METHYL FACTORS

**METHYL FACTORS** provides therapeutic doses of vitamins B6, B12, and folate in a highly absorbable liquid formula. These essential B vitamins support proper endogenous methylation activity as well as healthy production of red blood cells, neurotransmitters, hormones, and nucleic acids. The compound homocysteine occurs as a byproduct of the series of B12/B6/folate-dependent methylation reactions involved in methionine/cysteine metabolism. Elevated levels of homocysteine have been associated with cardiovascular risk through believed promotion of atherosclerotic plaque development and enhanced blood clotting activity. In clinical trials, supplementation with the involved B vitamins has been shown to reduce circulating homocysteine levels and therefore support cardiovascular health.*

**FOLATE (FOLIC ACID)** is provided as a combination of 5-methyltetrahydrofolate (5-MeTHF) and 5-formyltetrahydrofolate (calcium folinate). Although, folic acid is the most oxidized and stable form of folate and is commonly used as a dietary supplement, it is not the metabolically active form. Folic acid must be reduced and methylated to 5-MeTHF to become the metabolically active form found in blood and utilized by tissues. Research has shown a subset of individuals with MTHFR polymorphism do not efficiently convert folic acid to the active 5-MeTHF due to genetic enzyme deficiencies. It is important to remember that 5-MeTHF is a form of the methyl group donor required for the conversion of homocysteine to methionine, which is catalyzed by vitamin B12-dependent methionine synthase. Without sufficient 5-MeTHF, regeneration of methionine cannot occur, resulting in possible homocystenemia.*

**METHYL FACTORS**

**A UNIQUE LIQUID FORMULA OF DIETARY METHYLATION COFACTORS**

<table>
<thead>
<tr>
<th>Vitamin</th>
<th>Amount</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>B6 (as pyridoxal-5-phosphate)</td>
<td>2 mg</td>
<td>Vitamin B6</td>
</tr>
<tr>
<td>Folate (as [6S]-5-methyltetrahydrofolic acid [glucosamine salt] and 5-formyltetrahydrofolic acid [calcium folinate])</td>
<td>400 mcg</td>
<td>Folate</td>
</tr>
<tr>
<td>B12 (as methylcobalamin)</td>
<td>1000 mcg</td>
<td>Vitamin B12</td>
</tr>
</tbody>
</table>

**SUGGESTED USE:** As a dietary supplement, take one serving (1 mL) one time per day or as directed by your healthcare professional. Shake before use.

**OTHER INGREDIENTS:** Water, glycerin, xylitol, natural and artificial flavors, xanthan gum, citric acid, grape skin extract, sodium hexametaphosphate, potassium sorbate (to ensure freshness), sodium benzoate and stevia leaf extract.

*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

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**www.bio-genesis.com**
METHYL FACTORS

VITAMIN B₆ (PYRIDOXAL 5'-PHOSPHATE) is a water-soluble vitamin that participates in over 100 body reactions. The phosphate ester derivative pyridoxal 5'-phosphate (PLP) is the principle coenzyme form and is a cofactor for endogenous transaminase activity. PLP-dependent reactions include the synthesis of both serotonin and the catecholamines and the production of hemoglobin, steroid hormones, and nucleic acids. Vitamin B₆ deficiency has been linked to emotional abnormalities, carpal tunnel, low immunity, and premenstrual syndrome. Conversion of homocysteine to the amino acid cysteine requires two PLP-dependent reactions. This pathway facilitates the de novo synthesis of cysteine from methionine and also provides an alternative pathway for the breakdown of homocysteine.*

VITAMIN B₁₂ (METHYLCOBALAMIN) is a coenzyme involved in nucleic acid metabolism, red blood cell synthesis, methyl transfer, and myelin synthesis and repair. Absorption of vitamin B₁₂ is dependent upon gastric secretion of the glycoprotein intrinsic factor. Among aging adults, secretion of intrinsic factor is often reduced, leading to an increased risk of vitamin B₁₂ deficiency and the related pernicious anemia. The liquid form of B₁₂ in Methyl Factors allows patients to bypass the intrinsic factor-dependent pathway for enhanced absorption. Vitamin B₁₂ deficiency is also common among strict vegans and those who have undergone long-term treatment with certain antibiotics. Long-term insufficient intake of vitamin B₁₂ can lead to megaloblastic anemia, impaired folate metabolism, and many neurological disorders including depression, paresthesias, and memory loss. Remethylation of homocysteine to methionine also requires the methylcobalamin form of B₁₂.*

REFERENCES:

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