



GLOBAL DAIRY PLATFORM

Perspective Paper

Hidden Hunger:

Micronutrient Deficiencies in a Rapidly Aging World



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KEY TAKEAWAYS:

- Hidden hunger, the presence of multiple micronutrient deficiencies despite an abundance of food, affects an estimated two billion people worldwide.
- Hidden hunger is prevalent among older adults, even in high-income countries.
- Improving the nutritional quality of diets is necessary to mitigating hidden hunger and achieving UN sustainable development goal #2: zero hunger.
- Dairy foods are nutrient-rich and associated with better diet quality, as well as improved nutrient status and health outcomes among older adults.

When considering nutrient adequacy in developed countries, it is easy to get lulled into a false sense of security that high-income countries can afford and consume nutritionally sound diets while those in low- and middle-income countries (LMIC) suffer from malnutrition.

It is true that people who live in LMIC are disproportionately affected by micronutrient deficiencies, but growing rates of hidden hunger - the presence of several micronutrient deficiencies despite an abundance of food - among people in high-income countries are cause for concern. According to the Food and Agriculture Organization of the United Nations (FAO), hidden hunger may contribute to impaired cognitive development and increased risk for chronic disease.

Micronutrient Deficiencies: No Region is Immune

Issues regarding nutrient deficiencies in LMIC are well documented and were the topic of a recent [Global Dairy Platform Perspective Paper](#) on dairy development and nutrition in the developing world.¹ A recently published perspective² in the journal *Gastroenterology* points out, however, that data reflecting global nutrient status and malnutrition among free-living older adults globally, even in higher-income countries, are cause for concern.

For example:

- In the United States and Europe, an estimated 35% and 40%, respectively, of older adults exhibit serum vitamin D levels below acceptable limits
- Europe and Latin America experience vitamin A deficiency in approximately 5% of the population per year
- In Iran, over 50% of the population age 60 years and older demonstrate a broad range of nutrient deficiencies.

Further, iron and iodine were identified as two of the most prevalent trace element deficiencies worldwide among older adults. Interestingly, a recently published report in the *Journal of Nutrition* indicated a significant rise in iodine deficiency among women of all ages in the United States concurrent with a significant decrease in milk consumption.³ Milk is a leading contributor of vitamins A and D and iodine, among several other micronutrients, to the diet.

Hidden hunger and micronutrient deficiencies, which can produce serious and life-threatening conditions and increase health care costs, are often the result of diets that do not meet the nutritional needs of the population, particularly among vulnerable populations, such as older adults, children, and pregnant women.

There are about 800 million people over the age of 65 globally, and this number is expected to grow to over two billion by the year 2050 – an issue with the potential to greatly exacerbate an already existing problem if we don't take steps to improve the nutritional status of all older people, regardless of where they live.

Foods Count: Diet Diversity Helps Ensure Adequate Nutrient Intake

A report that looked at the sources of six key micronutrients that tend to be deficient in the global diet – iron, zinc, vitamin A, calcium, folate, and vitamin B12 – found that in virtually all instances, foods that tended to be highest in the majority of these six nutrients were almost always animal sourced foods, mainly organ meats, fish, cow's milk, beef, and eggs.⁴

This is not to suggest that animal sourced foods are an antidote to all the nutrient deficiencies that are prevalent globally, as many plant sources provide micronutrients that aren't abundant in animal foods. But it does suggest that all types of foods, both plant and animal, need to be available in all regions of the world if we are to minimize the risk of micronutrient deficiencies, particularly as we strive to create equitable sustainable diets to adequately feed a growing and aging global population.

Adequate High-Quality Protein Consumption Contributes to Health and Functional Independence

Incidences of protein-energy malnutrition leading to serious conditions like kwashiorkor or marasmus* overwhelmingly occur in LMIC where high quality protein sources are lacking.

“For those who are moderately food insecure, access to food is uncertain. They might have to sacrifice other basic needs just to be able to eat. When they do eat, it might be whatever is most readily available or cheapest, which might not be the most nutritious food. The rise in obesity and other forms of malnutrition is partly a result of this phenomenon.” [FAO](#)⁵

It would be a mistake, however, to assume that protein deficiencies do not occur at all in high- income countries. It is estimated that 20% of older adults in high-income countries are at moderate risk of protein inadequacies and that the prevalence of protein-energy malnutrition in hospitalized older adults can range from 10% to 30%, contributing to the loss of muscle mass and function and metabolic disorders associated with aging.

* Kwashiorkor and marasmus are severe types of protein-energy malnutrition. Kwashiorkor results from protein deficiency. Marasmus results from a deficiency of all macronutrients, including protein, carbohydrate, and fat.

Notably, a [randomized controlled trial](#) conducted in residential care facilities in Australia showed that increased consumption from two to three-and-a-half servings of dairy foods (250 milliliters of milk, 200 grams of yogurt, and 40 grams of cheese) daily for two years increased protein and calcium intake to adequate amounts, 69 grams of protein and 1,142 milligrams of calcium, respectively, daily.⁶ Further, the residents who consumed the increased servings of dairy experienced 11% fewer falls within three months and 33% fewer fractures within five months of the intervention.

This study demonstrated how the addition of nutrient-rich dairy to the diets of institutionalized older adults resulted in better macro- and micronutrient consumption and health status. As the global population faces rapid aging, simple dietary interventions that help ensure nutrient adequacy, such as meeting recommendations for nutrient-rich dairy foods, will be of the utmost importance.

In Conclusion

Hidden hunger can occur in people in all regions of the world, particularly in susceptible demographic groups, and can have devastating health consequences. Recent articles highlight the importance of eating an array of nutrient-rich foods, such as dairy foods, to ensure a high-quality diet that nourishes the body to maintain good health.

DAIRY LEADERSHIP: A CALL TO ACTION.

It remains important for the dairy industry to provide healthy, affordable options for all, regardless of the region of the globe in which they live. Ongoing educational efforts targeting consumers, educators, health professionals, and policy makers are important in ensuring the importance of nutrient-rich dairy as part of healthy, sustainable dietary patterns across the lifespan are understood and appreciated.

1. Global Dairy Platform. Perspective paper. Dairy development and nutrition in low- and middle-income countries: hurdles, but plenty of opportunities. June, 2024. <https://globaldairyplatform.com/wp-content/uploads/2024/06/gdp-perspective-paper-5-june-2024.pdf>
2. Alvarez-Nuncio MDC, Ziegler TR. Micronutrient status and protein-energy malnutrition in free-living older adults: a current perspective. *Curr Opin Gastroenterol.* 2024 Mar 1;40(2):99-105. doi: 10.1097/MOG.0000000000001000. Epub 2024 Jan 4. PMID: 38193299; PMCID: PMC10872245.
3. Sun H, Weaver CM. Iodine Intake Trends in United States Girls and Women between 2011 and 2020. *J Nutr.* 2024 Mar;154(3):928-939. doi: 10.1016/j.tjnut.2024.01.005. Epub 2024 Jan 11. PMID: 38218541.
4. Beal T, Massiot E, Arsenault JE, Smith MR, Hijmans RJ. Global trends in dietary micronutrient supplies and estimated prevalence of inadequate intakes. *PLoS One.* 2017 Apr 11;12(4):e0175554. doi: 10.1371/journal.pone.0175554. PMID: 28399168; PMCID: PMC5388500.
5. Food and Agriculture Organization (FAO). Hunger and food insecurity. 2024. <https://www.fao.org/hunger/en/>
6. Iuliano S, Poon S, Robbins J, Bui M, Wang X, De Groot L, Van Loan M, Zadeh AG, Nguyen T, Seeman E. Effect of dietary sources of calcium and protein on hip fractures and falls in older adults in residential care: cluster randomised controlled trial. *BMJ.* 2021 Oct 20;375:n2364. doi: 10.1136/bmj.n2364. PMID: 34670754; PMCID: PMC8527562.