

Study challenges one-size-fits-all approach to vitamin D supplementation guidelines

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A recent study from Trinity College Dublin scientists, sheds light on the complexities of achieving optimal vitamin D status across diverse populations. Despite substantial research on the determinants of vitamin

D, levels of vitamin D deficiency remain high.

The paper, "Ambient ultraviolet-B radiation, supplements and other factors interact to impact vitamin D status differently depending on ethnicity: a cross-sectional study," was published in the journal [*Clinical Nutrition*](#).

Dr. Margaret M. Brennan, Research Assistant, Department of Public Health and Primary Care, School of Medicine, Trinity College and first author, said, "We hope this work can highlight the significant differences in vitamin D levels among different ethnic groups at northern latitudes and contribute to efforts to address the long-standing population health issue of vitamin D deficiency."

The authors analyzed data from half a million participants from the United Kingdom (UK,) and for each person, they calculated the individualized estimate of ambient ultraviolet-B (UVB) level, which is the wavelength of sunlight that induces vitamin D synthesis in the skin.

A comprehensive analysis of key determinants of vitamin D and their interactions revealed novel insights. The first key insight is that ambient UVB emerges as a critical predictor of vitamin D status, even in a place like the UK, which receives relatively little sunlight.

The second is that age, sex, body mass index (BMI), cholesterol level, and vitamin D supplementation significantly influence how individuals respond to UVB. For example, as BMI and age increase, the amount of vitamin D produced in response to UVB decreases.

Professor Lina Zgaga, Associate Professor of Epidemiology, Department of Public Health and Primary Care, School of Medicine, Trinity College and the principal investigator, said, "We believe our findings have significant implications for the development of tailored

recommendations for vitamin D supplementation. Our study underscores the need to move away from a one-size-fits-all approach towards personalized strategies for optimizing vitamin D status."

Rasha Shraim, Ph.D. candidate, Department of Public Health and Primary Care, School of Medicine, Trinity College, and co-principal investigator on this study said, "Our study also highlights the effect that natural environmental factors, like sunlight, can have on our health. We hope that our approach encourages future researchers and public health bodies to integrate these factors into their health and disease work."

The authors hope that their manuscript will contribute to the ongoing discourse on [vitamin D](#) supplementation guidelines.

More information: Margaret M. Brennan et al, Ambient ultraviolet-B radiation, supplements and other factors interact to impact vitamin D status differently depending on ethnicity: A cross-sectional study, *Clinical Nutrition* (2024). [DOI: 10.1016/j.clnu.2024.04.006](https://doi.org/10.1016/j.clnu.2024.04.006)

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