

Thyro-Mend™

Healthy Thyroid Function

DESCRIPTION

Thyro-Mend™, provided by Douglas Laboratories®, is a synergistic combination of iodine containing seaweeds, as well as herbs which contain phytothyroidogenic properties, as well as phyto-thyroid-receptor agonists. This formulation is designed to promote optimal function of thyroid hormones by maintaining the health of thyroid hormone producing tissues and by supporting the healthy function of tissues that respond to thyroid hormones.*

The synergistic combination of seaweeds and herbs support many important functions associated with optimal thyroid health including; provides bio-available iodine for thyrocytes; iodine uptake by thyrocytes through interactions with sodium-iodide-symporter (NIS) proteins; T3 & T4 production and secretion from thyrocytes; conversion of thyroxine (T4) to the more bioactive triiodothyronine (T3) by liver cells; RXR/TR heterodimerization of thyroid receptors on target cells; binding of thyroid hormone receptors to DNA by RXR/TR heterodimers; and the affect of T3 on target gene expression.*

By supporting thyroid functions, this synergistic formulation also supports the health of tissues which respond to optimal thyroid health. This support can help maintain healthy blood lipids and sugar levels and support memory and mood.*

FUNCTIONS

Iodine average intake has increased by only 15% in the United States as indicated during the most recent National Health and Nutrition Examination Survey of 2001-2002. Though better than the 1988-1994 survey, which was described as disturbing data, the 2001- 2002 levels are still barely 50% of the iodine intake studied in the 1971-1974 survey. Since patients who adhere to restricted diets may have reduced intake of iodine, evaluation of patients' diets and supplements for adequacy of iodine intake should now be considered a part of routine healthcare.

Sea Kelp (*Ascophyllum nodosum*) is a dietary source of iodine. An additional benefit of *Ascophyllum nodosum* is its ability to increase glutathione peroxidase activity, an important antioxidant. Human thyrocytes synthesize and secrete extracellular glutathione peroxidase, which translocates into the intracellular space and helps to maintain normal redox status within thyrocytes.

Bladderwrack (*Fucus vesiculosus*) is another dietary source of natural iodine that has been used by many societies throughout history. Bladderwrack has also demonstrated anti-estrogen properties in both human and animal studies,

suggesting that it may contribute protective health to estrogen sensitive tissues.

Guggulsterone (*Commiphora mukul*) has shown an ability to

support thyroid function, especially through increased conversion of T4 to T3 in the liver, the principle site of T3 generation.* The effects of guggulsterone may be due to its ability to activate multiple receptors on the nuclear membrane, including thyroid receptors (alpha & beta), retinoic acid receptors, (which pairs with thyroid receptors), and the vitamin D receptor, which also plays a role in thyroid function. *Commiphora mukul* and its cholesterol-supportive component, guggulsterone, affect LDL oxidation, an important feature since the oxidation of LDL may have an effect on cardiovascular health, a critical concern for those with sub-optimal thyroid function.*

Rosemary (*Rosmarinus officinalis*) provides carnosic acid, a polyphenolic diterpene that at low concentrations increases the expression of vitamin D and retinoid receptors. Retinoid-X-receptors (RXR) undergo heterodimerization with thyroid hormone receptors (TR). The RXR/TR heterodimers have been proposed to be the principle mediators of target gene regulation by T3 hormone. The ability of carnosic acid to also affect retinoic acid receptors may increase its importance as a TR agonist. Rosemary also contributes rosmarinic acid, which has significant antioxidant and anxiolytic properties. An additional constituent, carnosol, may support healthy metalloproteinase-9 activity and healthy NF-kappaB activity, which may be responsible for its support of normal immune system function.*

Sage (*Salvia officinalis*) has long been recognized as a very rich source of the antioxidant carnosic acid which, as noted above, can increase T3 activity through improved RXR/TR heterodimerization. Important features of *Salvia officinalis* are also its memory supportive properties, including memory retention, more efficient memory retrieval and improved mood and cognitive task performance.*

Ashwagandha (*Withania somnifera*) demonstrated an ability to directly act on the thyroid to raise serum levels of thyroid hormones in animal studies during the late 1990s. Though inconclusive, a case review in late 2005 indicated that Ashwagandha may have the ability to raise serum levels of thyroid hormones in humans. Ashwagandha has also been attributed as having a number of adaptogenic properties including neuroprotective properties.*

Coleus (*Coleus forskohlii*) contains forskolin, a potent activator of the cyclic AMP-generating system in many tissues including the thyroid, and increases T3 & T4 secretion from thyrocytes in a fashion similar to TSH, though independent from TSH. Forskolin is specifically able to mimic the effect of TSH in regard to iodide uptake, organification of iodine, thyroglobulin (TG) production, and promote secretion of T3 & T4, through an increase in the expression of sodium/iodide symporter (NIS) proteins.

(continued on reverse)

Brahmi (*Bacopa monniera*) exhibited thyroid supportive properties through an increase of T4 serum concentrations in animal studies. Brahmi may have more direct thyroid supportive properties versus an effect on hepatic conversion to T3. Brahmi may also address concerns about neurocognitive function associated with sub-optimal thyroid function. In human studies, Brahmi has been shown to improve many of the higher order cognitive processes, including the ability to significantly improve speed of visual information processing, learning rate, memory consolidation, improve memory retention, enhance retention of new information, and decrease the rate of forgetting of newly acquired information.

Hops (*Humulus lupulus*) can increase the uptake of iodide into the thyroid gland, a fundamental step in thyroid hormone synthesis, through interactions with sodium-iodide-symporter (NIS) proteins. This observation is quite the opposite of many other plant-derived phenolic secondary metabolites such as isoflavonoids, which can potentially inhibit iodide uptake. Xanthohumol, a chalcone found in *Humulus lupulus*, plays a critical role in supporting normal blood lipid and glucose metabolism.*

INDICATIONS

Thyro-Mend™ may be a useful dietary supplement for individuals wishing to support healthy thyroid function.

FORMULA (#99447)

Three Capsules Contain:

Iodine (from seaweed blend) 200 mcg
ThyroMend Proprietary Blend 1,700 mg
Standardized Guggulipid (gum resin, 2.5% guggul sterones), Standardized Bacopa (aerial parts, 20% bacosides), Standardized Hops (aerial parts, 5% alpha bitter acid), Sage (leaf), Standardized Ashwagandha (root, 1.5% withanolides & 1% alkaloids), Standardized Coleus (root, 10% forskolin), Standardized Rosemary extract (aerial parts, 6% carnosic acid) & seaweed blend (*Fucus vesiculosus* & *Ascophyllum nodosum*)

SUGGESTED USE

As a dietary supplement, adults take 3 capsules daily at mealtime or as directed by healthcare professional.

SIDE EFFECTS

WARNING: Keep out of reach of children. Not to be used by pregnant or nursing women without consent of their healthcare professional.

HOW SUPPLIED

Supplied in bottles of 90 vegetarian capsules.

STORAGE

For optimal storage conditions, store in a cool, dry place.
(59° – 77 F / 15 – 25 C)

REFERENCES

- Caldwell KL, Jones R, Hollowell JG. Urinary iodine concentration: United States National Health And Nutrition Examination Survey 2001-2002. *Thyroid*. 2005 Jul;15(7):692-9.
- Borak J. Adequacy of iodine nutrition in the United States. *Conn Med*. 2005 Feb;69(2):73-7.
- Gaitan JE, Mayoral LG, Gaitan E. Defective thyroidal iodine concentration in protein-calorie malnutrition. *J Clin Endocrinol Metab*. 1983 Aug;57(2):327-33.
- Campbell WR. Diet and nutrition: iodine in normal nutrition. *Can Med Assoc J*. 1939 Jan; 40(1): 77-79.
- Butler MR. Comparison of the chemical composition of some marine algae. *Plant Physiol*. 1931 Apr; 6(2): 295-305.
- Panda S, Kar A. Guggulu (Commiphora mukul) induces triiodothyronine production: possible involvement of lipid peroxidation. *Life Sci*. 1999;65(12):PL137-41.
- Panda S, Kar A. Guggulu (Commiphora mukul) potentially ameliorates hypothyroidism in female mice. *Phytother Res*. 2005 Jan;19(1):78-80.
- Brobst DE, Ding X, Creech KL, Goodwin B, Kelley B, Staudinger JL. Guggulsterone activates multiple nuclear receptors and induces CYP3A gene expression through the pregnane X receptor. *J Pharmacol Exp Ther*. 2004 Aug;310(2):528-35. Epub 2004 Apr 1.
- Lee S, Privalsky ML. Heterodimers of retinoic acid receptors and thyroid hormone receptors display unique combinatorial regulatory properties. *Mol Endocrinol*. 2005
- Steiner M, Priel I, Giat J, Levy J, Sharoni Y, Danilenko M. Carnosic acid inhibits proliferation and augments differentiation of human leukemic cells induced by 1,25-dihydroxyvitamin D3 and retinoic acid. *Nutr Cancer*. 2001;41(1-2):135-44.
- Danilenko M, Wang X, Studzinski GP. Carnosic acid and promotion of monocytic differentiation of HL60-G cells initiated by other agents. *J Natl Cancer Inst*. 2001 Aug 15;93(16):1224-33.
- Rutherford DM, Nielsen MP, Hansen SK, Witt MR, Bergendorff O, Sterner O. Isolation and identification from *Salvia officinalis* of two diterpenes which inhibit t-butylbicyclophosphoro[35S]thionate binding to chloride channel of rat cerebrocortical membranes in vitro. *Neurosci Lett*. 1992 Feb 3;135(2):224-6.
- Panda S, Kar A. Changes in thyroid hormone concentrations after administration of ashwagandha root extract to adult male mice. *J Pharm Pharmacol*. 1998 Sep;50(9):1065-8.
- Laurberg P. Forskolin stimulation of thyroid secretion of T4 and T3. *FEBS Lett*. 1984 May 21;170(2):273-6.
- Kar A, Panda S, Bharti S. Relative efficacy of three medicinal plant extracts in the alteration of thyroid hormone concentrations in male mice. *J Ethnopharmacol*. 2002 Jul;81(2):281-5.
- Radovic B, Schmutzler C, Kohrle J. Xanthohumol stimulates iodide uptake in rat thyroid-derived FRTL-5 cells. *Mol Nutr Food Res*. 2005 Sep;49(9):832-6.

**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.**

**Manufactured by
Douglas Laboratories
600 Boyce Road
Pittsburgh, PA 15205
800-245-4440**