



Nutritional Support for Seasonal Allergies



Seasonal allergies—also known as hay fever or allergic rhinitis (AR)—arise from a complex interaction between the immune system and environmental allergens such as tree pollen, grass pollen, mold, and ragweed. When exposed to these triggers, the body releases histamine, which drives inflammation, fatigue, and other symptoms. An immunoglobulin E (IgE)-mediated response begins in the nasal mucosa, leading to nasal itching, sneezing, runny nose, and congestion.

Affecting over 50 million people worldwide, seasonal allergies are among the most common chronic inflammatory conditions. Alongside conventional treatments, diet and lifestyle changes can play an important role in prevention and symptom management.

Evidence Linking Diet and Seasonal Allergies

Over the past two decades, both epidemiological and clinical studies have shown that dietary habits can influence the severity and frequency of seasonal allergy symptoms. Dietary adjustments may offer a practical and cost-effective way for individuals to reduce symptom burden and improve quality of life. This concept—known as immunonutrition—focuses on using targeted dietary strategies to modulate immune and inflammatory pathways, aiming to:

- **Prime the immune system for appropriate responses**
- **Reduce excessive inflammation**
- **Provide nutrients that support anti-allergic defenses**

Building a Dietary Foundation for Allergy Prevention

A typical Western diet—high in calories and saturated fat but low in fiber—has been linked to an increased risk of seasonal allergies, partly due to its negative effects on the gut microbiome. Since allergic rhinitis (AR) is thought to be associated with impaired development and regulation of the intestinal mucosal immune system, supporting gut health is a key strategy for both prevention and management. Evidence suggests that probiotic supplementation can be beneficial. For example, a 2022 systematic review and meta-analysis found that probiotics significantly relieved AR symptoms. Adequate dietary vitamin A intake, in both carotenoid and retinol forms, has also been associated with a reduced risk of AR, possibly due to its role in regulating intestinal immune

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Key Nutrients and Their Antiallergic Roles

| Nutrient | Immunomodulatory Function |
|---|---|
| Vitamin D | Supports macrophage and dendritic cell activity |
| Vitamins B, C, E; zinc, selenium, magnesium, copper | Regulate T- and B-cell function |
| Vitamin A, iron, dietary fiber, zinc | Maintain intestinal mucosal barrier integrity |
| Dietary fiber, flavonoids, omega-3 fatty acids | Promote butyrate production, supporting intestinal epithelial integrity and anti-inflammatory effects |
| Protein, multiple vitamins | Cofactors for immune cell proliferation |
| Copper, iron, folate, zinc, magnesium, vitamins A & D | Support cell division and immune gene expression |
| Vitamins C & E, zinc, selenium | Protect against oxidative damage |

While a balanced diet forms the foundation of immune health, targeted supplementation can play a valuable role in reducing the severity and frequency of seasonal allergy symptoms, particularly when nutrient intake from food is insufficient. Research has shown that nutrients such as vitamin D, vitamin C, and vitamin E can help regulate immune activity and protect tissues from oxidative stress triggered by allergens. Vitamin A, in both retinol and carotenoid forms, supports the integrity of the mucosal barrier and aids immune regulation, while minerals like zinc and selenium are essential for immune cell function and antioxidant defense. Omega-3 fatty acids from fish oil, particularly EPA and DHA, may help dampen inflammatory responses, and probiotics can promote a balanced gut microbiome, which is closely linked to allergy resilience. Choosing the right supplement type and dosage should be individualized, ideally based on nutrient status, symptom patterns, and overall health, and guided by a qualified healthcare provider to ensure both safety and effectiveness.