# NUTRITION IN ALLERGIC DISEASES: PRINCIPLES OF DIETARY MANAGEMENT AND PREVENTION OF FOOD ALLERGIC REACTIONS

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**Abstract.** *Allergic diseases are among the most significant health problems in modern medicine. Nutrition plays an important role in their development and management, particularly in patients with food allergies, atopic dermatitis, and other allergic conditions. A balanced diet helps maintain normal immune system function, supports intestinal barrier integrity, and provides the body with essential nutrients. This article discusses the main principles of dietary management in allergic diseases, common food allergens, the characteristics of a hypoallergenic diet, and the importance of an individualized nutritional approach. Particular attention is given to the prevention of food allergic reactions and nutritional deficiencies associated with restrictive diets.*

**Keywords:** *allergy, food allergy, hypoallergenic diet, dietary management, food allergens, atopic dermatitis, immune system, intestinal barrier, prevention.*

**Introduction.** Allergic diseases represent a group of pathological conditions characterized by an excessive or inappropriate immune response to certain substances known as allergens. Over recent decades, the prevalence of allergic diseases has increased among both children and adults, creating a need for effective preventive strategies and comprehensive treatment approaches.

Nutrition plays an important role in the prevention and management of allergic diseases. Certain foods can trigger specific immune reactions, which may manifest as skin rashes, itching, swelling, gastrointestinal disturbances, and respiratory symptoms.

However, not all allergic diseases are associated with food consumption. Therefore, eliminating large groups of foods from the diet without confirmed medical indications may lead to insufficient intake of proteins, vitamins, and essential minerals.

**1. Main Mechanisms of Food Allergy Development**

Food allergy develops as a result of an immune-mediated reaction to specific proteins contained in food products.

Immunoglobulin E (IgE) plays an important role in the development of allergic reactions. Following exposure to a specific allergen, mast cells become activated and release biologically active substances, including histamine. This process leads to the development of clinical allergic symptoms.

The most common manifestations of food allergy include:

- **Skin reactions:** urticaria, itching, skin redness, and worsening of eczema.
- **Gastrointestinal symptoms:** nausea, vomiting, abdominal pain, and diarrhea.
- **Respiratory symptoms:** rhinitis, coughing, and difficulty breathing.

- **Systemic reactions:** anaphylaxis, a potentially life-threatening condition.

Food allergies may cause both immediate and delayed reactions. Diagnosis should be performed by a qualified healthcare professional based on medical history, clinical manifestations, and appropriate diagnostic investigations.

**2. Major Food Allergens**

The most common food allergens include:

1. Cow's milk and milk proteins.
2. Eggs.
3. Peanuts.
4. Tree nuts, including walnuts, hazelnuts, and almonds.
5. Fish.
6. Crustaceans and mollusks.
7. Wheat.
8. Soy.
9. Sesame.

In young children, allergies to cow's milk proteins and eggs are among the most frequently encountered food allergies. In adults, allergic reactions to nuts, fish, seafood, and certain plant-derived foods are also common.

It is important to emphasize that an allergy to one food does not automatically require the elimination of all products belonging to the same food group. Dietary restrictions should be based on confirmed individual allergic reactions.

**3. Basic Principles of Nutrition in Allergic Diseases**

The diet of patients with allergic diseases should be nutritionally adequate, balanced, and individually tailored.

The main principles of dietary management include:

**Elimination of confirmed allergens.**

Foods that cause proven allergic reactions should be excluded from the diet. Patients should carefully examine food labels and consider the possibility of accidental cross-contact with allergens.

**Nutritional balance.**

Even when dietary restrictions are necessary, the diet must provide sufficient amounts of proteins, fats, carbohydrates, vitamins, and minerals.

**Individualized dietary approach.**

The patient's age, type of allergic reaction, associated diseases, dietary habits, and individual food tolerance should be considered.

**Regular meal patterns.**

Patients are encouraged to maintain a balanced eating schedule, avoid unnecessary dietary restrictions, and include a variety of tolerated foods.

**Monitoring food reactions.**

Keeping a food diary can help identify possible associations between the consumption of specific products and the appearance of allergic symptoms.

**4. Recommended Foods for a Hypoallergenic Diet**

In the absence of individual intolerance, the following foods may be included in the diet:

- Vegetables: zucchini, broccoli, cauliflower, cucumbers, and potatoes.
- Fruits: apples, pears, and other well-tolerated fruits.
- Grains: buckwheat, rice, and oats, provided there is no relevant allergy.
- Protein sources: turkey, rabbit, beef, and other tolerated types of meat.
- Vegetable oils: olive oil and sunflower oil.
- Legumes: and other plant-based protein sources, if well tolerated.

It should be noted that there is no universal hypoallergenic diet. Any food, even one traditionally considered to have low allergenic potential, may cause an individual allergic reaction.

**5. Importance of Vitamins and Micronutrients**

Adequate intake of vitamins and minerals is essential for maintaining normal immune system function.

Particular attention should be paid to the following nutrients:

**Vitamin D.** It participates in immune regulation and supports normal bone health. Vitamin D deficiency should be corrected according to medical indications.

**Vitamin C.** It has antioxidant properties and helps protect cells against oxidative stress.

**Vitamin E.** It acts as an antioxidant and contributes to the protection of cell membranes.

**Zinc.** It is essential for normal immune function, tissue regeneration, and maintaining the protective properties of the skin.

**Omega-3 fatty acids.** They participate in the regulation of inflammatory processes and support normal cellular function.

However, vitamin supplementation and dietary supplements are not independent treatments for allergic diseases. Their use should be based on individual nutritional requirements and the presence of specific deficiencies.

**6. Nutritional Considerations for Children with Allergic Diseases**

Nutrition in children with allergic diseases requires special attention because the growing organism needs adequate energy and nutrients for normal development.

The following measures are important:

- Confirm suspected food allergies through appropriate diagnostic procedures.
- Eliminate only foods that cause confirmed allergic reactions.
- Provide nutritionally adequate alternatives for excluded foods.
- Monitor physical development and changes in body weight.
- Ensure sufficient intake of calcium, iron, protein, and vitamins.

- Arrange regular follow-up with a pediatrician and allergist.

In children with cow's milk protein allergy who require formula feeding, a physician may recommend extensively hydrolyzed formula or amino acid-based formula, depending on the clinical situation.

Regular plant-based drinks should not be used as a direct replacement for specialized infant formulas without medical advice, as their nutritional composition may differ significantly.

**7. The Role of Gut Microbiota in Allergic Diseases**

Modern research pays considerable attention to the relationship between gut microbiota and the immune system.

Gut microbiota refers to the community of microorganisms living in the gastrointestinal tract. These microorganisms participate in digestion, metabolism, and the regulation of immune responses.

Changes in gut microbiota composition may be associated with altered immune tolerance and increased susceptibility to inflammatory processes.

A diet containing a variety of plant-based foods, dietary fiber, and essential nutrients helps support a healthy gut microbiota.

However, the use of probiotics for the prevention and treatment of allergic diseases requires further investigation. Their effectiveness depends on the specific bacterial strain, disease, and clinical circumstances.

**8. Prevention of Food Allergic Reactions**

The prevention of food allergic reactions involves a comprehensive approach aimed at avoiding exposure to confirmed allergens and reducing the risk of severe reactions.

The main preventive measures include:

1. Early and accurate diagnosis of food allergies.
2. Careful examination of food labels before consumption.
3. Following medical recommendations regarding the elimination of specific allergens.
4. Preventing cross-contact with allergens during food preparation.
5. Maintaining a complete and varied diet.
6. Educating patients and family members about recognizing allergic symptoms.

Patients with confirmed severe food allergies should have an individualized emergency action plan in case of accidental allergen exposure. In patients at risk of anaphylaxis, a healthcare professional may prescribe an epinephrine auto-injector and provide instructions on its proper use.

**Conclusion.** Nutrition is an important component of the comprehensive management of allergic diseases. Properly organized dietary management helps eliminate confirmed food allergens, ensure adequate nutrient intake, and reduce the risk of recurrent food allergic reactions.

An individualized approach to dietary planning is particularly important in children, as unnecessary dietary restrictions may negatively affect growth, development, and overall health.

Therefore, balanced nutrition, timely diagnosis, medical supervision, and improved patient awareness are essential conditions for effective management of allergic diseases.

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