

A Note on Vitamins are Essential for immune System

Benjamin U Nwosu

Associate Professor, Department of Pediatrics, University of Massachusetts Medical School, USA

Introduction

On a daily basis, we are constantly exposed to potentially harmful microbes of all sorts. Our immune system, a network of intricate stages and pathways in the body, protects us against these harmful microbes as well as certain diseases. It recognizes foreign invaders like bacteria, viruses, and parasites and takes immediate action. Humans possess two types of immunity: innate and adaptive. Innate immunity is a first-line defense from pathogens that try to enter our bodies, achieved through protective barriers. These barriers include:

- Skin that keeps out the majority of pathogens.
- Mucus that traps pathogens.
- Stomach acid that destroys pathogens.
- Enzymes in our sweat and tears that help create anti-bacterial compounds.
- Immune system cells that attack all foreign cells entering the body.

Adaptive or acquired immunity is a system that learns to recognize a pathogen. It is regulated by cells and organs in our body like the spleen, thymus, bone marrow, and lymph nodes. When a foreign substance enters the body, these cells and organs create antibodies and lead to multiplication of immune cells (including different types of white blood cells) that are specific to that harmful substance and attack and destroy it. Our immune system then adapts by remembering the foreign substance so that if it enters again, these antibodies and cells are even more efficient and quick to destroy it. Antigens are substances that the body labels as foreign and harmful, which triggers immune cell activity. Allergens are one type of antigen and include grass pollen, dust, food components, or pet hair. Antigens can cause a hyper-reactive response in which too many white cells are released. People's sensitivity to antigens varies widely. For example, an allergy to mold triggers symptoms of wheezing and coughing in a sensitive individual but does not trigger a reaction in other people. Inflammation is an important, normal step in the body's innate immune response. When pathogens attack healthy cells and tissue, a type of immune cell called mast cells counterattack and release proteins called histamines, which cause inflammation. Inflammation may generate pain, swelling, and a release of fluids to

help flush out the pathogens. The histamines also send signals to discharge even more white blood cells to fight pathogens. However, prolonged inflammation can lead to tissue damage and may overwhelm the immune system.

Factors can depress our immune system

Older age: As we age, our internal organs may become less efficient; immune-related organs like the thymus or bone marrow produce less immune cells needed to fight off infections. Aging is sometimes associated with micronutrient deficiencies, which may worsen a declining immune function.

Environmental toxins (smoke and other particles contributing to air pollution, excessive alcohol): These substances can impair or suppress the normal activity of immune cells.

Excess weight: Obesity is associated with low-grade chronic inflammation. Fat tissue produces adipocytokines that can promote inflammatory processes. [1] Research is early, but obesity has also been identified as an independent risk factor for the influenza virus, possibly due to the impaired function of T-cells, a type of white blood cell.

Poor diet: Malnutrition or a diet lacking in one or more nutrients can impair the production and activity of immune cells and antibodies.

Chronic diseases: Autoimmune and immunodeficiency disorders attack and potentially disable immune cells.

Chronic mental stress: Stress releases hormones like cortisol that suppresses inflammation (inflammation is initially needed to activate immune cells) and the action of white blood cells.

Lack of sleep and rest: Sleep is a time of restoration for the body, during which a type of cytokine is released that fights infection; too little sleep lowers the amount of these cytokines and other immune cells.

How to cite this article: Nwosu ,Benjamin U. "A Note on Vitamins are Essential for immune System ." *Vitam Miner*10 (2021) : 6

*Corresponding Author: Benjamin U Nwosu, Department of Pediatrics, University of Massachusetts Medical School, USA,

Email: Benjamin_un@gmail.com

Citation: Nwosu BU (2021) A Note on Vitamins are Essential for immune System. *Vitam Miner* Vol.10 No.6:10.e165

Received date: June 07, 2021; Accepted date: June 21, 2021; Published date: June 29, 2021