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New Prospective Study Associates Vitamin C Supplementation with Lower Risk of Multiple Sclerosis

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A large prospective population-based study published in **Nutrients** has reported that regular vitamin C supplementation was associated with a significantly lower risk of developing multiple sclerosis (MS), adding important new epidemiologic evidence to the growing body of research linking nutritional status with autoimmune and neurodegenerative diseases.

The investigators analyzed data from **486,908 participants** enrolled in the UK Biobank who were free of neurological disease at baseline. Participants were followed for a median of **13.5 years**, during which **452 individuals developed multiple sclerosis**.

After adjustment for demographic characteristics, lifestyle factors, dietary habits, socioeconomic status, and other measured confounders using propensity-score weighting, regular vitamin C supplementation was associated with an approximately **49% lower incidence of multiple sclerosis** compared with non-users (hazard ratio 0.51).

Interestingly, the association appeared relatively specific to vitamin C. Neither general dietary supplement use nor multivitamin supplementation demonstrated a similar reduction in MS risk, suggesting that the findings were not simply explained by healthier lifestyles among supplement users. The protective association was also strongest among individuals with moderate or high genetic susceptibility to multiple sclerosis.

Why These Findings Matter

Multiple sclerosis is a chronic immune-mediated disease characterized by inflammatory demyelination and progressive neurodegeneration within the central nervous system. Although its precise cause remains incompletely understood, oxidative stress, chronic inflammation, mitochondrial dysfunction, immune dysregulation, and impairment of the blood-brain barrier are widely recognized contributors to disease development and progression.

Vitamin C is best known as an antioxidant, but its biological functions extend far beyond free radical scavenging. It participates in immune regulation, collagen synthesis, endothelial function, mitochondrial metabolism, leukocyte activity, and numerous enzymatic reactions essential for maintaining normal physiological function and tissue integrity.

These well-established biological roles provide plausible mechanisms through which adequate vitamin C status could influence susceptibility to immune-mediated disorders such as multiple sclerosis.

Strengths of the Study

Several features strengthen confidence in the reported association.

The study included nearly half a million participants, providing exceptional statistical power. Because vitamin C supplementation was recorded before disease onset, the prospective design substantially reduces the possibility of reverse causation. In addition, the investigators employed propensity-score weighting together with multiple sensitivity analyses to minimize bias arising from measured differences in health behaviors, diet, and socioeconomic status.

Although observational studies cannot establish causality, large prospective cohort studies remain among the strongest epidemiologic approaches for identifying potentially modifiable risk factors deserving further investigation.

Important Limitations

The investigators appropriately emphasize that the study demonstrates an association, not proof of causation.

Vitamin C use was self-reported at enrollment, and information regarding dosage, duration of supplementation, adherence, and changes during follow-up was unavailable. As with all observational studies, residual confounding cannot be completely excluded despite extensive statistical adjustment.

Accordingly, these findings should be viewed as important new evidence rather than definitive proof that vitamin C supplementation prevents multiple sclerosis. Confirmation in independent populations, mechanistic studies, and randomized clinical trials will be necessary before clinical recommendations can be based on these observations.

An Orthomolecular Perspective

Orthomolecular medicine has long emphasized that maintaining optimal nutritional status supports normal physiological function and may enhance resilience against chronic disease.

The present study does not establish that vitamin C alone prevents multiple sclerosis. Rather, it adds meaningful epidemiologic evidence to a growing body of literature suggesting that nutritional status may influence susceptibility to immune-mediated disorders.

Given vitamin C's established roles in antioxidant defense, immune regulation, vascular integrity, collagen synthesis, mitochondrial function, and tissue repair, the reported association is biologically plausible and merits further investigation.

From the perspective of **Integrative Orthomolecular Systems Medicine (I-OM)**, chronic diseases such as multiple sclerosis are unlikely to arise from a single cause-or be prevented by a single intervention. Instead, optimal micronutrient status, including adequate vitamin C, should be viewed as one component of a comprehensive systems approach that also addresses metabolic health, oxidative stress, inflammation, vascular integrity, mitochondrial function, lifestyle, and other determinants of long-term physiological resilience.

Looking Ahead

This large prospective study provides important new epidemiologic evidence linking regular vitamin C supplementation with a substantially lower incidence of multiple sclerosis.

Whether this association reflects a true causal protective effect remains uncertain. Nevertheless, the findings provide a strong rationale for additional mechanistic research, replication in other populations, and well-designed randomized clinical trials.

As our understanding of nutrition and autoimmune disease continues to evolve, studies such as this underscore the importance of investigating safe, accessible, and biologically plausible nutritional strategies that may contribute to disease prevention and long-term neurological health.

Editorial Note (OMNS)

The *Orthomolecular Medicine News Service* reports new scientific findings relevant to nutrition, orthomolecular medicine, and integrative health. This article summarizes a recently published prospective cohort study. The reported findings demonstrate an observational association and should not be interpreted as establishing a causal relationship or as a basis for changing clinical practice without further evidence.

Reference

Association of Vitamin C Supplementation and Genetic Susceptibility with Multiple Sclerosis Risk: A Prospective Population-Based Cohort Study. *Nutrients*. 2026;18(14):2367. doi: [10.3390/nu18142367](https://doi.org/10.3390/nu18142367)

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