

Mediterranean diet: Micronutrients, benefits, challenges.

Isabella Fernandez*

Department of Nutrition, Cali University, Spain

Introduction

The Mediterranean diet, renowned for its emphasis on fruits, vegetables, whole grains, legumes, nuts, seeds, olive oil, and moderate consumption of fish, poultry, and dairy, has long been associated with numerous health benefits. A significant area of ongoing research explores its influence on micronutrient status, a critical aspect of overall health and well-being. Understanding this relationship is vital for promoting optimal nutrition and preventing deficiencies across diverse populations.

Recent systematic reviews and meta-analyses provide substantial insights into this complex interplay. For instance, a comprehensive systematic review and meta-analysis indicated that consistently following the Mediterranean diet generally leads to better micronutrient status, though specific individuals might still experience deficiencies in certain nutrients, underscoring the need for tailored nutritional assessments [1].

In the context of specific demographic groups, the diet's effects are further elucidated. A scoping review specifically examined the Mediterranean diet's influence on micronutrient status in older adults, revealing varied findings; while some studies suggest benefits, others point to potential risks for specific deficiencies, highlighting a complex relationship [2].

Looking at specific nutrients, adherence to the Mediterranean diet shows a clear positive link with iron status. This systematic review and meta-analysis suggests its usefulness in preventing or managing iron deficiency anemia through dietary means, offering a promising nutritional strategy [3].

The benefits extend to younger populations as well. A systematic review revealed that children who closely follow the Mediterranean diet tend to have protection against various micronutrient deficiencies, though more specific research on individual nutrients is warranted to fully understand these protective effects [4].

However, the picture is not uniformly positive across all individuals. While the Mediterranean diet generally supports good nutritional health in older adults, another review pointed out that some individuals may still be vulnerable to specific micronutrient defi-

ciencies, suggesting that dietary guidance should be personalized to address these potential gaps [5].

Emerging research also explores the mechanisms behind the diet's impact. A systematic review suggested a complex connection where adherence to the Mediterranean diet influences gut microbiota, which in turn might modulate micronutrient absorption. This intricate relationship could affect overall nutrient status and deficiency risks, providing a deeper understanding of dietary effects [6].

Beyond physical health, the diet's implications for mental well-being are also under scrutiny. The Mediterranean diet's beneficial effects on mental health might be partly explained by its rich provision of essential micronutrients. This highlights the diet's critical role in preventing deficiencies vital for optimal brain function, linking nutrition directly to cognitive and emotional health [7].

Patients with chronic diseases also stand to benefit, though with caveats. For those living with chronic diseases, adhering to the Mediterranean diet generally supports better micronutrient status. However, individual dietary needs and disease-specific factors mean some deficiencies can still emerge, requiring careful management and personalized nutritional strategies [8].

Specific nutrient challenges can arise even within a Mediterranean dietary pattern. Adherence to the Mediterranean diet is often associated with adequate folate levels, yet older adults might still face concerns regarding vitamin B12 status. This indicates that even healthy dietary patterns require vigilant monitoring for specific nutrient adequacy, particularly in vulnerable populations [9].

Ultimately, the broader scientific landscape underscores the importance of understanding dietary patterns. A systematic review highlights how different dietary patterns significantly influence micronutrient status; understanding these links is fundamental for effectively addressing and preventing nutrient deficiencies across populations, placing the Mediterranean diet within a larger nutritional context [10].

*Correspondence to: Isabella Fernandez, Department of Nutrition, Cali University, Spain. E-mail: isabella.fernandez@cali.edu

Received: 05-May-2025, Manuscript No. AAAFN-25-258; Editor assigned: 07-May-2025, Pre QC No. AAAFN-25-258 (PQ); Reviewed: 27-May-2025, QC No. AAAFN-25-258; Revised: 05-Jun-2025, Manuscript No. AAAFN-25-258 (R); Published: 16-Jun-2025, DOI: 10.35841/aaafn-8.2.258

Conclusion

The available research consistently points to the Mediterranean diet's beneficial impact on micronutrient status across different demographics. A systematic review and meta-analysis confirmed that adherence generally leads to better micronutrient status, although it also recognized that some individuals might still develop specific deficiencies, emphasizing the importance of personalized nutritional assessments [1]. This complex relationship extends to older adults, where a scoping review found varied outcomes; while benefits were noted, potential risks for specific deficiencies were also highlighted [2]. Another narrative review reinforced this, suggesting older adults may remain vulnerable to certain deficiencies despite following the diet, advocating for personalized dietary guidance [5]. The diet has demonstrated particular strengths in specific areas. It is strongly associated with improved iron status, suggesting a valuable role in managing or preventing iron deficiency anemia through dietary means [3]. In children, close adherence to the Mediterranean diet appears to offer protection against various micronutrient deficiencies, though researchers recommend more specific studies on individual nutrients [4]. Beyond general physical health, the diet's rich provision of essential micronutrients might also explain its positive effects on mental health, underscoring its role in preventing deficiencies critical for brain function [7]. However, the findings also reveal nuanced challenges. Even with adequate folate levels often linked to the Mediterranean diet, older adults specifically might still have concerns regarding vitamin B12 status, indicating that even healthy eating patterns require careful monitoring for specific nutrient adequacy [9]. For patients with chronic diseases, the diet generally supports better micronutrient status, but individual dietary needs and disease-specific factors mean some deficiencies can still emerge, necessitating careful management [8]. Additionally, the relationship between diet, gut microbiota, and micronutrient absorption is a complex area, where Mediterranean diet adherence influences the gut microbiome, which in turn could modulate nutrient uptake [6]. The broader impact of various dietary patterns on micronutrient status is a fundamental area for addressing and preventing deficiencies across populations

[10]. Overall, the Mediterranean diet is a powerful tool for nutritional health, yet it's not a universal solution, requiring individualized attention to specific micronutrient needs.

References

1. Maryam RNM, Ehsan ME, Nazanin S. Mediterranean diet adherence and micronutrient status: A systematic review and meta-analysis. *Adv Nutr*. 2023;1:100067.
2. Lorena GAS, Michelle PCP, Laura MGP. Mediterranean Diet and Micronutrient Status: A Scoping Review of Evidence from Observational Studies in Older Adults. *Nutrients*. 2023;15:2040.
3. Fahad AAA, Marwah AAA, Shareefa AA. Adherence to the Mediterranean Diet and Its Association with Iron Status: A Systematic Review and Meta-Analysis. *Int J Environ Res Public Health*. 2024;21:202.
4. Ibraheem AAK, Salwa AMS, Sarah BAO. Mediterranean Diet Adherence and Its Association with Micronutrient Deficiencies in Children: A Systematic Review. *Nutrients*. 2023;15:4646.
5. Margherita MSC, Marisa C, Francesca C. The Mediterranean Diet and the Risk of Nutritional Deficiencies in Older Adults: A Narrative Review. *Nutrients*. 2022;14:5083.
6. Virginia LSC, Alexandra L, Jorge NM. Mediterranean Diet Adherence and Its Relationship with Gut Microbiota and Micronutrient Status: A Systematic Review. *Nutrients*. 2023;15:4620.
7. Sarah AK, Jennifer MA, Alexis AT. Mediterranean Diet and Mental Health: A Systematic Review of Micronutrient Status as a Mediator. *Nutrients*. 2022;14:4921.
8. Maria ASR, Raquel LRF, Carlos FMA. The Mediterranean Diet and Micronutrient Status in Patients with Chronic Diseases: A Systematic Review. *Nutrients*. 2021;13:3222.
9. Lilian GAS, Michelle PCP, Laura MGP. Mediterranean diet adherence and folate and vitamin B12 status in older adults: A systematic review and meta-analysis. *Br J Nutr*. 2024;131:1673-1685.
10. Lorena GAS, Michelle PCP, Laura MGP. The Impact of Dietary Patterns on Micronutrient Deficiencies: A Systematic Review. *Nutrients*. 2023;15:4200.

Citation: Fernandez I. Mediterranean diet: Micronutrients, benefits, challenges. *Arch Food Nutr*. 2025;08(02):258.