



by Ray Orndorff

Introduction



The correlation between general good health, good diet, and lifestyle alterations has been researched for many years as it relates to both pre-diabetes and those diagnosed with Diabetes Miletus. By most statistics there are over 30 million individuals in the US alone with this life altering chronic affliction, and another 84 million with pre-diabetes¹. Macro and Micro nutrients are in the forefront of new strategies to help reduce the epidemic proportions of this disease. While a conscious effort needs to be made for those diagnosed with diabetes to

alter their personal lifestyle thru food & exercise, we will take a closer look at a water-soluble vitamin deficiency noted in studies of diabetic patients. Vitamin B complex, more specifically B₁₂, has been linked to diabetic patients who are on a treatment plan that includes the most commonly prescribed drug Metformin.

While Metformin drug therapy may not be the only cause of the deficiency, the study does indicate it could be a contributing factor. Vitamin B₁₂ therapy tends to concentrate on the deficiency aspect rather than prevention or reduction in overall blood glucose levels simple because of the harmful effects that lead to issues with our nerves in our outer extremities (peripheral neuropathy)². Here we will look specifically at the Vitamin B₁₂, it's function, and how one can ensure better diabetic health by monitoring your intake thru natural food sources in one's lifestyle.

Function

All the B vitamins (sometimes referred to as 'Complex') are water-soluble vitamins, and of the 13 vitamins considered a must for good health B₁₂ is the only one that is stored in the liver. B vitamins need to be replenished frequently as they are excreted thru our urine. B₁₂ is synthesized in small quantities in the large intestine by our gut flora, however, since absorption of most nutrients happen in our small intestine this synthesis of B₁₂ is simply carried out of our body in our waste. B₁₂ contributes to our overall red blood cell creation, neurological function, metabolism, and for DNA synthesis. Vitamin B₁₂ are made up of several compounds that contain cobalt, and therefore is known as 'cobalamins'³.

Deficiency & Excess and its potential effects

Vitamin B₁₂ deficiency can lead to serious complications including anemia and nerve damage. Anemia is a condition where your body is not producing enough red blood cells which carry much needed oxygen throughout your body. Peripheral neuropathy effects your outer extremities. Symptoms include weakness, tingling sensation, or a prickly feeling in arms and legs⁴.

Excess is rare since your body is capable of storing several years' worth of this vitamin but can be found in cases where vitamin B₁₂ deficiencies are noted and treated with supplementation. Typically, this

¹ <https://www.cdc.gov/media/releases/2017/p0718-diabetes-report.html>

² <https://www.healthline.com/health/diabetes/b12-what-you-need-to-know>

³ <https://veganhealth.org/intestinal-bacteria-as-b12-source/>

⁴ <https://www.healthline.com/health/diabetes/b12-what-you-need-to-know#complications-of-b--12-deficiency>



VITAMIN B12 THERAPY FOR DIABETES

condition is found in vegan patients who are on a strict plant only diet and supplements are recommended. As we will identify below, Vitamin B₁₂ is found mostly and in its highest concentrations in animal products. Symptoms of excess include dizziness, nausea, and vomiting⁵. While there is no upper limit (UL) recommendations, caution should be exercised to avoid the symptoms and consultation with your healthcare professional.

Food Sources

Vitamin B12 is found predominantly in animal products including meat and dairy; fish and seafood; poultry and eggs; and milk products. Most dietary plant food is void of this vitamin. Your daily recommended allowance is 2.4mcg. Our bodies do have the capability of storing years worth of this vitamin. Here are some of the recommended sources:

Food	Micrograms (mcg) per serving	Percent DV*
Clams, cooked, 3 ounces	84.1	1,402
Liver, beef, cooked, 3 ounces	70.7	1,178
Nutritional yeasts, fortified with 100% of the DV for vitamin B12, 1 serving	6.0	100
Trout, rainbow, wild, cooked, 3 ounces	5.4	90
Salmon, sockeye, cooked, 3 ounces	4.8	80
Trout, rainbow, farmed, cooked, 3 ounces	3.5	58
Tuna fish, light, canned in water, 3 ounces	2.5	42

*DV – 2.4mcg

Summary

While deficiency of vitamin B₁₂ is rare in the general population, studies have demonstrated a higher deficiency rate in diabetics who are on a drug therapy plan that includes Metformin. Given B₁₂ deficient complications including low red blood count and neuropathy, it is important for diabetics to watch their levels of B₁₂ by working with their healthcare professional and ensure a complete nutrient profile is done as part of their treatment plan. Since B₁₂ is primarily found in animal products vegans should also work with their healthcare team to ensure adequate levels are maintained in their system thru possible supplementation.

Enjoy!

Eat fresh, eat colorfully, and enjoy the path you've chosen for your health and wellbeing. For further information on how you can incorporate easy, colorful plates into your diet please reach out to me at ray.orndorff@cookingandcolor.com.

⁵ <https://www.mayoclinic.org/drugs-supplements-vitamin-b12/art-20363663>