Methylzyme Liposome Spray

Areas of Research

Methylation Cycles / Pathways Homocysteinemia Mercury Toxicity ADD / ADHD / Aspergers / Autism Metabolic Syndromes Folic Acid B12 Anemia Adrenal / Thyroid Insufficiencies Cardiac insufficiencies

Pyridoxine	4 mg	200
L-5-Methyltetrahydrofolate	500 mcg	125
Methylcobalamin	1000 mcg	16,667
Calcium Folinate	300 mcg	*
Proprietary Blend: Trimethylglycine, SAM-e.	200 mg	*
Liposome Proprietary Blend: Phosphatidylcholine Complex (from Non-GMO Sunflower Lecithin). -glycerin complex, non-GMO oleic acid.	400 mg	*

What is Methylation?

Methylation is a process that occurs at one billion times per second and takes place in the liver during phase two detoxification. Methylation occurs when SAMe (S-adenosine methionine) donates a methyl group, which is then attached to the molecule that is being detoxified. SAMe then becomes homocysteine. Vitamin B6, B12,TMG and folic acid are necessary to reduce homocysteine and keep the methylation processes occurring.
This metabolic process taking place in every cell and vital organ that uses methyl groups to perform functions that include: regulating levels of histamine (which is a key factor in allergic responses), protecting and regulating DNA, promoting detoxification, protein and neurotransmitter production as well as other brain functions. It makes membranes that surround each cell more fluid. Technically, it starts with the small parts of molecules called methyl groups. A methyl group is a carbon atom with 3 hydrogen atoms attached to it. Movement of these carbon atoms goes on in every cell and tissue of the body.
Methlylation is what occurs when the body takes one substance and turns it into another, so it is detoxified and can be excreted from the body. Methylation acts as an on/off switch that allows the body to learn how to respond to environmental change. It represents the only cellular pathway that affects both adaptability and structural integrity.
Vitamin B12 is a water soluble vitamin necessary for the maintenance of a healthy nervous system and for the metabolic utilization of fats and proteins. Vitamin B12 is also essential for the synthesis of DNA during cell division and therefore is especially important for rapidly multiplying blood cells. In addition, adequate intake of Vitamin B12, along with Folic Acid and Vitamin B6, encourages healthy serum homocysteine levels, thereby supporting cardiovascular health. TMG (trimethylglycine) works along with Folic Acid, B6, and B12 in the metabolism of homocysteine.

Poor methylation takes the methyl groups from genes to use for other purposes. If that methyl group was removed from a cancer gene, it may begin to express cancer. This is how methylation turns off oncogenes and metastatic promoter genes. The overall effect here is that if the methylation cycle is impaired the immune system malfunctions, the detoxification system malfunctions, the ability to heal and repair is reduced and the anti-oxidant system malfunctions. As is clearly evident, methylation clarification is central to restoring cellular communication.
Synergistically Formulated Ingredients Vitamin B12 (methylcobalamin) works with folate in many body processes including the synthesis of DNA, red blood cells, and the maintenance of the myelin sheath that surrounds nerve cells.
A B12 deficiency results in pernicious anemia, impaired nerve function, and impaired mental function. Folate is one of the most essential nutrients for all normal cell growth and replication. It also has a major role in DNA synthesis, without it cells do not divide properly. The benefit of folate and B12 supplementation results in a reduction of body concentrations of homocysteine. Homocysteine is implicated in a variety of conditions, including atherosclerosis, Multiple Sclerosis, osteoporosis, and mental decline to name a few.
Folate deficiency is linked to depression, atherosclerosis, and birth defects. Folate supplementation should always include B12 because folate can hide an underlying B12 deficiency, which can result in permanent nerve damage.
Absorption of B12 is a complex situation. Deficiencies in pepsin, hydrochloric acid, R-protein, pancreatic enzymes, intrinsic factor, calcium and cell receptors can all lead to B12 deficiency through blocked absorption. Once in the blood, transport proteins bind to B12 and deliver it to the cells. Within the cells, enzymes liberate B12 from the protein complex and convert it to its coenzyme form: methylcobalamin. Supplementation with the coenzyme form methylcobalamin can overcome B12 deficiency in the cells caused by lack of, or malfunction of, conversion enzymes. This active form of B12, methylcobalamin, is essential for recycling homocysteine and the formation of methyl donors involved in cardiovascular function, sleep, blood cell formation, and nerve function. The nanosphere liposome delivery system ensures comprehensive assimilation and target accuracy.

High Homocysteine a methylation error and disease processes
High homocysteine has been implicated and shown to be elevated in Alzheimer's disease, depression, neurological aging, cancer, arteriosclerosis, anemia, osteoporosis, arthritis, rheumatoid arthritis, lupus, eye disorders, Chronic Fatigue Syndrome, heavy metal toxicity, ADD/ADHD, Autism, and many others. Homocysteine destroys brain and bone proteins.
Methylation and Fat Metabolism

Methylation helps “flush out” harmful fat which helps regulate weight and keeps fat from accumulating in the arteries(Cholesterol).

Methylation and Melatonin/REM Sleep

It is also is essential to the production of melatonin, necessary for sleep cycles and hormonal balance.

Methylation and Inflammation/Allergies

Methylation is the main way the body clears and eliminates histamine, which can cause inflammation, allergic reactions, and even asthma.

Methylation and Estrogen Levels/ Estrogen Cancers

It plays an important role in keeping estrogen levels balanced (high levels are attributed to breast cancer or estrogen related cancers)

Neurodegenerative conditions and Methylation

Multiple Sclerosis is an autoimmune demyelination disease. Myelin, the protective sheath around nerves, is destroyed and a common cause is a higher than average homocysteine level. Elevated homocysteine, as a result of folate and B12 deficiency, is toxic to the nervous system and has been linked to depression, schizophrenia, multiple sclerosis, Parkinson’s disease, Alzheimer’s disease and cognitive decline in the elderly. People with multiple sclerosis don’t metabolize B12 properly which leaves them more vulnerable to nerve damage. Several studies have shown that vitamin B12 levels in serum, red blood cells, and CNS are low in multiple sclerosis.

A B12 deficiency impairs the immune system’s ability to fight off pathogens and viruses. Viral hepatitis has been treated for years with vitamin B12 to assist in decreasing viral damage.

Trimethylglycine (TMG): Also known as betaine, trimethylglycine (TMG) is an excellent resource of methyl groups - molecules that comprise of one carbon atom and three hydrogen atoms. Trimethylglycine is found particularly in vegetables like beets, spinach, and broccoli. The presence of trimethylglycine in the body initiates the methylation process whereby the methyl groups neutralize detrimental materials in the system and translate them into supportive substances. For instance, homocysteine, an amino acid found in the body, is a prospective destructive substance and is restricted or deactivated by the methyl groups. It is an accepted fact that the presence of higher levels of homocysteine in the system is a hazard as it’s capable of giving rise to several heart diseases. Several researches have confirmed that people possessing very high levels of homocysteine in their systems are 3 times more susceptible to heart attacks than people having lower levels. In addition, several studies have found that high levels of homocysteine are also often responsible for birth defects, depression, particular forms of cancer, and even Alzheimer’s. It is well established that the presence of high levels of homocysteine is a health hazard for everyone.

However, the good news is that it is comparatively easier for a person to reduce the homocysteine levels in the system by ingestion of methyl-rich trimethylglycine or TMG. It may be noted here that the risk of high levels of homocysteine are deactivated as the presence of methyl groups in trimethylgycine (TMG) transforms homocysteine into methionine – an amino acid that is advantageous for the body. Presence of high levels of homocysteine in the body can also be reduced by taking a healthy diet comprising plenty of fruits and vegetables and by staying away from all kinds of processed foods. Contrarily, regular smoking, ingestion of heavy amounts of saturated fats as well as taking birth control pills can increase the levels of homocysteine in the body. TMG also protects the liver from the adverse consequences of alcohol over use.

Studies indicate that this is probably done by stimulating S-adenosylmethionine (SAMe). TMG is also beneficial for non- alcoholic varieties of fatty liver such as non-alcoholic steatosis (cellular retention of fat). Many researchers as well as herbal practitioners have recommended the use of trimethylglycine as it is an inexpensive replacement of SAMe for conditions like osteoarthritis and depression.

Gastritis, H-Pylori and Gastric Cancers linked to Methylation and B12

Atrophic gastritis is thought to affect 10%-30% of people over 60 years of age, and the condition is frequently associated with infection by the bacteria, Heliobacter pylori. H. pylori infection induces chronic inflammation of the stomach, which may progress to peptic ulcer disease, atrophic gastritis, and/or gastric cancer in some individuals. The relationship of H. pylori infection to atrophic gastritis, gastric cancer, and vitamin B12 deficiency is presently an area of active research.

Other causes of vitamin B12 deficiency include surgical resection of the stomach or portions of the small intestine where receptors for the IF (intrinsic factor) -B12 complex are located. Conditions affecting the small intestine, such as malabsorption syndromes (celiac disease and tropical sprue), may also result in vitamin B12 deficiency. Because the pancreas provides critical enzymes as well as calcium required for vitamin B12 absorption, pancreatic insufficiency may contribute to B12 deficiency. Since vitamin B12 is found only in foods of animal origin, a strict vegetarian (vegan) diet has resulted in cases of vitamin B12 deficiency. Alcoholics may experience reduced intestinal absorption of vitamin B12. Individuals with acquired immunodeficiency syndrome (AIDS) appear to be at increased risk of deficiency, possibly related to a failure of the IF-B12 receptor to take up the IF-B12 complex. Long-term use of acid- reducing drugs has also been implicated in vitamin B12 deficiency.

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