

Dietary Factors Affecting Disease Prevention and Management

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ABOUT THE STUDY

An area of immunology called nutritional immunology is dedicated to examining how diet affects the immune system and its defence mechanisms. Studying the potential impacts of diet on the prevention and treatment of infectious diseases, autoimmune disorders, chronic diseases, allergies, and diseases of affluence like cancer are all part of nutritional immunology. Malnutrition, malabsorption, and nutritional metabolic diseases, including the identification of associated immunological products, are further nutritional immunology-related subjects.

The role of nutrition on the prevention and management of diseases

Autoimmune diseases: Numerous autoimmune disorders' onset and course are typically unknown. The "Western pattern diet" comprises of pro-inflammatory high-fat, high-sugar, and low-fibre meals with an abundance of salt and highly processed food. These effects may modify neutrophil and monocyte migration from the bone marrow and increase Th1- and Th17-biased immunity. Numerous micronutrients in a balanced diet have immune-boosting and anti-inflammatory properties that can help prevent or treat autoimmune illnesses. Inflammatory Bowel Disease (IBD), Type 1 Diabetes (T1D), Multiple Sclerosis (MS), Systemic Lupus Erythematosus (SLE), Rheumatoid Arthritis (RA), and Celiac disease are among the autoimmune disorders for which the effects of food are being researched.

Allergies: The start and progression of many autoimmune diseases are frequently unknown. The "Western pattern diet" consists of pro-inflammatory meals that are high in fat, sugar, and fibre while also being low in fat and high in salt. These outcomes could alter the migration of neutrophils and monocytes from the bone marrow and boost Th1- and Th17-biased responses. A balanced diet contains a variety of micronutrients with immune-strengthening and anti-inflammatory effects that can help

prevent or treat autoimmune diseases. Among the autoimmune diseases for which the effects of food are being studied include Inflammatory Bowel Disease (IBD), Type 1 Diabetes (T1D), Multiple Sclerosis (MS), Systemic Lupus Erythematosus (SLE), Rheumatoid Arthritis (RA), and Celiac disease.

Diabetes: Elevated blood sugar levels are a symptom of diabetes mellitus. Type 1 diabetes and Type 2 diabetes are the two types of the disease. Insulin-producing cells in the pancreas are attacked by the immune system, resulting in type 1. Underproduction of insulin and developing insulin resistance in your body's cells are the two main contributors to type 2. For diabetics, a low-glycemic diet that is high in fibre is advised since low-glycemic foods digest more slowly in the body. Blood glucose levels are stabilised and blood sugar spikes are avoided by slower digestion.

Cancer: Cancer is a disease with numerous underlying factors. Cancer is influenced by cigarette smoking, physical activity, infections, and food. A poor diet has been associated with the onset of cancer, whereas a good diet has been demonstrated to have favourable impacts on both cancer prevention and treatment. Isothiocyanates, often known as ITCs, are compounds found in cruciferous vegetables. ITCs contain immune-stimulating properties in addition to anti-cancer action including preventing angiogenesis. Angiogenesis is the process by which tumours develop a blood supply of their own to nourish developing cancer cells. There are various underlying causes for the condition of cancer. Cigarette smoking, physical exercise, illnesses, and food all have an impact on cancer risk. Poor diet has been linked to the development of cancer, while a healthy diet has been shown to benefit both cancer prevention and therapy. Cruciferous vegetables contain chemicals called isothiocyanates, or ITCs. In addition to their anti-cancer effects, which include inhibiting angiogenesis, ITCs also have immune-stimulating capabilities. Angiogenesis is the process through which tumours create their own blood vessels to supply growing cancer cells.

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