


# Chapter 1

# Introduction to

# Nutrition and

# Autoimmune Diseases

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## ABSTRACT

*Researchers and healthcare professionals are eager to understand how nutrition affects autoimmune diseases due to their rise. This chapter explores how diet affects autoimmune diseases, aiming to explain how nutrition can aid or hinder their development. Nutrition affects brain activity, muscle health, bone strength, nerve function, skin integrity, blood circulation, and immune system strength. For fuel, the body needs a balanced diet. For optimal health and development, a balanced diet includes carbohydrates, proteins, fats, vitamins, minerals, fibre, and water. Malnutrition is a major issue stemming from inadequate nutrient intake. Understanding how diet affects*

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*health is crucial because nutritional factors affect heart attacks, certain cancers, strokes, and type 2 diabetes mellitus. BMI is a useful tool for assessing nutritional status, emphasising the importance of normal weight. Nutrients like proteins, fats, carbohydrates, vitamins, and minerals help maintain bodily functions and prevent malnutrition. Proteins ensure tissue synthesis and repair, while fats improve health, with saturated and unsaturated fats guiding diets. Essential fatty acids, vitamins, and minerals support bodily functions. The complex relationship between nutrition and autoimmune diseases emphasises the importance of a balanced diet. Nutritional interventions are important due to celiac disease and processed foods. Food and exercise are essential for lifelong health, body composition, musculoskeletal health, and physical and cognitive performance, as the chapter concludes. The complex relationship between nutrition and autoimmune diseases is explored in this study to help researchers, healthcare professionals, and individuals better understand the relationship.*

## **I. INTRODUCTION**

In recent years, the intersection of nutrition and autoimmune diseases has emerged as a captivating realm of scientific inquiry, fostering a deeper understanding of how dietary choices intricately influence the complex landscape of immune responses. This book chapter embarks on a journey to unravel the intricate connection between nutrition and autoimmune diseases, seeking to illuminate the multifaceted role that diet plays in the development, exacerbation, and potential management of these complex conditions (Mazzucca et al., 2021).

The immune system, a sentinel of health, relies on a delicate equilibrium to distinguish between self and non-self, preventing the onset of autoimmunity. Research is increasingly unveiling the pivotal role that nutritional factors play in modulating immune function, paving the way for innovative approaches to disease prevention and management. This exploration becomes particularly poignant as autoimmune diseases continue to rise in prevalence globally, necessitating a comprehensive understanding of the environmental factors, including diet, that contribute to their etiology (Sundaresan et al., 2023).

As we delve into this intricate web of interactions, our focus extends beyond the conventional understanding of nutrition as a source of energy and building blocks. Instead, we venture into the realm where dietary components act as signaling molecules, influencing immune cells, cytokines, and the dynamic interplay between the gut microbiota and the immune system (Lee et al., 2022). This holistic perspective sheds light on how the choices we make at the dining table have far-reaching con-

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