



## THE RISING RATES OF VITAMIN B12 DEFICIENCY

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### ABSTRACT

*This article discusses the increasing rate of VITAMIN B12 deficiency and its importance in the body. In addition, information is provided based on analyzes of the statistics of the worldwide spread of this disease, factors of origin, proper and vitamin-rich diet, and prevention of the disease.*

One in 10 people is believed to be vitamin B12 deficient just in the UK alone; that is over 6 million people just in the UK alone; furthermore, that number increases as we look at a broader spectrum with countries like Mexico, Central, and South America, some selected areas in Africa, as well as the Indian subcontinent.

Deficiency of vitamin B12 is linked to not having sufficient meat products in the diet since it is most commonly found in animal products like meat, fish, eggs, milk, and milk products (yogurt, cheese, butter, etc.). With all the data we have and with the help of recent studies, we can assume that in countries where meat and animal products are consumed less, there will be more vitamin B12-deficient people. Looking at the data once again, this seems to be true in countries such as India, where animal products are consumed quite less since a lot of people are vegetarians and most people don't consume meat there either. In fact, the number of people consuming meat in India is far less than in other countries, and that might be the reason why the number of people with vitamin B12 deficiency is much higher there than in others.

Now it is important to understand why it is so crucial, why vitamin B12, or cobalamin, is so essential for our body, and what consequences may result if a person does not have a sufficient amount of vitamin B12 from their diet in their body.

**Importance of Vitamin B12.** Vitamin B12 or cobalamin plays a crucial role in our body contributing to different functions here is a breakdown of some of them:

1. **Red Blood Cell Formation:**

Vitamin B12 is necessary for the production of red blood cells in the bone marrow. Red blood cells carry oxygen from the lungs to the body's tissues, and a deficiency in vitamin B12 can lead to anemia, causing fatigue, weakness, and other symptoms.

2. **Nervous System Function:**

Vitamin B12 is involved in the maintenance of the nervous system. It helps in the formation of myelin, a protective sheath that surrounds and insulates nerve fibers. Adequate

vitamin B12 levels are essential for proper nerve function and the transmission of nerve signals.

### 3. **DNA Synthesis and Cell Division:**

Vitamin B12 is required for DNA synthesis and cell division. It plays a vital role in the production of genetic material (DNA) and is necessary for the growth and replication of cells throughout the body.

### 4. **Energy Metabolism:**

Vitamin B12 is involved in the metabolism of carbohydrates, fats, and proteins, converting food into usable energy for the body. It helps facilitate the breakdown of nutrients and the synthesis of important molecules involved in energy production.

### 5. **Brain Health:**

Adequate levels of vitamin B12 are important for cognitive function and brain health. Vitamin B12 deficiency has been associated with neurological symptoms such as memory problems, difficulty concentrating, and mood changes.

**Risk factors:** Let's talk about the risk factors for vitamin B12 deficiency:

#### **Dietary reasons:**

**1. Limited intake of animal products:** people who consume animal products less or not at all are at higher risk of being vitamin B12 deficient since it is mostly found in animal products. A vegetarian or strict vegan diet can easily lead to vitamin B12 deficiency.

**2. Poor diet:** people who lack a proper diet can also develop a deficiency of vitamin B12. A diet that does not consist of important nutrients may also lead to other problems.

**3. Breastfeeding a mother with vitamin B12 deficiency:** A mother who is vitamin B12 deficient can increase the risk of the deficiency in the infant too.

#### **Digestive Disorders:**

**1. Absorption problems:** Diseases that can affect the absorption of nutrients may also result in the absorption of vitamin B12. Some of those diseases include Crohn's disease, celiac disease, and surgical removal of part of the stomach or intestine. These can hinder the absorption of vitamin B12.

**2. Auto-immune disorder:** Pernicious anemia, which is a type of megaloblastic anemia, is a relatively rare disorder in which stomach cells are attacked and which can affect the absorption of vitamin B12. Age: As we age, the production of stomach acid gradually decreases over time, which can hinder the absorption of vitamin B12.

#### **Other reasons:**

**1. Medications:** Certain medications, such as metformin, which is used to overcome insulin resistance in type 2 diabetes, can also increase the risk of vitamin B12 deficiency.

**2. Family history:** having a family member previously can increase the risk as well.

Even though there are a lot of risk factors, there are still a lot of ways we can reduce these risks by adapting to a healthy lifestyle and doing simple things that are still effective, which can not only reduce the risk of vitamin B12 deficiency but also other diseases. Here are some ways that can reduce the risk of vitamin B12 deficiency:

#### **Dietary Changes:**

**Introduction of animal products in diet:** This should be obvious since vitamin B12 is mostly found in animal products. If those products are in your diet, you automatically prevent the risk of developing the deficiency. Just keep that in mind to fulfill the daily requirement of having a balanced diet, which can help in the prevention of a lot of diseases.

**Fortified Diet:** If someone is a vegetarian or occasionally an animal product consumer, then they should think about adding fortified food to their diet to fill the gap in vitamin B12. Adding yeast-based food, and plant-based milk that includes vitamin B12, cereals, and bars can help.

**Vitamin B12 supplement:** Talk to your doctor about having vitamin B12 supplements if you follow a strict vegan diet or if you are at a higher risk of having a deficiency such as the one given above.

**Limit alcohol consumption and smoking:** Limiting the amount of smoking and alcohol can also prevent smoking, which can cause some digestive issues that may result in the absorption of vitamin B12. Alcohol has been linked with destroying the lining of the stomach, indirectly affecting the absorption of vitamin B12.

Vitamin B12 can have a wide range of symptoms, which can vary depending on the situation. It can worsen over time, and sometimes there might be no symptoms while a person still has a deficiency of it. Here are some common signs depending on the type. General Physical Symptoms:

**Fatigue and weakness:** This is a widespread symptom of B12 deficiency and can significantly impact your energy levels and stamina.

**Nausea, vomiting, or diarrhea:** Digestive issues can occur due to B12 deficiency's effect on the digestive system.

**Loss of appetite:** You may experience a decreased appetite or feel full easily.

**Weight loss:** Appetite loss and digestive issues can lead to unintended weight loss.

**Pale skin:** B12 deficiency can affect red blood cell production, leading to paleness due to a lack of oxygen-carrying cells.

**Sore mouth or tongue:** You might experience a smooth, painful tongue (glossitis) or mouth ulcers.

#### **Neurological Symptoms:**

**Numbness or tingling in the hands and feet:** This can be a result of nerve damage caused by B12 deficiency.

**Vision problems:** blurred vision or other vision disturbances can occur.

**Difficulty thinking or remembering:** confusion, memory loss, and poor concentration are potential signs of B12 deficiency affecting the nervous system.

**Poor balance and coordination:** B12 deficiency can impair nerve function, leading to problems with balance and coordination.

#### **Psychological Symptoms:**

**Depression or anxiety:** Changes in mood and emotional well-being can be associated with B12 deficiency.

**Irritability:** You may experience increased irritability or mood swings.

Treatment of vitamin B12 can vary depending on the severity and underlying cause. Here is a breakdown of it. Replenishing Vitamin B12:

**Vitamin B12 injections:** This is an effective way to replenish vitamin B12 by bypassing digestion completely and directly delivering it into the bloodstream. This is effective if someone's digestive system is not working properly and is affecting their absorption.

**Oral B12 supplements:** It is common for people who are following a strict vegan diet or do not have a sufficient amount of animal products in their diet to take oral supplements, but take into account that the amount might vary from person to person depending on how much their daily requirement is. Be sure to ask your doctor first before taking any supplements.

#### **Addressing the Underlying Cause:**

**Dietary changes:** If the deficiency is due to dietary factors, such as strict vegetarian or vegan diets, incorporating B12-fortified foods or taking regular B12 supplements is crucial to prevent future deficiencies. A balanced diet can prevent the deficiency by getting rid of the treatment or supplements completely.

**Treating digestive disorders:** If an underlying digestive condition like Crohn's disease or celiac disease is hindering B12 absorption, addressing that condition can improve B12 uptake. Monitoring and Follow-Up:

**Regular blood tests:** After starting treatment, your doctor will likely monitor your B12 levels with blood tests to ensure they are rising and to adjust the treatment plan as needed.

**Long-term management:** In some cases, especially for people with pernicious anemia (an autoimmune condition affecting B12 absorption), lifelong B12 replacement therapy may be necessary to maintain healthy B12 levels and prevent complications.

Here are some additional points to consider:

**Early intervention is key.** Early diagnosis and treatment of vitamin B12 deficiency can help prevent or reverse nerve damage and other complications.

**Addressing symptoms:** Treatment may also involve managing specific symptoms, such as pain medication for nerve pain or antidepressants for mood changes.

**Gradual improvement:** It can take weeks or months to replenish B12 stores and see improvement in symptoms, especially with severe deficiencies.

It is important to understand the cause of the deficiency and treat it accordingly. Sometimes it can be prevented simply by changing the diet and adapting to it, unless there is no underlying disease causing it. We need to understand what our body needs for proper health. As we learned how essential vitamin B12 is, it should be kept in mind that there are certain nutrients that our body needs for proper growth, and by simply understanding this, we can reduce the risks of getting these diseases. If we can get rid of the cause, we get rid of the problem from its root. In this case, most of the time, the problem is caused by our diet.

While it is known that veganism is known to get rid of a lot of chronic diseases, like most things, everything has two sides, and the opposite side is that it might be insufficient for our body, and most people's bodies might not even be adapted for it to begin with.

If we compare our digestive systems with those of herbivores, then we immediately notice that their systems are far larger than ours. This is because nutrients in plants are far harder to absorb than from animal products. We humans are omnivores; we can consume both animal products and plants. Our digestive system is far smaller than that of herbivores, and our teeth show a similar story. Our bodies are made to digest animal products.

On the internet nowadays, it's so hard to know what is good for you and what is not. Most people are divided between consuming animal products or veganism. It gets more and more complicated because of this. The key is to maintain a balanced diet. We humans are omnivores, which means we need to balance both aspects. We need enough vegetable fiber from the plant to feed our gut bacteria and enough animal products for those essential nutrients that can only be found in animal products. Both sides can cause problems. If we consume too much plant-based food, we might have deficiencies. If we consume too much animal products, we might suffer from other chronic diseases later in our lives.

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