

Deficits in Micronutrients and Immunological Response: Editorial Note

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Abstract

When we consider improved nourishment for our bodies, do we remember to priorities our brain? It is the one area of our bodies that has been overused recently. However, we rarely give it special nutritional care. What nutrients does the brain require, and which foods contain them? Eat largely plant-based foods like fruits, vegetables, legumes, and whole grains. Vegetables, particularly green leafy ones like kale and indigenous leaves, dark green ones like broccoli, yellow ones like pumpkin, and purple ones like red cabbage, are high in beneficial vitamins and antioxidants. These are excellent for brain function. Berries, particularly blueberries and other dark red berries prevalent in your local food chain, curcumin found in turmeric, and most nuts, particularly almonds, are beneficial, as is the oil they contain. There is an increased interest in what people eat, and there is just too much information and marketing out there, which can confuse consumers. Foods like chia seeds, pumpkin seeds, and quinoa have recently been labelled as exotic and uniquely beneficial; edible mushrooms are said to be great; and insects, which have always been eaten in Africa, are gaining popularity worldwide.

1. Introduction

Certain nutrients are required for the immune system to function correctly. Inadequate vitamin and trace element intake and status can lead to lowered immunity, which makes people more susceptible to infections and exacerbates malnutrition. Available evidence suggests that vitamins A, B6, B12, C, D, and E, as well as folate and the trace minerals Se, Zn, Cu, and Fe, play a role in immunological response. It is widely recognized that key trace elements are required for immune cell formation, activation, and a range of functions, the specific roles of these inorganic micronutrients in these processes are largely unclear. Analytical cell biology, molecular genetics, and array technology have all been used to gain new insights into the roles of selenium, zinc, iron, and copper in immune cell selection, maturation, and early activation. Evidence in human subjects suggests that these nutrients selectively change the immune response, produce dysregulation of a coordinated host response to infections in cases of deficiency and overload, and that deficiency may affect the pathogenicity of otherwise harmless diseases. Thus, adequate micronutrient intake is essential for the immune system to function efficiently and contribute to the body's natural defenses on three levels: physical barriers (skin and mucosa), cellular immunity, and humoral immunity. Vitamins A, C, and E, as well as the trace mineral Zn, help to improve skin barrier function. The vitamins A, B6, B12, C, D, and E, as well as folic acid, and the trace minerals Fe, Zn, Cu, and Se, all work together to boost immune cell protection. Finally,

all of these micronutrients, with the exception of vitamin C and iron, are required for antibody synthesis. Individuals with eating problems, smokers, chronic alcohol abusers, patients with specific diseases, pregnant and lactating women, and the elderly all have insufficient micronutrient intake. With age, the immune system undergoes a number of changes, which result in less efficient innate and adaptive immune responses and increased susceptibility to infections.

2. Conclusion

Overall, insufficient intake and status of vitamins A, B6, B12, C, D, and E, as well as folate and trace elements Se, Zn, Cu, and Fe, may lead to reduced immunity, which predisposes to infections and exacerbates malnutrition. Thus, a combination of these selected micronutrients can help the body's natural defense mechanism by improving all three levels of immunity: epithelial barriers, cellular immunity, and antibody production. Individuals with eating problems, smokers (both active and passive), chronic alcohol abusers, patients with specific diseases, pregnant and lactating women, and the elderly all have insufficient micronutrient intake. The immune system changes with age, resulting in less efficient innate and adaptive immune responses and increased vulnerability to infections. Overall, insufficient intake and status of vitamins A, B6, B12, C, D, and E, as well as folate and trace elements Se, Zn, Cu, and Fe, may lead to reduced immunity, which predisposes to infections and exacerbates malnutrition. As a result,

combining these micronutrients can help the body's natural defense mechanism by enhancing all three levels of immunity: epithelial barriers, cellular immunity, and antibody production.

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