

Methyl Complete



Applications

- Methylation Support
- Metabolic Support
- Energy Support
- Neurological Support

Introduction

NutraMedix Methyl Complete contains multiple ingredients to support healthy DNA methylation, a biochemical process involving the addition of a methyl group (-CH₃) to various essential biochemical compounds. Methylation is powered by efficient folate and methionine cycles, which depend on active **folate** (5-MTHF), active **vitamin B12** (methylcobalamin), and essential cofactors such as **vitamin B2** (riboflavin) and active **vitamin B6** (P5P). **Creatine monohydrate** is present to conserve methyl groups and support energy production, and **betaine anhydrous** is present as a methyl donor. Methyl Complete contributes fully active B vitamins, supports homocysteine conversion, facilitates detoxification, and supports methyl-group conservation, providing full-spectrum methylation support.

Vitamin B2

Vitamin B2 is water-soluble and is required for flavin mononucleotide (FMN) and flavin adenine dinucleotide (FAD), two co-enzymes that are involved in energy production, cellular function, and metabolism.¹ FMN is needed for the conversion of B6 to its active form, pyridoxal 5'-phosphate, and FAD is required for the conversion of tryptophan to niacin.¹ FAD is also needed to convert folic acid to the active folate, which together with B12, helps to maintain homocysteine levels already within the normal range by recycling homocysteine back to methionine, facilitating sulfur amino acid metabolism.²

Riboflavin can be obtained in the diet from pork, fish, and organ meats, as well as fortified foods such as grains and cereals.² The recommended dietary allowance (RDA) for individuals ages 19 and older is 1.3 mg/day for men and 1.1 mg/day for women.² The RDA during pregnancy is 1.4 mg/day, and the RDA during lactation is 1.6 mg/day, regardless of age. As adverse effects from riboflavin are extremely rare, an upper limit (maximum intake unlikely to cause adverse effects) has not been established.²

Vitamin B6

Vitamin B6 is water-soluble and can be in one of six forms. In this formula, vitamin B6 is in the form of pyridoxal 5'-phosphate (P5P), an active coenzyme form that does not rely on the body for conversion. Conversion of regular B6 to the active form requires FMN, which in turn, requires adequate riboflavin. Vitamin B6 is needed for over 100 enzyme reactions, most of which are related to protein metabolism.³ Vitamin B6 in the form of P5P is a coenzyme for other enzymes in the transsulfuration pathway, converting homocysteine to cysteine.³ As with vitamin B2, vitamin B6 helps maintain homocysteine levels already within the normal range.³ Vitamin B6 also helps support hemoglobin formation and neurotransmitter synthesis.³

Vitamin B6 can be obtained in the diet from citrus, poultry, and beef, as well as fortified foods such as grains and cereals.² The RDA for ages 19 and older is 1.3 mg/day for both men and women,

ages 19–50. The RDAs for ages 51 and older are 1.7 mg/day for men and 1.5 mg/day for women.² The RDA during pregnancy is 1.9 mg/day, and the RDA during lactation is 2.0 mg/day, regardless of age.² The upper limit, or maximum intake unlikely to cause adverse effects, is 100 mg/day for both men and women.²

Folic Acid

Folic Acid in this formula is in the active form of calcium L-methylfolate. Folic acid is a water-soluble B vitamin formerly known as vitamin B9. It is needed for DNA and RNA synthesis, as well as amino acid metabolism.⁴ The conversion of homocysteine to methionine in the form of S-adenosylmethionine (SAM-e), an important methyl donor for other reactions, is folate-dependent.⁴

Folate or folic acid in the diet can be found in abundance in leafy green vegetables as well as in fortified foods such as bread and cereal.² The RDA for individuals ages 19 and older, both men and women, is 400 mcg/day of dietary folate equivalents (DFE).² The RDA during pregnancy is 600 mcg/day DFE and the RDA during lactation is 500 mcg/day DFE, regardless of age.² The upper limit, or maximum intake unlikely to cause adverse effects, is 1,000 mcg/day.²

Vitamin B12

Vitamin B12 in this formula is in the form of methylcobalamin, an active form that does not rely on the body's conversion for efficacy, the other active form being 5-deoxy adenosylcobalamin.⁵ Vitamin B12 acts as a cofactor for methionine synthase, which helps in the conversion of methyltetrahydrofolate and homocysteine to tetrahydrofolate and methionine, respectively. It is also needed for S-adenosylmethionine (SAM-e) formation, the body's universal methyl donor.^{2,5} In addition to methylation, vitamin B12 is needed for healthy central nervous system function, normal DNA synthesis, and healthy red blood cell formation.⁵

Vitamin B12 can be obtained in the diet from animal foods such as dairy and meat, as well as in some fortified foods. Vegetarians may obtain some B12 from nutritional yeast.² The RDA for both men and women is 2.4 mcg/day in ages 19–50 and 2.0 mcg/day in ages 51 and older.² The RDA in pregnancy is 2.6 mcg/day and the RDA in lactation is 2.8 mcg/day, regardless of age.²

Because adverse effects from vitamin B12 are so rare, an upper limit has not been established.²

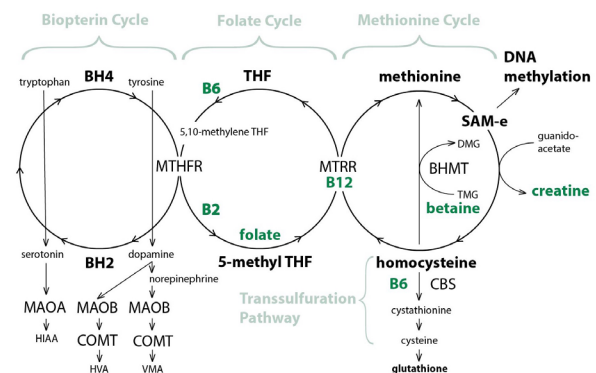
Creatine Monohydrate

Creatine Monohydrate is commonly used to support healthy skeletal muscle energy metabolism and ATP production.⁶ It may also help facilitate healthy methylation and detoxification.⁷ It can be obtained in the diet through eating meats and other animal foods.⁶

Betaine Anhydrous

Betaine Anhydrous is also known as trimethylglycine (TMG) and occurs naturally in the body from the oxidation of choline. It can be obtained in the diet from seafood, wheat bran, and spinach.⁸ As a methyl donor, it may help maintain levels of homocysteine already within the normal range.^{9,10}

NutraMedix Methyl Complete is free of dairy, soy, gluten, sugar, yeast, and mold. It is cGMP NSF Certified (ANSI Standards 173 Section 8), as well as FDA (Food and Drug Administration) and FSMA (Food Safety Modernization Act) Compliant. NutraMedix rigorously follows current good manufacturing practices (cGMP), as do our suppliers, including stringent ID testing, microbial testing, and heavy metal testing. This testing is conducted on both the raw material and after encapsulation.



Full-Spectrum Methylation Support

Methylation, the addition of methyl groups (-CH₃), is essential to processes as varied as DNA replication, neurotransmitter production, antioxidant activity, and healthy detoxification,

among others. Normal methylation can be challenged by various factors, including a lack of B vitamins and cofactors; an inability to convert B vitamins and cofactors to their active forms, resulting in a lack of methyl donors; and various single-nucleotide polymorphisms (SNPs) which may affect methylation efficiency.

Supplementation with B vitamins, particularly in their active forms, may help support methylation, bypassing the need for conversion; help maintain homocysteine levels already within the normal range; and help maintain glutathione levels already within the normal range, supporting normal detoxification. Efficient methylation may support normal cellular metabolism, as well as healthy energy production and storage. Normal homocysteine levels are associated with antioxidant activity, a healthy inflammatory response, and normal cognitive and cardiovascular health.¹¹

Vitamin B2 is required for the conversion of vitamin B6 to the active form P5P,¹ and is also a cofactor for MTHFR, the enzyme that converts folic acid to active methylfolate in the folate cycle. Both methylfolate and methylcobalamin (B12) help recycle homocysteine to methionine, which is then converted to S-adenosylmethionine (SAM-e), the body's universal methyl donor.¹² Adequate levels of SAM-e help maintain homocysteine as well as neurotransmitters such as MAO and serotonin already within the normal range, among many other functions.^{13,14} After donating a methyl group, SAM-e converts to homocysteine, which can either be recycled back to methionine with the help of methylfolate or methylcobalamin (B12),¹⁵ or converted to cysteine through the transsulfuration pathway with the help of cofactor P5P (active B6), facilitating glutathione production and antioxidant support.¹⁶

Vitamin B6 is needed for the folate cycle and for methylation.¹⁷ In this formula, it is present in the active form of pyridoxal 5'-phosphate (P5P), which does not rely on the body's ability to convert it. Vitamin B6 may help with folate recycling and may help maintain homocysteine levels already within the normal range.^{18,19}

Vitamin B12 is in the active form of methylcobalamin, the other active form being adenosylcobalamin. As a methyl donor, methylcobalamin may help maintain normal methylation, independ-

ent of MTHFR status, as it is not reliant on the body's ability to convert it. B12 is needed for both the folate and methionine cycles, the latter of which is responsible for making SAM-e.²⁰

Folate, in the active form of calcium L-methylfolate, makes SAM-e, the body's universal methyl donor, via the methionine cycle.^{12,17} As such, SAM-e is involved in a number of processes, including the manufacture of creatine, which is made from the transamination of amino acids arginine, glycine, and methionine.²¹ As this methylation support formula includes creatine, SAM-e may be spared for other purposes.

Creatine monohydrate may also help with methylation support.¹⁷ Both rat and human studies have found that it may help maintain homocysteine levels already within the normal range and may help with antioxidant support.^{22,7} A double-blind, placebo-controlled human study found that creatine may help maintain normal energy homeostasis in the brain, supporting cognition.²³ As 40% of the methyl groups produced as SAM-e are used for creatine synthesis, supplemental creatine may spare some of these to be used for other purposes.²⁴

Betaine anhydrous, also known as trimethylglycine (TMG), acts as a methyl donor. It occurs naturally in the body from the oxidation of choline and is a cofactor in the recycling of homocysteine to methionine.²⁵ As such, betaine anhydrous may help maintain levels of homocysteine already within the normal range.^{9,10}

Safety and Cautions

Vitamin B2 is generally well tolerated. The most common adverse effects are bright yellow urine and dose-dependent nausea. Theoretically, taking riboflavin may decrease the effects of tetracycline antibiotics.²⁶

Vitamin B6 is generally well tolerated in doses less than 100 mg/day. Common adverse effects include gastrointestinal symptoms such as heartburn, abdominal pain, loss of appetite, nausea, and vomiting, though somnolence and headache have also been reported. Theoretical interactions with B6 include additive effects with hypotensive medications as well as decreased levels and effects of phenobarbital and phenytoin.²⁷

Vitamin B12 is generally well tolerated in oral form and side effects are uncommon. There are no currently known drug interactions. While large doses of folic acid can mask a B12 deficiency, this would not be expected at the dosages recommended for this product.²⁸

Folic acid is generally well tolerated under doses of 1 mg/day. It may reduce the effectiveness of methotrexate. When taken with phenobarbital or primidone, it may increase the risk of seizures. When taken with phenytoin, it may decrease serum levels and effectiveness.²⁹

Creatine monohydrate is generally well tolerated.³⁰ Common side effects may include gastro-

intestinal effects such as diarrhea and stomach upset, muscle cramps, and dehydration.³¹ There are no currently known drug interactions.³¹

Betaine anhydrous is generally well tolerated. It may cause gastrointestinal side effects such as nausea, vomiting, or diarrhea. There are currently no known drug interactions.³²

Safety is not documented in breastfeeding or pregnant women, or in children under age 3, due to insufficient safety research.

*This statement has not been evaluated by the Food and Drug Administration. This product is not intended to treat, cure, or prevent any diseases.

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NutraMedix

METHYL COMPLETE

FULL SPECTRUM METHYLATION SUPPORT[†]

Dietary Supplement

120 Vegetable Capsules

KEEP OUT OF REACH OF CHILDREN

STORAGE: Keep tightly closed in a dry place at room temperature. (59-86°F or 15-30°C)

SUGGESTED USE: Take two capsules once or twice daily or as directed by your physician. Do not use if pregnant or nursing. Stop use if adverse reactions develop.

†This statement has 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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Supplement Facts

Serving Size 2 Capsules
Servings Per Container 60

	Amount Per Serving	% DV
Vitamin B2 (as Riboflavin)	20 mg	1338%
Vitamin B6 (as Pyridoxal-5-Phosphate)	20 mg	1176%
Folate (as L-Methylfolate, calcium salt)	400 mcg	100%
Vitamin B12 (as Methylcobalamin)	100 mcg	4182%
Creatine Monohydrate	500 mg	-
Betaine Anhydrous	500 mg	-

*Daily Value not established

Other ingredients: Vegetable Capsule, Microcrystalline Cellulose, Magnesium Stearate, Silicon Dioxide.

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Jupiter, Florida 33458 USA
www.nutramedix.com
561-745-2917

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