

# Does a vegan diet lead to poorer bone health?

March 4 2021

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The vegan diet is trending currently. How this type of diet affects health is the subject of scientific studies. In a new study from the German Federal Institute for Risk Assessment (BfR), the bone health of 36 vegans as well as 36 people following a mixed-food diet was determined with an ultrasound measurement of the heel bone. The result: on average,

people following a vegan diet had lower ultrasound values compared to the other group. This indicates poorer bone health.

In the study, the scientists also determined biomarkers in blood and urine. This aims to identify nutrients that might be related to diet and [bone health](#). Out of 28 parameters of nutritional status and bone metabolism, it was possible to identify twelve biomarkers most strongly associated with bone health—for example, the [amino acid lysine](#) and vitamins A and B6. The results show that in most cases, the combination of these biomarkers was present in lower concentrations in vegans. This could be a possible explanation for the poorer bone health. "A [vegan diet](#) is often considered health-conscious. However, our [scientific findings](#) indicate that a vegan diet does affect bone health," says BfR President Professor Dr. Dr. Andreas Hensel.

Nutrition plays an important role in bone health. This was more closely investigated in the BfR's cross-sectional "Risks and benefits of a vegan diet" study. 72 men and women participated in the study. The bone health of all participants was assessed at the heel bone using ultrasound measurements. Information on age, smoking status, education, body mass index, physical activity and alcohol consumption was also collected. By using a [statistical model](#), the BfR was able to identify a pattern of twelve biomarkers that play an important role in bone health from 28 nutrition- and bone-relevant parameters from blood or urine. It was shown that in combination vitamins A and B6, the amino acids lysine and leucine, omega-3 fatty acids, selenoprotein P, iodine, [thyroid-stimulating hormone](#), calcium, magnesium and  $\alpha$ -Klotho protein were positively associated with bone health. Conversely, lower concentrations of the hormone FGF23 were observed at higher ultrasound levels in this pattern.

Taking into account other scientific studies, the results indicate that vegans intake fewer nutrients that are relevant for the skeleton and are

mainly found in food of animal origin. Further studies are needed for clarification.

**More information:** Juliane Menzel et al, Vegan Diet and Bone Health—Results from the Cross-Sectional RBVD Study, *Nutrients* (2021). [DOI: 10.3390/nu13020685](https://doi.org/10.3390/nu13020685)

Provided by BfR Federal Institute for Risk Assessment

Citation: Does a vegan diet lead to poorer bone health? (2021, March 4) retrieved 5 February 2024 from <https://medicalxpress.com/news/2021-03-vegan-diet-poorer-bone-health.html>

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