

ODS Update: Recent Developments in Dietary Supplement Science

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National Institutes of Health
Office of Dietary Supplements

ODS Update

A NEWSLETTER FOR
HEALTH PROFESSIONALS

Strengthening Knowledge
and Understanding of
Dietary Supplements

April 23, 2024

Recent Developments in Dietary Supplement Science



Scientists evaluate the dietary intake of the U.S. population by estimating the amounts of nutrients people obtain from foods, beverages, and dietary supplements. This research helps identify nutrient shortfalls and can inform public health initiatives to ensure everyone obtains sufficient amounts of essential nutrients to maintain good health.

Three recent publications are highlighted below that examine factors that affect nutrient intakes of various groups. The publications include an analysis led by ODS Nutritional Epidemiologist Edwina Wambogo, Ph.D., M.P.H., R.D., that examined how nutrient intakes vary by urbanization level

in the United States.

Nutrient intake by urbanization level in the U.S. population: Little is known about differences in nutrient intake among people living in urban and rural areas of the United States. In a February 2024 publication in [The Journal of Nutrition](#), Wambogo and colleagues used data from the 2013–2018 National Health and Nutrition Examination Survey (NHANES) to examine how intakes of nine nutrients from foods and beverages vary by urbanization level in 23,107 participants aged 2 years and older. Overall, more than 99% of participants did not meet vitamin D intake recommendations from foods and beverages, and intake did not differ by urbanization level. More than 70% of participants did not meet intake recommendations for calcium and potassium, and potassium intake was significantly lower in participants living in rural or small to medium metro areas than those in large urban areas. About 30% of participants did not meet intake recommendations for iron, and those living in rural areas had significantly lower intake than those in large or small to medium metro areas. The researchers also found differences in intakes of protein, fiber, added sugars, and saturated fat based on urbanization level. These findings, which can help inform efforts to address health disparities, suggest that nutrient intakes vary by urbanization level and that people living in rural areas may have poorer diets than those living in large urban areas based on several markers of diet quality.

Temporal changes in micronutrient intake among U.S. adults: Studies consistently show that many people in the United States do not meet nutrient recommendations. A February 2024 cross-sectional study by Freedman and colleagues published in [The American Journal of Clinical Nutrition](#) analyzed NHANES data to determine if micronutrient intake among U.S. adults aged 19 years and older changed over a 15-year period of time from 2003 to 2018. Results showed that intakes for some micronutrients increased over the 15 years, whereas others decreased. For example, total vitamin D intakes in males from foods, beverages, and dietary supplements increased over time, but 65% still had a total intake below the estimated average requirement (EAR) at the end of the 15-year period. In females, total folate intakes from foods, beverages, and dietary supplements decreased over time, and 18% had a total intake below the EAR at the end of the 15-year period. In addition, more people reported using dietary supplements at the end of the 15-year period

compared with the beginning, and the use of these products contributed substantially to intakes of many micronutrients, including most of the B vitamins. These findings suggest that little progress has been made over time in improving micronutrient intakes among U.S. adults, but that dietary supplements are likely a viable option to help people meet micronutrient recommendations.

Iodine intake in U.S. females: Iodine is required for thyroid hormone production and is critical for neurodevelopment during pregnancy and infancy. However, some people in the United States may not consume enough iodine. A March 2024 study by Sun and Weaver in [The Journal of Nutrition](#) examined iodine intake in U.S. females using 2011–2020 NHANES data coupled with food composition data from the USDA, FDA, and ODS-NIH Database for the Iodine Content of Common Foods. Analyses of dietary intake data from 21,753 females aged 2 years and older showed that iodine intakes declined between 2011 and 2020 for females under age 50 who were not pregnant or lactating. However, more than 90% had a total iodine intake from foods, beverages, and dietary supplements that met or exceeded the EAR. For pregnant women, iodine intake did not significantly change between 2011 and 2020, but up to 24% had a total iodine intake below the EAR. Measurements of urinary iodine concentration also showed that a substantial percentage of women—including many who were pregnant or lactating—did not obtain sufficient iodine, even though pregnant and lactating women were more likely than others to take a dietary supplement containing iodine. In addition, the data suggested that a decrease in milk consumption contributed to the decline in iodine intake over time. The authors concluded that declining iodine intake among females in the United States deserves public health attention. This study also highlights the importance of food and beverage composition databases when assessing the effects of nutrient intakes on various health outcomes.

For more information about NHANES, visit the National Center for Health Statistics [NHANES website](#), part of the Centers for Disease Control and Prevention.



Upcoming ODS Seminars (virtual meetings)



Wednesday, May 22, 2024, 11:00 a.m. (ET)

[Effects of Soluble Corn Fiber on Bone Metabolism in Children](#)

Cristina Palacios, M.S., Ph.D.—Florida International University, Miami, FL

Wednesday, June 12, 2024, 4:00 p.m. (ET)

[Botanical Dietary Supplement Safety](#)

Joanne Barnes, Ph.D.—Faculty of Medical and Health Sciences, Pharmacy; Auckland, New Zealand

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