

B12 Folate

Methylcobalamin + Methylfolate (5 MTHF) Formula

Recommended Use:

- ▶ Prevents B12 deficiency
- ▶ Helps in formation of red blood cells
- ▶ Supports the nervous system
- ▶ Promotes healthy cardiovascular system
- ▶ Enhances brain health
- ▶ Enhances immune system function
- ▶ Helps memory and learning
- ▶ Suitable for vegetarians and vegans

B12 Folate MeF is a fast dissolving sublingual lozenge that contains high dose vitamin B12 (methylcobalamin) and folate (L-5-Methyltetrahydrofolate). Methylcobalamin and methylfolate are the biologically active form of B12 and folate, immediately available in the bloodstream upon sublingual absorption.

Vitamin B12 is found in two forms: methylcobalamin (for sublingual or injection administration) and cyanocobalamin (for oral administration). Proper absorption of oral vitamin B12 in the form of cyanocobalamin requires normal functioning of the digestive system, specifically the stomach, pancreas, and small intestine. In order for cyanocobalamin to be utilized by the body, it must first be absorbed through the ileum of the small intestine, then absorbed into the blood stream and finally converted to methylcobalamin and 5-deoxyadenosyl. Thus, methylcobalamin is the biologically active form in the human body.

B12 Folate MeF is a very effective form of supplementation, as this high potency sublingual form of methylcobalamin and methylfolate is rapidly absorbed by the mucosa of the mouth into the blood stream, thus bypassing the digestive tract. As vitamin B12 is obtained in the diet from animal sources, strict vegetarians and vegans must use daily supplementation.

It is well known to supplement B12 in cases of anemia. The cobalamins are structurally related to blood hemoglobin, and a deficiency of vitamin B12

can produce an anemic state in the body. Over the last decades however, a number of central and peripheral neurological disease states have been related to a deficiency of methylcobalamin. While cyanocobalamin works well to prevent anemia, it is the methylcobalamin form of vitamin B12 that is required to maintain the myelin sheath and protect against central and peripheral neurological disease and aging.

Vitamin B12 supports the brain, heart, and nervous system. It is needed for proper development and function of blood cells, nerve cells and cardiac muscle cells. It assists in metabolism of carbohydrates and fats for energy production, is necessary in the synthesis of essential fatty acids for maintaining the myelin sheath around the nerves, ensures synthesis of red blood cells and DNA, plays an essential role in a healthy immune system and central nervous system function, and is needed for the production of acetylcholine, a neurotransmitter that assists with learning and memory.

Often B12 deficiencies are prevalent with age, however they are more widespread in younger populations than previously thought. The deficiencies are due to either insufficient intake or difficult absorption of the vitamin in the digestive tract. Deficiencies of B12 can result in deterioration of mental function and neurologic damage that will yield such symptoms as memory loss,



Medicinal Ingredients:

Each lozenge contains:
 Vitamin B12 (Methylcobalamin) 5 mg
 Folate (L-5-Methyltetrahydrofolate) 1 mg

Non-medicinal Ingredients: Stevia rebaudiana (leaf), citric acid, DL-malic acid, white grape flavour, silicon dioxide, magnesium stearate, d-mannitol.

Recommended Dose (Adult): Dissolve one lozenge under the tongue daily, in the morning for maximum benefit, or as directed by a health care practitioner.

Recommended Duration of Use: Consult a health care practitioner for use beyond 3 months.

Recommended Use or Purpose: Vitamin B12 is a factor in the maintenance of good health; helps the body to metabolize carbohydrates, fats and proteins; helps to form red blood cells; helps to prevent vitamin B12 and folate deficiency.

Cautions/Warnings: Consult a health care practitioner prior to use if you are pregnant or breastfeeding. Do not take other health products containing Vitamin B12.

NPN 80070708 • 60 Lozenges



decreased reflexes, weakness, fatigue, disorientation, impaired pain perception, tinnitus (chronic ringing in the ears), hearing difficulties, neuropathy, burning tongue, numbness or pins and needles or burning in the extremities, depression, sleep cycle disturbances and various psychiatric disorders. Published studies show that high doses of methylcobalamin are needed to regenerate neurons and the myelin sheath that protects axons and peripheral nerves.

Clinical studies¹ concluded that there is an additional benefit of adding high dose folic acid to the administration of methylcobalamin on lowering total homocysteine (tHcy) plasma concentrations, they are both required for the remethylation pathway (transfer methyl groups for the regeneration of methionine from homocysteine) to regain normal activity. As high levels of homocysteine may increase the risk of heart disease and stroke, sublingual B12 and folic acid supplementation could be a therapeutic strategy to combat the risk associated with atherosclerosis and cardiovascular disease in patients.

Folic acid, also called Vitamin B9, along with vitamin B12, is required for the synthesis of DNA, the principal genetic material in the body. Folic acid helps the body form red blood cells and aids in the formation of genetic material within every cell of the body. Scientific evidence suggests that adequate folic acid may reduce a woman's risk of having a child with a brain or spinal cord defect, making it an important prenatal nutritional supplement or for those planning to become pregnant. Folic acid deficiency can also cause fatigue and weakness, along with irritability, cramps, anemia, nausea, loss of appetite, diarrhea, hair loss, mouth and tongue pain, and neurological problems.

Folic Acid and The Treatment of Elevated Homocysteine

A significant component in the pathogenesis, prevention, and treatment of heart disease and stroke involves the amino acid homocysteine. Increased blood levels

of homocysteine are correlated with significantly increased risk of coronary artery disease, myocardial infarction, and peripheral or cerebral occlusive disease. Elevated levels of homocysteine have also been correlated with a variety of other clinical conditions, such as nervous system disorders. Decreased plasma folate levels are correlated with increased levels of homocysteine, and a subsequent increased incidence of coronary artery disease.

In a 15 year Canadian study of coronary artery disease mortality in 5,056 men and women aged 35 to 79, lower serum folate levels were correlated with a significantly increased risk of fatal coronary artery disease².

Several studies utilizing folic acid, B6, B12, and betaine, either alone or in combination, have demonstrated the ability of these nutrients to normalize homocysteine levels^{3,4}.

Folic Acid on Psychiatric Applications

Reports indicate neuropsychiatric diseases secondary to folate deficiency might include dementia, schizophrenia-like syndromes, insomnia, irritability, forgetfulness, endogenous depression, organic psychosis, peripheral neuropathy, myelopathy, and restless legs syndrome^{5,6}. Patients with major depressive disorder often demonstrate lower serum and serum folate concentrations. Lower serum folate concentrations are also associated with greater severity of depression⁷.

Studies performed by Botez et al believe unrecognized and treatable folate deficiency might be the basis of a well-defined syndrome of neurologic, psychiatric and gastrointestinal disorders, with restless legs syndrome representing the main clinical expression of folate deficiency in adults. Their experience indicates an oral dose of 5 - 10 mg of folic acid for 6 to 12 months can eliminate or control symptoms.^{8,9,10}

References:

1. Nephrol Dial Transplant. 2002 May;17(5):916-22. Efficacy of methylcobalamin on lowering total homocysteine plasma concentrations in haemodialysis patients receiving high-dose folic acid supplementation. Koyama K., Usami T., Takeuchi O., Morozumi K., Kimura G.
2. Morrison H, Schaubel D, Desmeules M., Wigle D. Serum folate and risk of fatal coronary heart disease. JAMA 1996;275:1893-1896.
3. Van den Berg M., Boers G., Franken D., et al. Hyperhomocysteinaemia and endothelial dysfunction in young patients with peripheral arterial occlusive disease. Eur J Clin Invest 1995;25:176-181.
4. Van den Berg M., Stehouwer C., Bierdrager J., Rauwerda J. Plasma homocysteine and severity of atherosclerosis in young patients with lower-limb atherosclerotic disease. Arterioscler Thromb Vasc Biol 1996;16:165-171.
5. Audebert M., Gendre JP, Le Quintrec Y. Folate and the nervous system. Sem Hop 1979;55:1383-1387.
6. Young SN, Ghadirian AM. Folic acid and psychopathology. Prog Neuro-psychopharmacol Biol Psychiatry 1989;13:841-863.
7. Abou-Saleh MT, Coppen A. Serum and red blood cell folate in depression. Acta Psychiatr Scand 1989;80:78-82.
8. Botez MI, Cadotte M., Beaulieu R., et al. Neurologic disorders responsive to folic acid therapy. Can Med Assoc. J. 1976;115:217-223.
9. Botez MI, Fontaine F, Botez T., Bachevalier J. Folate-responsive neurological and mental disorders: report of 16 cases. Neuropsychological correlates of computerized transaxial tomography and radionuclide cisternography in folic acid deficiencies. Eur Neurol 1977;16:230-246.
10. Botez MI, Peyronnard JM, Berube L., Labrecque R. Relapsing neuropathy, cerebral atrophy and folate deficiency. A close association. Appl Neurophysiol 1979;42:171-183.