low levels of the enzyme in

the liver that converts vitamin D into 25-hydroxyvitamin D (calcidiol), which is the major form of vitamin D in the blood. Therefore, it may be more effective to treat vitamin D insufficiency in obese individuals with calcidiol rather than with other forms of vitamin D.

"Low circulating levels of 25-hydroxyvitamin D are common in obesity and have been attributed to sequestration of vitamin D in fat cells. Here we propose a second mechanism with greater biological implications: obesity reduces the ability of the liver to convert vitamin D into 25-hydroxyvitamin D," said lead author Dr. Jeffrey Roizen, of The Children's Hospital of Philadelphia. "Our observations show that this early step in activating vitamin D is influenced by obesity, and suggest that obesity-related effects on the [liver](#) can have clinically important systemic effects on bone and mineral metabolism. Further, while we often think of low vitamin D causing obesity, this work shows that an illness or pathology (like [obesity](#)) can cause low vitamin D."

More information: Jeffrey D Roizen et al, Obesity Decreases Hepatic 25-Hydroxylase Activity Causing Low Serum 25-Hydroxyvitamin D, *Journal of Bone and Mineral Research* (2019). [DOI: 10.1002/jbmr.3686](https://doi.org/10.1002/jbmr.3686)

Provided by Wiley

Citation: How obesity affects vitamin D metabolism (2019, February 21) retrieved 23 April 2024 from <https://medicalxpress.com/news/2019-02-obesity-affects-vitamin-d-metabolism.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--