

I N N A T E

RESPONSE FORMULAS®

V i s m e d i c a t r i x n a t u r a e

Thyroid Response™ Complete Care

100% Whole Food Targeted Response Dietary Supplement

Formula Rationale

Formulated by Cynthia Pileggi, Herbalist, Nutritional Consultant

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Formula Rationale of Thyroid Response™ Complete Care

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It is our mission to craft efficacious formulations to help harness the innate healing response that is within every patient. In the time-honored traditions of *vis medicatrix naturae* (the healing power of nature), we select only the most nourishing whole foods and botanicals.

Purpose

Quality of life concerns everyone. Without proper cellular function there is no quality of life. Cells must function at the highest level for the physiology to function at the highest level. Cellular malfunction leads to fatigue, obesity, cardiovascular challenges and disease. To insure proper cellular function we must maximize metabolism at the cellular level.

Thyroid Function and Metabolism

The thyroid gland is the body's metabolic regulator. This hard working gland is located in the neck below the larynx. The thyroid gland is the body's metabolic thermostat and is responsible for the metabolism of the 100 billion cells that make up the human body. The thyroid gland manufactures, stores and releases thyroid hormones. Thyroid hormones stimulate and modulate every cellular metabolic function including cellular growth and repair. The thyroid glands control of cellular growth and repair are essential to slowing the aging process and preventing disease.

A healthy thyroid gland supports energy levels, fat metabolism, adaptation to temperature changes, positive mental functions, healthy muscles and bones and management of healthy cholesterol.

The thyroid gland affects digestion, PMS, and the health of the skin, hair and nails. The thyroid, liver, kidneys, pituitary and adrenal glands have interconnected functions that affect each other.

Thyroid hormones stimulate and modulate every cellular metabolic function

Thyroid hormones enable our body to produce energy

Stress, dietary and environmental factors can challenge thyroid gland well being.

Thyroid health challenges become more common as we age.

Thyroid Hormones

Key thyroid hormones are T4 (thyroxin) and T3 (triiodothyronine). Both hormones are manufactured from the amino acid Tyrosine and the trace mineral Iodine. T3 has three iodine atoms and T4 has four. The formation and release of thyroid hormones is stimulated by Thyroid Stimulating Hormone (TSH), released by the pituitary gland.

The conversion and balance of T4 to T3 is a continual process intended to maintain homeostasis. Proper metabolic function can not take place unless T4 and T3 are functioning properly.

The proper balance and conversation of thyroid hormones is affected by several factors. Stress will cause the adrenals to secrete increased levels of cortisol. Prolonged, increased secretion of cortisol alters thyroid hormone metabolism.

T4 is created in the thyroid gland. T4 converts to T3 in the liver and to a lesser extent within the kidneys, pituitary and nervous system. Selenium is required by the liver and kidneys to convert T4 to T3. T3 is the most active form of thyroid hormone. Thyroid hormones need to be manufactured, converted, delivered, and then eliminated by conjugation, sulfation and other reactions. For this balancing cycle to function Iodine, Selenium, and Tyrosine are essential.

Thyroid Challenges

Lifestyle, dietary and environmental factors all affect the thyroid glands. Challenged thyroid function diminishes the quality of life.

Low thyroid function is often a contributing factor in several health challenges including hypercholesteremia, some birth defects, breast, ovarian and prostate cancer, atherosclerosis and some infertility. It can be a contributing factor in menopausal symptoms, weight gain, dry skin and lack of vitality.

Stress in all it's forms, dietary factors such as protein deficiency, fasting, iodine or selenium deficiency, and diets high in goiterens such as raw cabbage, raw broccoli, etc., environmental factors, estrogen dominance and menopause can challenge thyroid well-being. Thyroid function can be affected by lack of sleep and lack of darkness during sleep. Many people sleep in rooms that are not dark, with lights from phones, clocks, TV, street lights, etc. interfering with total darkness.

Hypothyroidism is the condition of deficient thyroid hormone secretion, or hormone conversion, or with lower basal metabolism. Symptoms of low thyroid function include fatigue, depression, hormonal imbalances/irregular menses, dry skin, hair loss, weight gain, recurring cold/flu type infections and cold hands and feet.

Thyroid Response™ Complete Care-The Formula

Our formulator examined every available resource for proven Herbs, Fungi, Foods and Whole Food FoodState® Nutrients that provide thyroid nourishment and optimal thyroid response. The raw materials chosen for this formula have extensive recorded traditional and clinical use. Thyroid Response™ Complete Care is a meticulously researched thyroid tonic that uses clinically proven nutrients, herbs, fungi and whole foods to assist the body's natural metabolic function response.

Backed by Science and Tradition

Our formulator looks at every aspect of the desired specific response. Research is extensive as demonstrated by the quantity and quality of the references listed in this Rationale. We have the greatest respect for the latest science. Many times that scientific body of work has a short time frame when compared to traditional use. The tradition of thousands of years of recorded and effective specific response carries immense weight in our formulas.

SUPPLEMENT FACTS

Serving Size 2 Tablets

Servings per Container 15 or 45

Calories <1

Total Fat	37	mg
Total Carbohydrate	91	mg
Dietary Fiber	0	mg
Sugars	81	mg
Protein	24	mg

SOURCE; FOODSTATE® AMOUNT

Iodine	(<i>S. cerevisiae</i> *; 11 mg)	150	mcg
Selenium	(<i>S. cerevisiae</i> *; 50 mg)	50	mcg

Guggul ¹ (<i>Commiphora mukul</i>) Gum Resin 5:1, 2.5% total Guggulsterones	300	mg
Holy Basil Leaf (<i>Ocimum sanctum</i>) 10:1	250	mg
Sensoril™ Ashwagandha Root & Leaf Extract 8% withanolides (<i>Withania somnifera</i>)	200	mg
<i>Coleus forskohlii</i> root 8% Forskolin	150	mg

IODINE-RICH SEA PLANTS

Bladderwrack (<i>Fucus vesiculosus</i>)	75	mg
Laminaria digitata	75	mg
Irish Moss (<i>Chondrus crispus</i>)	75	mg

AMINO ACID

L-Tyrosine	500	mg
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ADDITIONAL FOODS & EXTRACTS

Carob Pod	50	mg
Carrot 4:1	50	mg

OTHER INGREDIENTS

Rice Bran, Guar Gum, Vegetable Lubricant, Silica, Food Glaze.

Sensoril® is a patented stress management extract that helps to revitalize metabolic processes associated with stress, restlessness and fatigue.*

Iodine is provided in its FoodState® and supported with sea plants rich in essential trace elements. Iodine and the Amino Acid L- Tyrosine are required in the production of thyroid hormones.

NOTE: Not recommended during pregnancy unless directed by a Health Care Provider.

* This statement has not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.

1. Gugulipid® is a registered trademark of the Sabinsa Corporation.
2. Sensoril® is protected under US Patents Nos. 6,153,198 and 6,713,092 and is a registered trademark of Natreon, Inc.

*FoodState® 100% Food Concentrates.

Formula Components

Thyroid Response™ Complete Care's synergistic combination of nutrients, herbs, and trace mineral rich foods strengthen thyroid health and function. A healthy, properly nourished thyroid gland supports sound energy levels, a more balanced weight metabolism, adaptation to temperatures, positive mental functions, healthy muscles and management of healthy cholesterol. The thyroid gland affects digestion, PMS, and the health of the skin, hair and nails. The thyroid, liver, kidneys, pituitary and adrenal glands have interconnected functions that significantly affect each other. Thyroid health challenges can become more common as we age.

Thyroid Nourishment

The thyroid gland requires specific nutrients to be able to function optimally. Iodine, Selenium and the amino acid Tyrosine are essential for the production and conversion of thyroid hormones. Iodine is also required for production of the hormone calcitonin that influences calcium balance in the body.

FoodState® Nutrients

Iodine (*S. cerevisiae*)

The primary function of Iodine is in the production of thyroid hormones. Iodine is an essential component of the thyroid hormones T4 and T3. In nature most of the iodine resides in the ocean. Mountainous areas can be deficient of iodine in the soil and water. Iodine deficiencies are common both in the mountains and valleys. The healthy human body contains about 15-20 mg of iodine, 70-80% of which is located in the thyroid gland.

Iodine also plays an important role as a radioprotectant and can be taken a preventative and used in adjuvant

therapy. Goiter is an iodine deficiency disorder (IDD). RDI for Iodine is 150 mcg. Over 600 mcg daily is too high for any length of time.

Selenium (*S. cerevisiae*)

Selenium is an indispensable mineral for normal thyroid hormone production and metabolism. Selenium deficiency diminishes conversion of T4 to T3 in the body's outlying cells, creating elevated T4 and TSH.

Selenium is an essential component of the grandmother of all enzymes, the antioxidant enzyme glutathione peroxidase, which works with Vitamin E to prevent free radical damage to cells. Selenium plays a role in the cytochrome P450 detoxification system. Selenium deficiency can cause changes in glucose metabolism, heightened sensitivity to certain stress factors and chemical toxicity. Selenium is also important to muscle function and breast health.

Therapeutic Whole Herb Extracts

Ashwagandha Root & Leaf Extract (*Withania somnifera*): Sensoril™

Sensoril™ patented Ashwagandha extract is the first stress relief nutraceutical to possess guaranteed optimized concentrations and ratios of key constituents from both Root and specially processed Leaf, providing effective results for the reduction and management of stress, tension, and irritability.

Research has found *Withania* increases T4 hormone production and increases T4 conversion into T3.

Ashwagandha is native to India. Ashwagandha is an adaptogenic herb that has been revered in the Ayurvedic healing tradition for over 2,500 years. It is used as a vitalizer, tonic, rejuvenative, aphrodisiac, nervine, sedative, astringent and antihepatotoxic. Ashwagandha is calming and nourishing to the nervous system while enhancing stamina and natural resistance.

It enhances physical performance with decreased stress response. A true support herb, Ashwagandha assists the body in rejuvenation, rebuilding and restoring the nervous system, musculature and general vitality. Included in this formula for its adaptogenic support and rejuvenative action on the muscles, bones, connective tissue and nerves. Also enhances mental clarity and calming of the mind.

Ashwagandha has been used in protocols to treat Chronic Fatigue Syndrome, and is considered by some Herbalists and naturopathic physicians as a primary herb for this condition.

Constituents include: *Withaferin A*, one of the several withannolides (steroidal lactones), amino acids, including proline, valine, alanine, glycine, cystine, cysteine, glutamic acid, aspartic acid, tannins, and flavonoids.

Gugulipid (*Commiphora mukul*) Gum Resin 5:1, 2.5% total Guggulsterones

Common Names: Guggul, Guggulu, Indian Bedellium.

Native to India, Guggul is a yellowish oleo-gum-resin from the Mukul Myrrh tree. Guggul has documented use in ancient Ayurvedic texts as far back as 600 BC where it was recommended for obesity and lipid disorders.

An important action is that it stimulates the thyroid gland. Guggul improves T4 to T3 conversion by way of the liver enzymes deiodinase.

Guggul has been used for hundreds of years as an Ayurvedic herbal medicine and is well known as an effective treatment for arthritis. Over the last two decades, Guggul has been shown to be a highly potent hypolipidemic agent by Indian scientists. Guggul stimulates the liver's metabolism of cholesterol.

Research substantiates traditional use, Guggul supports cardiovascular health.

Constituents include: The gum of guggul is a mixture of several steroid-lipids, oleo-gum-resin, volatile oil, bitter principle, Z-guggulsterone, E-guggulsterone. The gum resin of the Guggul plant is used therapeutically.

Importance of Guggul Source: It is important to separate Guggul into several components as the insoluble carbohydrate fraction can be toxic in large quantities. We use Gugulipid® by Sabinsa Corporation, a 5:1 concentrated extract with 2.5% total Guggulsterones. Gugulipid® is properly prepared for maximum efficacy and safety.

Actions: Thyroid stimulating agent, Aperient (appetite stimulant), alterative, rejuvenative, stimulant, cardiogenic, analgesic, expectorant, antispasmodic, expectorant, astringent, antiseptic, bitter, demulcent, hypolipidemic agent, antirheumatic, carminative.

***Coleus forskohlii* root 8% Forskolin**

Coleus forskohlii Root

Coleus is a perennial that grows on the dry mountain slopes of India, Nepal, Africa, Thailand, Sri Lanka and Burma. A member of the mint family of plants, Coleus root is used as a spice in condiments and for pickling foods.

The major biologically active component is forskolin. Research indicates forskolin acts as an activator of cAMP (cyclic adenosine monophosphate) a significant biochemical involved in essential metabolic processes. Coleus has a stimulating effect on the thyroid function and increases thyroid hormone production. Forskolin increases intracellular levels of cAMP in thyroid tissue, resulting in elevated thyroid hormone production and release.

cAMP has an anti-depressant effect on the brain.

Coleus has a stimulating effect on some pituitary hormones.

Coleus has cardiogenic properties.

Actions: Hypotensive, antiglaucoma, antiplatelet, bronchospasmodic, cardiogenic, thyroid stimulant

Constituents include: Diterpenoids: Forskolin, 9-deoxyforskolin, 1,9 dideoxyforskolin, desacetylforskolin, deoxyforskolin. Triterpenoids: Coleonic acid

Holy Basil Leaf (*Ocimum sanctum*) 10:1

An adaptogen that has been long used in Ayurvedic healing for enhancing metabolic functions and natural resistance. This fragrant traditional herb lends nutritional support to the mind, nervous system and innate stress response. Holy Basil, also known as Tulsi, or Sacred Basil, is used extensively in Ayurvedic healing traditions.

Research indicates that Holy Basil modulates innate stress response providing anti-stress activity and enhanced endurance, a true adaptogen. Research indicates that Tulsi has cortisol reducing compounds which support adrenal function and help return balance or homeostasis. Cortisol levels are increased during stress, especially prolonged stress, which can interfere with T4 conversion into T3.

Known as an Ayurvedic medicine for the nervous system and the mind. Holy Basil is uplifting, enhancing mental

clarity and meditation and so it is considered a sattvic herb. Tulsi means *matchless* in Hindi and is different than Sweet Basil, or culinary Basil. Research on Ursolic acid, a constituent in Holy Basil, reveals it's activity as an antiinflammatory and COX-2 inhibitor.

Holy Basil enhances the activity of glutathione S-transferase, a key enzyme in detoxification. Herbalists and naturopaths often use Holy Basil to treat mental cloudiness from use of drugs and marijuana.

Actions: Adaptogen, carminative, antiviral, galactagogue, radioprotective, hypoglycemic, anti-ulcer, antiinflammatory, Cortisol regulator

Constituents include: Triterpene-Ursolic acid, ascorbic acid, eugenol, phenols / flavonoids- orientin, vicenin, saponins

Iodine-Rich Sea Plants

These Iodine and trace mineral rich plants naturally release iodine gradually into the system due to the polysaccharides they contain. Iodine is a key component in the manufacture and conversion of thyroid hormones. Various trace minerals are pieces of enzymes that have metabolic functions throughout the body. Irish Moss is a red sea algae rich in polysaccharides, protein, and minerals. Bladderwrack is a good source of iodine, alginates, minerals and trace minerals.

For thousands of years, Sea vegetables have been consumed for their nutrition and healing properties. Sea plants contain ten to twenty times the level of minerals and trace minerals compared to land plants. The abundant levels of vitamins, minerals, micro and macro elements and phyto-nutrients enable seaweed to support our blood, lymphatic system, thyroid gland, liver, reproductive organs and lungs. Their soothing mucilaginous properties support the tissues of the lungs and GI tract.

Laminaria digitata

Laminaria, also called kelp, is a olive green-brown sea weed rich in iodine, calcium, potassium, magnesium, alginates and trace elements. In *Traditional Chinese Medicine*, Kelp is frequently used to support the thyroid that is under-active and to support breast health.

Research on Laminaria has shown benefits for the female system and breast health. Laminaria and other seaweed have detoxifying properties that help remove radiation and some heavy metals from the body. Sea vegetables have a long traditional use as food, condiment and as topical remedies. Laminaria species are also called kelp. Kelp are the largest and longest of sea plants up to 1,500 feet. Supportive to the kidneys, laminaria also has a balancing action on hormones. Can be useful in weight management programs.

Actions: Antioxidant, radioprotective, nutritive tonic, thyroid and immune stimulating, cytotoxic, anti-lipemic, adaptogenic

Constituents include: Iodine, polysaccharides, beta-glucans, minerals, beta-carotene, iron, calcium, fluorine, vitamins B6, B3, & B2, amino acids, zinc, vitamin C, vitamin E, silicon, sulfur, unsaturated fatty acids, fiber, fucans (sulfated polysaccharides), chromium, sodium alginate, lignans

Bladderwrack (*Fucus vesiculosus*)

Bladderwrack is also called Kelp or Seawrack. A sea vegetable that contains iodine and a balance of trace minerals organically bound to polysaccharides. Bladderwrack has been traditionally used for hypothyroidism, obesity and atherosclerosis. “Bladderwrack has proved most useful in the treatment of underactive thyroid glands and goitre (goiter). Through the regulation of thyroid function there is an improvement in all the associated symptoms” (ref. 42)

Actions: Nutritive, hypothyroid tonic, anti-hypothyroid, ant-rheumatic

Constituents include: Phenolic compounds, mucopolysaccharides, algin, ester diglycerides, polar lipids, trace elements, iodine

Irish Moss (*Chondrus crispus*)

A seaweed found off the coasts of Europe and North America. Irish Moss is a nourishing strengthening medicinal food. Carageenan is commonly used as a natural thickener and emulsifier. The demulcent properties are used to soothe and cool hot, inflamed mucus membranes, including those of the respiratory, urinary and digestive systems.

Actions: Nutritive tonic, demulcent, expectorant, antiinflammatory, urinary tonic

Constituents include: Polysaccharides, carageenan, vitamin A, calcium, iodine, iron, magnesium, potassium

L- Tyrosine

Tyrosine is not an essential amino acid. Tyrosine is derived from phenylalanine. Thyroid hormones T4 and T3 are made using tyrosine and iodine. Tyrosine is one of the amino acids that is used in brain functions. Tyrosine aids the production of adrenocortical hormones. Often called the stress amino acid because it is essential to both adrenal and thyroid hormone production.

Food sources include: Oatmeal, couscous, corn, potatoes, spinach, nuts, carob, seeds, poultry, meat, beans and dairy foods.

Additional Foods & Extracts

Carob Pod

A pod, legume, that is sweet and alkaline in nature, with a warming energy. It is calming to the nervous system. Carob is a rich source of Serine, so it provides important food factors enhancing nutrient delivery. Carob is a nourishing food eaten since Biblical times. Contains natural sugars, calcium, pectin, B-Complex vitamins, tannins, potassium.

Carrot 4:1

Carrot is the richest common food source of health supportive pro-vitamin-A carotenes. These carotenes are recognized for their protective antioxidant activity. Carrots were originally from Afghanistan and have been cultivated world-wide. The first carrots came in a variety of colors purple, red and yellow. The first orange carrots were cultivated in Netherlands in the 1700's.

When the world Cancer Research Fund reviewed 206 human case studies, they found that carrots, green vegetables, tomatoes, broccoli, cabbage and cauliflower consistently emerged as top-cancer protective vegetables. Carrots are a good food source of the amino acid tyrosine, supporting the delivery of the tyrosine in this formula

with supportive food factors. Carrots support health of the eyes and vision. They are strengthening to the spleen, pancreas, and support liver function. Carrots are alkaline forming and are useful foods for acidic conditions of the blood. The silicon found in carrots supports connective tissue and assists in calcium assimilation.

Actions: Diuretic, alkaline, antioxidant

Other Constituents:

Carotenes: beta cryptoxanthin, alpha carotene, beta carotene, lutein, lycopene, gamma-carotene, beta-cryptoxanthin; apigenin, d-limonene, pinene, terpinene, terpineol, myricetin, caffeic acid, p- coumaric acid, chlorogenic acid, vitamin A, tyrosine, potassium, alpha-bergamotene, amino acids, aspartic acid, capric acid, diosgenin, fiber, glutamic acid, glycine, serine, luteolin, lysine, linoleic acid, palmitic acid, pectin, stearic acid, silicon

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