

# Vitamin B6 Deficiency

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Do you have patients with a history of taking birth control pills, hormone replacement or antibiotics? How about patients who have been on diuretics or bronchodilators or those with a diet high in refined carbohydrates? With one or more of these factors, there is a good chance they have suboptimal levels or what we call a functional deficiency of B6.

I'll include instructions how to assess or extrapolate B6 deficiency function from a regular chem screen; but before we get there, let's just review some of the things B6 does. B6 is an important co-enzyme for many of the intermediate steps in metabolism for many of the amino acids. Histamine, dopamine, serotonin, adrenalin, hemoglobin and GABA are just a few of the hormones and neurotransmitters that are dependent on B6.

B6 is also a key link in the utilization of EFAs, particularly the conversion of ALA to EPA and DHA. You can see



by the names of these key regulators that a B6 deficiency could be the underlying factor for many conditions.

The classic symptoms of vitamin B6 deficiencies include seizures, mental retardation and anemia. However there is a whole host of functional deficiencies. A deficiency in B6 can cause pain and inflammation, numbness, Heberden's nodules, trigger finger, joint stiffness, carpal tunnel syndrome, sensitivity to bright lights, tingling of extremities, sore tongue, de-

pression, hypochlorhydria, fissures/cracks in the tongue, burning sensation in the mouth, history of birth problems like spontaneous abortions or fetal abnormality to name a few.

Vitamin B6 also prevents the formation of homocysteine. Increased homocysteine is a classic risk factor for heart diseases but also acts as a marker for inflammation.

Let's look at the tests to measure B6. I want to thank Dr. Harry Eidenier for sharing these diagnostic pa-

rameters. There are 4 indicators to examine as we look for a B6 deficiency.

First and foremost is SGOT/AST. In decreasing order SGOT is found in the heart, skeletal muscle, brain, liver and kidneys. The lab range is usually 0-40 U/L, optimum ranges are 10-30 U/L. However, if the SGOT is under 10, think B6 deficiency.

The two next places to look for a B6 deficiency are the mean corpuscular volume (MCV) and the mean corpuscular hemoglobin (MCH). Optimum for MCV is 82.0-89.9 cubic microns. Optimum levels for MCH is 27.0 - 31.9 micromicrograms. When MCV and MCH are below their optimum levels, the first thing we think about is low iron and/or ferritin levels. We need iron for healthy hemoglobin. So if the iron is available, we look for other nutrient limiting factors.

Another indicator of low MCV and MCH is internal bleeding. One of the best ways to look for internal bleeding is the reticulocyte count. Reticulocytes will be elevated with bleeding. So when the reticulocytes are normal or low and you have sufficient iron the B6 deficiency pattern emerges. A good way to confirm this is to do a homocysteine test. If the results are high or high normal (over 10), treat for B6 deficiency.

Remember B12, folic acid and B6 are the major players to reduce homocysteine. Other minor nutrients for homocysteine include betaine and B2 or riboflavin.

Another test that may reveal a need for B6 is C-reactive protein or CRP. If we are using an anti-inflammatory diet and supplementation and still see elevation upon retesting, consider B6.

Dr. Carl Pfeiffer in his classic work, "Mental and Elemental Nutrients" suggests one of

the biggest indicators of B6 deficiency is an inability to remember dreams. The RDA for B6 is 2.0 mg per day. Stress increases the need for B6. Dr. Pfeiffer personally needed 50 mg in the morning to remember his dreams due to the stress of running the Bio-Brain Institute. However when he was on vacation the same 50 mg caused dreams so vivid he had to reduce the dose to 25 mg.

Let's discuss supplementation. What are the best forms and how much can be taken? B6 comes in the form of pyridoxine HCL. However it must be converted by the liver to pyridoxal-5-phosphate (P-5-P) before it can be used. Fortunately both forms are available in supplemental form. Personally it takes me about 100 mg of pyridoxine HCL before I remember my dreams; however, when I take 40 mg of the P-5-P form, I dream vividly.

Because B6 is such a key nutrient, I always ask patients if they remember their dreams. If they don't, I recommend the P-5-P form until they do. I usually make sure they get 100 mg from nutrient sources and supplement for 30 days.

B6 Phosphate by Biotics Research Corporation contains 20 mg of B6 (pyridoxal-5-phosphate) per tablet in their unique bio-available vegetable tableting base. Once dreams are remembered, reduce the dose where patients can still remember their dreams. However, if the above lab tests are available and patients show a need, I treat more aggressively and start with 160-180 mg of B6 Phosphate per day.

This is a reminder for us to look for signs of a B6 deficiency, how to test and about the effectiveness of B6 when supplemented in the P-5-P form.

Thanks for reading this week's edition. I'll see next Tuesday.