

# TOTAL CORT

**Ingredients:** Each Tablet Supplies: Phosphatidylserine 100mg, Vitamin B-1 1.5 mg, Vitamin B-2 1.5mg, Niacinamide 5mg, Folic Acid 40mcg, B-6 1.5mg, Pantothenic Acid 2mg, B-12 25mcg, Beta Sitosterol 10mg, L-Theanine 5mg, Banaba Leaf Extract 12.5mg.

**Supportive Function:** Weight balance; stress management; restful sleep; memory; mental function; depression.

**When is cortisol support helpful?** Periods of stress; weight loss; depression, anxiety, insomnia.

**Clinical Applications/Research: Phosphatidylserine** is found in high concentrations in the brain. Phosphatidylserine is believed to allow individuals to sustain an adaptive response and minimize some of the systemic effects of stress (Kelly GS. Nutritional and botanical interventions to assist with the adaptation to stress. *Altern Med Rev.* 1999 Aug;4(4):249-65.) The effects of phosphatidylserine supplementation on the neuroendocrine responses to physical stress was examined in a placebo-controlled study in 9 healthy men. Phosphatidylserine blunted the cortisol responses, leading researchers to report that, “oral administration of phosphatidylserine may counteract stress-induced activation of the hypothalamo-pituitary-adrenal axis in man” (Monteleone et al. Blunting by chronic phosphatidylserine administration of the stress-induced activation of the hypothalamo-pituitary-adrenal axis in healthy men. *Eur J Clin Pharmacol.* 1992;42(4):385-8). Supplementation helps improve mental functioning in individuals diagnosed with Alzheimer’s disease (Crook et al 1992). After 45 days of supplementation, depression has been reported to be 60% less with phosphatidylserine supplementation than placebo controls in older women (Maggioni et al 1990).

**Vitamin B-1** works with B-2 and B-3 to release energy from our food. B Vitamins are necessary for the mitochondria to produce energy from carbohydrates in the Krebs's citric acid cycle.

**Vitamin B-2** is needed to convert carbohydrates, amino acids, and fats into energy. Restricted diabetic diets frequently result in B-2 deficiencies.

**Niacinamide**, a form of vitamin B-3, helps people with diabetes in small milligram amounts. Massive gram amounts of B-3 have been found to work against diabetics. B-3 is necessary to release energy from carbohydrates and is synergistic with B-1 and B-2. It increases the activity of two crucial enzymes needed to convert homocysteine into non-toxic substances and provide the nutrients necessary for liver detoxification. In a placebo-controlled study of 8000 men who had suffered one heart attack, niacin was shown to be beneficial in lowering the death rate and increasing longevity (Canner et al, *J of the Am College of Cardiology* 1986 Dec; 8 (6): 1245-55).

**Folic Acid** helps alleviate depression and anxiety (Balch & Balch, 1997: 17). Folic acid is required for enzymatic reactions reducing homocysteine. Excess homocysteine can lead to muscular degeneration, ocular and neurological problems, cardiovascular disease, brittle hair, and thin skin (Stanbury et al, *Metabolic Basis of Inherited Diseases*, New York: McGraw Hill, 1983; *N England Med J* 1983; 309(8): 448-453). Folic acid is essential to the growth and repair of cells. Folic Acid helps prevent folic acid anemia, is essential in the formation of red and white blood cells, and can protect against parasite infections and food poisoning. Deficiencies are common and come from not eating fresh fruits and vegetables. Cooking and microwaving destroy folic acid. Some studies state that 80% of the population is

deficient in folic acid. Tobacco smoking, drinking alcohol, and using oral contraceptives promote folic acid deficiency.

**B-6** is known to trigger the nighttime release of growth hormone (GH) during sleep. GH helps enhance the building and toning of muscle and enhances the immune response. It can facilitate weight loss, reduction of body fat, and increase muscle mass. It helps in the formation of anti-aging nucleic acids (Mindell, 1991:33). It helps convert tryptophan into niacin (B-3), alleviate nervousness, and reduce muscle spasms at night. B-6 is necessary for tryptophan metabolism, and together with vitamin C, enhances tryptophan uptake by the brain. B-6 helps shorten the time it takes for sleep onset, improve the quality of sleep, and induce a more relaxed waking state. Supplementation with vitamin B-6, by itself, can help change blood stickiness that characterizes atherosclerosis (*Lancet* June 1981; (1) 8233:12-99-1300).

**Pantothenic Acid**, vitamin B-5, works with other B vitamins to produce ATP from sugar and fat, the energy molecule the body needs to run on. Pantothenic Acid is known as an anti-stress nutrient.

Deficiency can lead to low blood sugar levels and other blood and skin disorders.

**B-12** and folic acid are involved in different steps of the body's use of carbohydrates and sugar. Supplementation has been reported to improve muscle strength and alleviate sensory impairment (Nagaishi et al 2003). B-12 helps reduce stress, prevent anemia, and is necessary for all bodily functions. It is necessary for proper digestion and absorption of nutrients. It helps prevent nervousness, irritability, depression, headaches, memory loss, nerve and spinal cord degeneration. Vitamin B-12 is needed for healthy digestion, absorption of nutrients, and synthesis of protein. It helps prevent anemia and works with folic acid to form red blood cells.

**Beta Sitosterol** boosts the effects of isoflavones (*J of Urology* 1995; (154): 391; *Cancer Res* 1991; (51): 3445). Isoflavones are special bioflavonoids that block the sorbitol pathway that is linked with free-radical damage in diabetes. They are also known as natural blood thinners that protect blood vessels and reduce blood stickiness. Bioflavonoids protect cholesterol from free-radical damage. (Kostner et al, "The interaction of human plasma low density lipoproteins with glucosaminoglycans: influence of the chemical composition," *Lipids Jan. 1985; 20 (1): 24-28; Lininger et al, 1998:140-1; Potter, SM, "Overview of the proposed mechanisms for the hypo-cholesterolemic effect of soy," J Nutri 1995; 606S-611S). Sterols and sterolins, also known as phytosterols, have been shown to exert significant unique biochemical effects. Beta-sitosterol is the major phytosterol in higher plants along with its glycoside, beta-sitosterolin. Studies have reported that beta sitosterol and its glycoside, beta-sitosterolin possess anti-inflammatory, antipyretic, antineoplastic, and immune-modulating properties, showing promise in normalizing T-cell function, dampening overactive antibody responses, and normalizing DHEA:cortisol ratios (Bouic PJ et al. *Monograph. Plant sterols and sterolins. Altern Med Rev. 2001 Apr;6(2):203-6*). Additionally, researchers believe that restoring balance (with these phytosterols) to the immune system may be of therapeutic benefit in disease processes such as chronic viral infections, stress-induced immune suppression, tuberculosis, allergies, cancer, and rheumatoid arthritis and other autoimmune conditions" (Bouic, *ibid*)*

Runners participating in an ultra-marathon who were supplemented with beta sitosterol showed significant increases in their total white blood cell numbers as well as in their neutrophils and significantly decreased the cortisol:DHEA ratio, suggesting that these volunteers had less of an inflammatory response and were less immune suppressed during the post-marathon recovery period. It is believed that the findings of this study

demonstrate that phytosterols may prevent the subtle immunosuppression associated with excessive physical stress (*Bouic PJ et al. The effects of B-sitosterol (BSS) and B-sitosterol glucoside (BSSG) mixture on selected immune parameters of marathon runners: inhibition of post marathon immune suppression and inflammation Int J Sports Med. 1999 May;20(4):258-62.*)

**L-Theanine** has been shown to work antagonistically against the effects of caffeine, helping to lower stress, promote relaxation, reduce anxiety, lower blood pressure, and increase mental alertness (Lekh R J et al, "L-theanine--a unique amino acid of green tea and its relaxation effect in humans," *Trends in Food Sci & Tech* June 1999, Vol 10 (6-7): 199-204).

**Banaba Leaf Extract** has been reported to significantly reduce weight and reduce body fat in animal studies (Suzuki et al 1999). Banaba has been traditionally used as a folk medicine for diabetes in the Philippines. Banaba contains a potent alpha-amylase inhibitor (Hosoyama et al 2003). Banaba extract has demonstrated blood sugar lowering and total-cholesterol lowering capabilities (Kakuda et al 1996).

**Suggested Dosage:** As directed, or one tablet in the evening and one at bedtime, whenever cortisol is high according to lab results.

**Size:** 90

**Vegetarian:** Yes

**Contraindications:** Probably should be avoided during pregnancy or lactation.