



Methylcobalamin (Active B-12)

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When most people take a B12 supplement, they are taking the synthetic (and less active) version of B12, however what we are discussing today is the naturally occurring B-12, methylcobalamin (the only other natural version of B-12 is known as adenosylcobalamin, however this form is not commonly available). The efficiency of converting cyanocobalamin to methylcobalamin in the human body is under significant debate, and when treating medical conditions, methylcobalamin is always the preferred version of B-12 as it is the active form of this vitamin. The roles of B-12 in the human body are myriad and include the synthesis of myelin required for nerve conduction, the synthesis of DNA and in the metabolism of carbohydrates, proteins and for the appropriate use of folic acid.

The majority of our discussion will be about utilizing B-12 as a treatment of various conditions and not focused on the treatment of B-12 deficiency. However, anyone with issues regarding their memory, nerve health or anemia should be screened for B-12 deficiency. Although most labs list a normal range of serum B-12 between 200-900 pg/ml, any level below 400 should be considered suspicious. A more sensitive marker of B-12 deficiency is methylmalonic acid (MMA) and if elevated, especially with elevation of an amino acid known as homocysteine can more accurately and sensitively determine B-12 deficiency. Be wary of most labs as their normal range for homocysteine is spuriously elevated up to 15 micromol/l. Any level above 8 should be considered an elevation of homocysteine, and appropriate treatment with methylcobalamin, B-6, and folic acid should be considered.

In a world of nutrition excess, it is remarkable how common B-12 deficiency is. Although the RDA is 3 micrograms per day, scientific studies utilizing the amino acid MMA as the most sensitive marker of B-12 sufficiency, indicates the optimal dosage is closer to 600 to 1,000 micrograms per day. This is why most people's multi-vitamins are so grossly inadequate to maintain optimal nutrition, let alone prevent a chronic deficiency. It still amazes me how much fear is generated in our press over the "safety" of vitamins when profound, chronic nutritional deficiencies are the basis of almost all of the age-related diseases.

I will focus now on the use of methylcobalamin (active B-12) on the treatment of common medical conditions that probably stem from unrecognized B-12 deficiency, but also utilize methylcobalamin as a healing nutrient going beyond what we might currently think a "vitamin" should do. As always, when utilizing methylcobalamin or any other B vitamin at a high dosage, one must be giving themselves a high potency multi-

vitamin with B complex to insure that all of the B-vitamin family is adequately represented.

The best way to give methylcobalamin is via intramuscular (IM) injection, however higher doses, preferably sublingually (under the tongue) or even orally may work just as well. My standard dosage is 1,000mcg (1 mg) the frequency, delivery and dosage vary considering upon the condition being treated. Conditions that can be treated effectively with methylcobalamin include:

- **Diabetic Neuropathy** improves by 75% with methylcobalamin administered intramuscularly at 1 mg twice per week and also with sublingual dosages of 1mg daily.
- **Carpal Tunnel Syndrome** methylcobalamin at 1mg sublingual twice per day is an effective therapy for this syndrome; anecdotally, methylcobalamin injections may prove more effective.
- **Shingles** in addition to the usual anti-viral medicines, I strongly suggest methylcobalamin at 1mg intramuscularly (IM) for five consecutive days as anecdotally many physicians find this dramatically beneficial at decreasing pain and preventing post-herpetic neuralgia.
- **Hearing Loss and Tinnitus** these common conditions are strongly linked with B-12 deficiency and IM or sublingual methylcobalamin may help prevent and treat these conditions.
- **Depression and Schizophrenia** are both strongly linked to B-12 deficiency and treatment with methylcobalamin has lead to significant clinical improvements in recent trials.
- **Neural Tube Defects and Miscarriages** maternal levels of both methylcobalamin and folic acid are strongly linked with deficiencies of these two vitamins.
- **Autism** multiple studies confirm that children with autism have difficulties with methylation reactions and elevations of homocysteine. Treatment with methylcobalamin is strongly suggested in this population along with other B-vitamins.
- **Dermatology** methylcobalamin deficiency in multiple studies has been linked to recurring cold sores. Both methylcobalamin and folic acid may play a role in the treatment of many chronic inflammatory skin conditions.
- **Elevated Homocysteine** this amino acid is a marker for deficiencies in how the body utilizes B-6, folic acid and methylcobalamin. Elevations in homocysteine are linked with almost every known health condition, from dementia to vascular disease, diabetes, cancer, osteoporosis, and the list goes on and on. Do not look at the “normal” lab values as any level above 8 should be an impetus for B-vitamin supplementation. Many drugs including metformin for diabetes, cholesterol lowering medicines, oral contraceptives, antibiotics, antacids of all types and anti-seizure medicines can profoundly effect methylcobalamin absorption and utilization and cause an elevation of homocysteine. Although more studies are necessary, the aggressive treatment of elevated homocysteine for improving vascular health and decreasing overall mortality is imperative.

- **Fatigue** methylcobalamin may play a role in the chronic fatigue syndrome in people who “just feel tired”. Experimenting with IM shots or sublingual methylcobalamin can be profoundly effective even in those with high B-12 levels. However, methylcobalamin treatment is uniformly safe and there is no risk to having high B-12 levels.

From our above discussion, it might appear that methylcobalamin is a panacea, however it is not. I strongly suspect that methylcobalamin deficiency, or more appropriately suboptimal methylcobalamin, plays a profound role in many chronic conditions.

Your Journey to Health and Healing,
Gary E. Foresman, MD

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