



Role of Nutrition in Immune Function.

By,
Bhoomika CS
Dept of BioTechnology



Introduction: Why Nutrition Matters.

Nutrition is vital for immune function because it provides the building blocks and fuel necessary for immune cells to operate effectively. A balanced diet supports the development, maintenance, and function of immune cells, helping the body defend against infections and diseases. Nutrient deficiencies can impair immune responses, making individuals more susceptible to illness.

The immune system relies on a steady supply of nutrients to produce cells, enzymes, and signaling molecules that fight infections and maintain health.





Macronutrients : The Big Three.

Macronutrients are the essential nutrients your body needs in large amounts for energy and to maintain its structure and systems.

They are primarily :

1. Carbohydrates

2. Fats

3. Proteins



- 01.** Main energy source for the body and the brain.
- Found in grains, fruits, and vegetables.
 - Includes fibers that aid digestion.

- 02.** Essential for hormone production and cell health.
- Healthy fats in nuts, seeds and fish.
 - Limit saturated and trans fats

- 03.** Building blocks for muscles, enzymes and tissue.
- Sources : meat , legumes, dairy .
 - Important for repair and growth.

Micronutrients: Vitamins and Minerals

Micronutrients are essential vitamins and minerals needed by the body in very small amounts, but are crucial for growth, development, and maintaining overall health.

Vitamins : Support immunity, vision and energy metabolism

Minerals : Vital for both health , nerve function and fluid balance .

Diverse Sources : Found in fruits ,vegetables ,nuts ,seeds and animal products





The Importance of Hydration.

Water is considered an important nutrient for immune system support because it's essential for various bodily functions that directly influence immune function

Maintains bodily functions : Water regulates temperature and aids digestion and circulations

Enhance physical performance : proper hydration improves strength and endurance.

Prevent Dehydration risks : Reduces headaches, fatigue and cognitive decline.





Malnutrition and Overnutrition



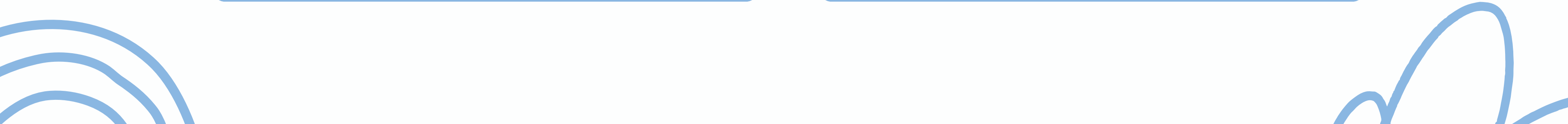
Both malnutrition and overnutrition can negatively impact the immune system, making individuals more susceptible to infections and diseases

Malnutrition

Malnutrition weakens the immune system, increasing vulnerability to infections and diseases. Without essential nutrients, the body can't support a healthy immune response, impairing immune cells and antibodies. This makes individuals more prone to illnesses like pneumonia, tuberculosis, and some autoimmune disorders.

Overnutrition

Overnutrition, or consuming more nutrients than the body needs, can significantly impact the immune system, leading to various health problems. It often leads to a chronic inflammatory state, impairing the body's ability to fight infections and develop conditions like metabolic syndrome and type 2 diabetes.





Dietary Guidelines : A Balanced Plate



**Half your plate
veggies and fruits.**

Prioritize colorful , fresh produce
for nutrients and fibers.

**Quarter lean
protiens**


Choose poultry , fish, beans or
plant based options

**Quarter whole
grains**

Opt for brown rice , oats and
whole wheat products

**Include healthy
fats**

Use olive oil , nuts and avocado
in moderation.



Conclusion

Nutrition plays a vital role in maintaining overall health and well-being. By understanding and incorporating the right balance of macronutrients, micronutrients, and proper hydration, individuals can support bodily functions, prevent chronic diseases, and improve mental health. Adopting mindful eating habits and following dietary guidelines tailored to specific life stages further enhances the effectiveness of a healthy lifestyle

The background is white and decorated with various hand-drawn blue doodles. These include several loops and swirls at the top, a series of horizontal lines on the right side, a wavy line at the bottom center, and several checkmarks at the bottom right. There are also some abstract scribbles and curved lines scattered throughout.

**Thank you
very much!**