



## Thyroid Support

Stock #1228-6 (60 capsules)

Thyroid hormones regulate metabolism in every cell in the body. Therefore, a deficiency of thyroid hormones can affect virtually all body functions, including body temperature, enzyme activity, growth, heart rate, oxygen consumption and respiratory rate. Production and secretion of thyroid hormones—thyroxine (T4) and triiodothyronine (T3)—from the thyroid gland are controlled by a feedback mechanism involving the pituitary gland and the hypothalamus. As many as 10-24% of cases of thyroid deficiency are missed because the most commonly used blood tests measure thyroxine levels only. Unfortunately, there are a number of people that exhibit normal thyroxine levels, but who are functionally thyroid deficient because their bodies are not adequately converting T4 to the much more active T3.<sup>1-4</sup>

**Thyroid Support** is formulated to nourish the thyroid gland and bolster healthy thyroid function. Thyroid Support contains essential nutrients required for the manufacturing of thyroid hormones, including vitamins, minerals and amino acids. Thyroid Support also provides herbs, enzymes and bovine glandular extracts to ensure optimal intake, absorption and utilization of key nutrients that restore healthy thyroid hormone regulation and function. Thyroid Support contains:

**Vitamin B<sub>6</sub>** (pyridoxal-5-phosphate) is essential for growth and maintenance of almost every body function, and it also plays a role in amino acid and hormone metabolism. In addition, vitamin B<sub>6</sub> is important for normal production of thyroid hormones. A study of young rats showed that those with a vitamin B<sub>6</sub> deficiency had significantly reduced levels of pituitary TSH (thyroid stimulating hormone), serum T4 and T3 compared to vitamin B<sub>6</sub>-supplemented rats. Furthermore, adequate absorption of zinc (which is required for normal thyroid function) is indirectly dependent on a sufficient supply of vitamin B<sub>6</sub>. Unfortunately, human studies indicate that the bioavailability of vitamin B<sub>6</sub> from natural food sources is limited. Vitamin B<sub>6</sub> is converted in the liver into pyridoxal-5-phosphate (PLP), the metabolically active form of vitamin B<sub>6</sub>. Individuals with poor liver function may not be able to adequately convert "inactive" forms of vitamin B<sub>6</sub> (such as pyridoxine hydrochloride) into PLP.<sup>1,4-8</sup>

**Zinc** plays an important role in thyroid hormone metabolism. Zinc is a required cofactor for iodothyronine iodinase, the enzyme that converts T4 to T3. Thus, zinc deficiency (the 2nd most common mineral deficiency in humans) can prevent the thyroid from functioning properly. Animal studies have shown that zinc deficiency decreases serum concentrations of T3 and free T4 by approximately 30% compared to healthy controls, while serum T4 levels remain unaffected. In human studies, zinc supplementation was shown to re-establish normal thyroid function in zinc-deficient hypothyroid patients, even though they exhibited normal serum T4 levels.<sup>1,2,4,9-11</sup>

**Copper** is a trace mineral that is a required cofactor for iodothyronine iodinase, the enzyme that converts T4 to T3. Animal studies suggest that a copper deficiency may cause problems with the conversion of T4 to T3, and thus, adversely affect thyroid hormone metabolism. In addition, copper deficiency may also impair T4 production or release. It is important to note that excess zinc may interfere with copper absorption, thereby increasing copper requirements.<sup>2,4,7,12-15</sup>

**Manganese** is a trace mineral that is essential for the formation of T4. Animal research has shown that a diet low in manganese affects growth and thyroid hormone metabolism. High intake of refined carbohydrates can lead to decreased manganese levels. In addition, high doses of iron, copper and zinc may inhibit manganese absorption.<sup>4,14-16</sup>

**Tyrosine** is a non-essential amino acid that is a precursor to thyroid hormones—the synthesis and secretion of thyroid hormones depend on the presence of tyrosine, along with the mineral iodine. More specifically, in a healthy functioning thyroid, 2 tyrosine molecules (each containing 2 atoms of iodine) combine to create T4. Deficiencies of tyrosine can prevent the thyroid from functioning properly and can also hamper the conversion of T4 to T3. Tyrosine deficiency may also contribute to impaired T4 production, as suggested by early human studies.<sup>1-3,17-21</sup>

**Kelp** has been shown to promote thyroid function and improve a sluggish metabolism, particularly because kelp is rich in iodine. In fact, seaweeds like kelp are among nature's richest sources of iodine. The synthesis and secretion of thyroid hormones depend on sufficient levels of iodine, along with the amino acid tyrosine. The thyroid hormone thyroxine (T4) consists of approximately 65% iodine, while triiodothyronine (T3) contains up to 59% iodine. Since iodine is not stored in the body, it must be obtained daily from the diet in order to maintain healthy thyroid function. An iodine deficiency is associated with hypothyroidism (low thyroid function), as well as mental retardation and cretinism (stunted physical and mental development in children). Kelp is also a plentiful source of calcium, potassium and some B-vitamins.<sup>1-3,19,22-24</sup>

**Stinging nettle** is a popular kidney tonic, but is less well-known as a thyroid tonic. Nettle is one of nature's most nutritious herbs. Research has shown that nettle leaves contain numerous macro- and microelements (trace minerals), including copper, iodine, iron, manganese, selenium and zinc—selenium and iodine were found to be among the most easily water-extracted of all the elements present. Selenium is required for normal thyroid hormone synthesis, activation and metabolism. In fact, the thyroid gland has the highest selenium content per gram of tissue among all human organs. Selenium operates as a cofactor of the thyroid hormone converting enzyme thyroxine deiodinase; because selenium is involved in the conversion of T4 to T3, low selenium levels may result in low T3 levels and thus, impaired thyroid function.<sup>3,22,25-29</sup>

**Protease blend** - Proteases are enzymes that break down proteins into single amino acids. As with other proteins, raw animal glandular tissues must be digested or broken down in order to extract their nutrients. Incomplete digestion of proteins can result in a number of health problems, including the development of allergies, loss of nutrition, and the build-up of toxins in the bowel. Thus, protease enzymes facilitate the digestion of glandular extracts in order to ensure optimal assimilation of their nutritional factors.<sup>1,30</sup>

**Glandular substances** (thyroid, anterior pituitary and hypothalamus) - Glandular extracts are raw animal glandular tissues that are used to nourish the corresponding human gland and support its function. Although modern medicine prescribes the use of concentrated hormones extracted from animal glandular tissues, both studies and clinical results contradict the theory that the only value in a glandular substance is the isolated hormone. Oral glandulars provide the body with nutritional factors for the targeted glands, including peptide hormone precursors, enzymes, lipids (fats), vitamins and minerals.<sup>1,4,31,32</sup>

Thyroid Support contains glandular substances that have been derived from cows from New Zealand that are certified BSE-free (free of Bovine Spongiform Encephalopathy).

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