Weekly Product Feature
Thyrostim™

BIOTICS RESEARCH CORPORATION
"The Best of Science and Nature"
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The thyroid gland is actually a collection of individual glands (follicles). Here, newly synthesized hormone is secreted into a central lumen prior to release into the bloodstream. In general, thyroid hormones refer to T3 (triiodothyronine) and T4 (thyroxine). Though T4 is the main product, T3 is 3 to 4 times more active. T4 (with 4 atoms of iodine) is converted to T3 (with 3 atoms of iodine) via peripheral tissues, especially the liver and lung. Several factors, including low metabolic rate, falling blood pressure, and conditions that increase the need for energy such as a cold environment, hypoglycemia, pregnancy, or high altitude, stimulate the secretion of thyroid hormones. Varying degrees of hypothyroid function are routinely detected by laboratory tests and other measures. The manufacture of thyroid hormones requires specific nutritional support, and **Thyrostim™**'s broad spectrum formula was designed to provide these key nutrients. For example, iodine is commonly found in foods in the form of iodide. At maximal activity, the thyroid can contain up to 300 fold greater concentration of iodide than blood levels. Cells oxidize iodide to organically bound iodine, which is then chemically combined with tyrosine. Tyrosine - this amino acid is a protein building block. In particular, any of the tyrosine residues of thyroglobulin are iodinated. Each molecule of thyroid hormone contains the equivalent of two tyrosine molecules. The uptake of tyrosine decreases with age. Neonatal pituitary/hypothalamus complex, a bioactive and complete tissue concentrate containing all peptides, proteins, nucleic acids and other nutrient factors. Selenium – is included as it is required for iodothyronine de-iodinase, the enzyme located in peripheral tissues that is required to convert T4 to T3. Selenium deficiency decreases iodothyronine deiodinase activity. High iodine intake, when selenium intake is low, can lead to reduced glutathione peroxidase activity. Magnesium - thyroid hormone is intimately associated with regulation of energy production and mitochondrial function, therefore magnesium is essential for protein synthesis, cell replication, and activation of the sodium-potassium pump, as well as for the regulation of calcitonin and parathyroid hormone. Copper is involved in the production of thyrotrophin. Manganese - very low manganese intake in laboratory studies retarded growth and thyroid hormone metabolism. Additionally, Rubidium, Tyrosinase, vitamin A, Lactobacillus acidophilus (DDS 1), as well as SOD and Catalase from our patented biologically active vegetable culture are included to round off this formula. While **Thyrostim™** is an excellent stand-alone product, it is also frequently used in conjunction with other thyroid supportives such as **Iodizyme-HP™**, **Liquid Iodine Forte®**, **Meda-Stim™**, or **Optimal EFAs®**.

Research Pertaining to Other Topics of Interest

Turning White Fat Cells Brown – New Hope for Obesity and Diabetes: Humans have 2 types of fat tissue: white fat which stores excess energy in the form of triglycerides, and brown fat, which efficiently dissipates stored energy as heat. While white fat can be "browned" by the use of thiazolidazine drugs (TZD's), their use results in many adverse side effects including liver toxicity, bone loss, and ironically weight gain. Researchers at Columbia University Medical Center studied sirtuin enzymes, which among other things are believed to affect metabolism. They found that when sirtuin activity increases in mice, so does metabolic activity. The researchers found that sirtuins boost metabolism by promoting the browning of white fat. Sirtiuns work by deacetylation, the severing of chemical bonds between acetyl groups and proteins. They proved that sirtuins remove acetyl groups from ppar-gamma, which is crucial to the browning of fat. *Accili D et al. ScienceDaily. 2012 Aug. 2.*

Polyphenols such as resveratrol, are thought to act through sirtuins, and SirT1 promotes a state of increased energy efficiency that protects against insulin resistance and hyperglycemia. *Banks A et al. SirT1 gain-of–function increases energy efficiency and prevents diabetes in mice. Cell Metabolism. 2008 Oct; 8(4):333-341.*