

# ORTHO B COMPLEX



## CLINICAL APPLICATIONS

- Supports Healthy Methylation and Carbohydrate Metabolism
- Promotes Nervous System, Immune and Adrenal Health
- Supports Neurotransmitter Production for a Positive Mood
- Protects Against Stress-Induced Nutrient Depletion

## ESSENTIAL NUTRITION

Ortho B Complex is a balanced and comprehensive B complex supplement that contains eight essential B vitamins, along with choline and inositol. B vitamins have historically been taken together for their synergistic role in supporting energy production, immune health, cardiovascular health and neurological health. Adequate B vitamin intake is essential for maintaining energy levels and additional intake is often needed by those with high levels of stress. Ortho B Complex offers high-quality nutrients, that help to build a healthy micronutrient reserve, including USP\* B vitamins to support energy production and folate for optimal methylation.

### Overview

A wide and complex variety of B vitamins is essential for the body to convert food into cellular energy. This water-soluble group of vitamins is first absorbed in the small intestine and then travels to the liver where they are biotransformed into their coenzyme forms. One of the key roles of B vitamins is to serve as prime coenzymes for the Krebs cycle, the biochemical pathway responsible for maintaining energy production in the form of cellular energy called adenosine triphosphate (ATP). In addition, B vitamins, particularly folate, B6 and B12, are required for proper methylation, a biochemical process that helps convert the problematic amino acid metabolite, homocysteine into the amino acids methionine and cysteine. Proper methylation is critical for supporting many aspects of mental and physical health, including regulating gene expression and DNA repair.

### Deficiency<sup>†</sup>

Deficiency in any of the B vitamins can create a breakdown of metabolic processes that protect health. Many medications

deplete certain B-vitamins, including acetaminophen, aspirin, ibuprofen and oral contraceptives. In addition, stress and poor diet also deplete these nutrients. Deficiencies of folate, B6 and B12 can specifically impair proper methylation.

### Thiamine (Vitamin B1)<sup>†</sup>

While naturally abundant in whole grains, thiamine is lost in many of the over-processed grains commonly consumed today.<sup>1</sup> Thiamine is an essential co-factor in the production of ATP in the cells' Krebs cycle and is also needed for the metabolism of fats, proteins and carbohydrates.<sup>2</sup> A recent randomized double-blind placebo-controlled trial found that supplementation with high-dose thiamine also supports blood sugar balance.<sup>3</sup>

### Riboflavin (Vitamin B2)<sup>†</sup>

Riboflavin is a precursor to flavin adenine dinucleotide (FAD) and flavin mononucleotide (FMN), both of which are central to energy production and intermediary metabolism, and act as powerful antioxidants.<sup>4</sup> Riboflavin-depleted cells have been found to display signs of oxidative stress and disrupted energy generation.<sup>5</sup> Studies have also shown that optimal riboflavin status has been found to help maintain healthy blood pressure levels in patients with certain genetic predispositions.<sup>6</sup>

### Niacin (as Niacinamide USP\*)<sup>†</sup>

Niacin is a cofactor in the mitochondrial respiratory chain, which produces ATP.<sup>7</sup> In the body, niacin is transformed into nicotinamide adenine dinucleotide (NAD) and nicotinamide adenine dinucleotide phosphate (NADP), which both play a role in oxidation reduction reactions in cells.<sup>7</sup> Niacin or nicotinic acid has a long history of use in cardiovascular health,

<sup>†</sup> 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.

having been shown in numerous studies to support healthy cholesterol levels.<sup>8,9</sup>

### Vitamin B6<sup>†</sup>

Vitamin B6 is involved in over 100 enzymatic reactions in the body and is essential for lipid metabolism, neurotransmitter formation, immune health and hormone modulation.<sup>10</sup> A large, prospective study found that women who consumed, on average, 4.6 mg of vitamin B6 daily had significantly better markers of cardiovascular health compared to women who consumed an average of 1.1 mg daily.<sup>11</sup> In addition, vitamin B6 has been found to boost the immune system in the elderly by increasing the activity of lymphocytes that promote optimal immune function.<sup>12,13</sup>

### Folic Acid<sup>†</sup>

Often associated with its use in pregnancy to ensure the proper development of healthy neural tubes in babies, folic acid plays a key role in many other functions, including DNA synthesis. Like vitamin B<sub>6</sub>, folic acid is a key methyl donor<sup>14</sup> and helps regulate mitochondrial enzymes and energy metabolism. A study of 1,980 Finnish men over 10 years found that those who consumed the most dietary folate had a significant benefit to their cardiovascular health compared with those who consumed the least amount of dietary folate.<sup>15</sup>

### Vitamin B<sub>12</sub> (Methylcobalamin)<sup>†</sup>

Vitamin B<sub>12</sub>, found only in organ meats, seafood and egg yolks, often becomes deficient in vegan and vegetarian diets. The vitamin is essential for the metabolism of fats and carbohydrates, the synthesis of proteins, and also plays a role in regulating mitochondrial enzymes and energy metabolism, as well as neurological health.<sup>7</sup> In a population study of 700 women aged 65 and over, more optimal B<sub>12</sub> levels were found to be associated with better mood balance and health.<sup>16</sup>

### Biotin<sup>†</sup>

Synthesized by the bacteria in the gut in addition to certain foods,<sup>17</sup> biotin and its cofactors are involved in metabolism of fatty acids, amino acids and utilization of B vitamins.<sup>7</sup> Biotin has also been found to support healthy blood sugar, both in animal<sup>18</sup> and human studies. A randomized, double-blind, placebo-controlled clinical trial conducted among 70 patients age five to 25 years old, with blood sugar concerns, found biotin administration to promote blood sugar balance as well as healthy blood fats.<sup>19</sup>

### Pantothenic Acid<sup>†</sup>

Pantothenic acid and its biologically active derivative, CoA, are essential to the synthesis of important fatty acids, membrane phospholipids, amino acids, steroid hormones, and energy

production.<sup>20</sup> 95% of CoA is found in the mitochondria.<sup>20</sup> Pantothenic acid has also been shown to have a balancing effect on blood fats in animal studies<sup>21</sup> and has also been shown in the research to support normal tissue repair and recovery.<sup>22</sup>

### Choline Bitartrate<sup>†</sup>

Though not technically a B vitamin, choline is often associated with B vitamins. It is important in the construction of cell membranes and plasma lipoproteins, plays a role in cell signaling and in the synthesis of acetylcholine (a neurotransmitter) and is vital for brain development.<sup>23</sup>

\*The USP is a scientific organization that sets standards for the identity, strength, quality and purity of medicines, food ingredients and dietary supplements, manufactured, distributed and consumed worldwide.

### Directions

1 or more capsules per day or as recommended by your health care professional.

### Does Not Contain

Gluten, yeast, corn, artificial colors or flavors.

### Cautions

If you are pregnant or nursing, consult your physician before taking this product.

Supplement Facts <sup>v2</sup>		
Serving Size 1 Capsule		
Servings Per Container 90 & 180		
1 capsule contains	Amount Per Serving	% Daily Value
Thiamin (Vitamin B1) (from Thiamine Hydrochloride USP)	50 mg	4,167%
Riboflavin (Vitamin B2 USP)	50 mg	3,846%
Niacin (as Niacinamide USP)	50 mg	313%
Vitamin B6 (as Pyridoxine Hydrochloride USP)	50 mg	2,941%
Folate	1,360 mcg DFE (800 mcg Folic Acid)	340%
Vitamin B12 (as Methylcobalamin)	200 mcg	8,333%
Biotin	75 mcg	250%
Pantothenic Acid (as d-Calcium Pantothenate USP)	50 mg	1,000%
Choline (as Choline Bitartrate)	19 mg	3%
Inositol NF	50 mg	*
* Daily Value not established		

ID# 110090 90 Capsules

ID# 110180 180 Capsules

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