

TOTAL MANGANESE

Ingredients: Each tablet supplies: Manganese (as chelate) 10 mg, Vitamin B-6 25 mg, Pyridoxal-5-Phosphate 5 mg,

Supportive Function: Manganese is essential for healthy skin, bone, cartilage formation, lubricating synovial fluid in joints, glucose tolerance, activating superoxide dismutase (SOD), protein and fat metabolism, healthy nerves, healthy brain function, muscular strength, a healthy immune system, and normal reproduction (Balch & Balch, 1998:26; Lininger, et al, 1997:183; Pfeiffer, 1978:67; 71-72). Supplementation has been reported to help activate enzymes for the body's use of biotin, B1, and vitamin C, and to be necessary for proper digestion and utilization of food, and the thyroid's production of thyroxin

When is manganese support helpful? Maintaining chiropractic adjustments, osteoarthritis and improving digestion. Also fatigue, muscle reflexes, osteoporosis, memory, recurrent dizziness, and nervous irritability (Mindell, E, *Earl Mindell's Vitamin Bible*, New York: Warner Books, 1991: 83).

Clinical Applications/Research: Manganese (as chelate) is necessary for bone mineralization and formation of chondroitin sulfates and other glycosaminoglycans (GAGs). Signs of deficiency include abnormal formation of bone and cartilage (Mertz, W. ed. *Trace Elements in Human and Animal Nutrition, Vol 1*. Orlando, FL: Academic Press, 1987: 185-223). Studies have shown women with osteoporosis have lower manganese levels than control groups. Deficiency is also associated with glucose intolerance, diabetes, atherosclerosis, drug induced Parkinson's like symptoms, and schizophrenia. Manganese exerts protective effects against aluminum and cadmium toxicity, helps displace excess copper from the liver, and is antagonistic to iron (Eck & Wilson, 1989:xiv,12; 22; 28). *Caution:* May be counterindicated in cirrhosis (Lininger, 1998:184).

Vitamin B6 is the major vitamin needed in the formation and breakdown of many amino acids, proteins, and some hormones. B6 helps in the building of several neurotransmitters, serotonin, melatonin, and dopamine. Because of this, it is an essential nutrient in the regulation of mental processes. It has been reported to be supportive in asthma, atherosclerosis, athletic performance, autism, carpal tunnel syndrome, depression, diabetes, osteoporosis, and chemotherapy (Balch & Balch, 1997: 214-5). B6 is essential in the breakdown of the toxic chemical homocysteine, which has been associated with heart disease. McCulley found that heart patients had 80% less of vitamin B6 than healthy people (*Atherosclerosis Reviews* 1983; (11): 157-246). Supplementation with vitamin B6, by itself, can inhibit the platelet aggregation that characterizes atherosclerosis (*Lancet* June 1981; (1) 8233:12-99-1300). B6 is essential to break down potentially toxic homocysteine into harmless and beneficial forms that do not cause oxidation, clotting, or injury to blood vessel walls. It aids digestion by helping form hydrochloric acid and in the absorption of fats and protein. B6 acts as a mild diuretic and is helpful in alleviating premenstrual symptoms (Lininger, 1998: 16). B6 is essential for the production of antibodies and red blood cells, can help prevent nerve and skin disorders, alleviate nausea, and promote the formation of antiaging nucleic acids (Mindell, 1991: 33). B6 has been reported to help alleviate the pain associated with the cancer-chemotherapy-agent

Fluoracil's effects on palms and soles (Vukelja, SJ, et al, "Pyroxidine [sic] for the palmar-plantar crythrodysesthesia syndrome," *Ann Intern Med* 1989; 111:688-89). B6 has been reported to help remove lead from the brain (Balch & Balch, 1997:364). The B vitamins, especially B6, has been reported to be important in helping rid the intestinal tract of excess metals, removing them from the body, and protecting the cells and the brain: identified heavy metals include aluminum, copper, and mercury (Balch & Balch, 1997: 123, 386, The Burton Goldberg Group, 1995:928).

Pyridoxal-5-phosphate, the Co-enzyme form of vitamin B-6, is included because some individuals cannot convert vitamin B-6 into its active enzymatic form. A portion of vitamin B6 is one of 3 vitamins known to trigger the nighttime release of Growth Hormone during sleep. It has been reported to help in the synthesis of anti-aging nucleic acids (Mindell, 1991:33).

Suggested Dosage: 1-2 tablets daily or as directed

Size: 90 tablets

Vegetarian: Yes

Contraindications: Amounts found in supplements have not been linked with any toxicity. Manganese may be contraindicated in cirrhosis because of an inability to excrete it (Lininger, S, Wright, J, Austin, S, Brown, D, Gaby, A, *The Natural Pharmacy*, Rocklin, CA: Prima Health, 1998:184).