



Hidden Burden of Vitamin B12 Deficiency in Modern Populations

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DESCRIPTION

Vitamin B12 Deficiency remains an under recognized health concern in developed regions such as London, where dietary diversity is generally available but specific nutritional gaps still occur. This condition develops when the body does not receive or absorb enough vitamin B12, a nutrient essential for red blood cell formation, neurological function and Deoxyribonucleic Acid (DNA) synthesis. Despite the presence of varied food sources, lifestyle patterns, dietary preferences and medical conditions contribute to its increasing prevalence. Vitamin B12 is primarily found in animal-based foods such as meat, dairy products, eggs and fish. Individuals who follow strict plant-based diets without appropriate supplementation are at higher risk of deficiency. In urban populations, the adoption of vegetarian and vegan diets has grown, often for ethical or environmental reasons. While these dietary choices can support overall health when well planned, insufficient intake of vitamin B12 may lead to deficiency over time if alternative sources are not included. Absorption of vitamin B12 is a complex process that involves the stomach, pancreas and small intestine. The vitamin binds to intrinsic factor, a protein produced in the stomach, which allows its absorption in the small intestine. Any disruption in this process can result in deficiency. Conditions such as chronic gastritis, gastrointestinal surgery or disorders affecting the small intestine may impair absorption, even when dietary intake appears adequate.

The clinical presentation of vitamin B12 deficiency can vary widely. One of the most common manifestations is anemia, specifically a type known as megaloblastic anemia. In this condition, red blood cells become larger than normal and are less effective in transporting oxygen. Individuals may experience fatigue, weakness, shortness of breath and pale skin. These symptoms often develop gradually, making early detection challenging. Neurological symptoms are another important aspect of vitamin B12 deficiency. The vitamin plays a significant role in maintaining the health of nerve cells. Deficiency can lead to nerve damage, resulting in symptoms such as tingling or numbness in the hands and feet, difficulty with balance and

muscle weakness. In more advanced cases, cognitive changes such as memory problems and confusion may occur. These neurological effects can become irreversible if the deficiency is not addressed promptly. Mental health is also influenced by vitamin B12 levels. Low levels have been associated with mood disturbances, including depression and irritability. While the exact mechanisms are still being studied, the relationship between nutrition and brain function highlights the importance of maintaining adequate vitamin levels for emotional well-being.

Certain population groups are more vulnerable to vitamin B12 deficiency. Older adults often experience reduced absorption due to changes in stomach function. Individuals taking medications that affect stomach acid production may also have reduced absorption. Additionally, those with chronic medical conditions affecting the digestive system are at increased risk. Awareness of these risk factors is essential for early identification and management. Diagnosis of vitamin B12 deficiency typically involves blood tests that measure vitamin levels and assess red blood cell characteristics. In some cases, additional tests may be required to determine the underlying cause. Early diagnosis allows for timely intervention and reduces the risk of complications. Management of vitamin B12 deficiency depends on its cause and severity. Dietary modification is often the first step, with an emphasis on including B12-rich foods or fortified products. For individuals who cannot meet their needs through diet alone, supplementation may be necessary. This can be administered orally or through injections, depending on the level of deficiency and absorption capacity.

CONCLUSION

In conclusion, vitamin B12 deficiency is a significant health concern that can affect multiple body systems. Despite the availability of diverse food options in developed regions, factors such as dietary preferences, absorption issues and lifestyle patterns contribute to its occurrence. Through increased awareness, early diagnosis and appropriate management, individuals can prevent complications and maintain optimal health.

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