

Clinical Applications



- **Poor Conversion of T4 to the More Active Hormone, T3**
- **Support Healthy Thyroid Function to Reduce Risk of** *fatigue, constipation, dry skin, poor cognition, cold hands and feet, irregular periods, depression, hair loss, edema, hives, weight gain, low energy, can't get started in the mornings, hoarseness, etc.*¹

This synergistic formula may support expression of thyroid hormone-responsive genes, supports the conversion of thyroxine (T4) to triiodothyronine (T3) and supports healthy lipid levels.

All XYMOGEN® Formulas Meet or Exceed cGMP Quality Standards.

Discussion

Vitamin A (Retinyl palmitate): Retinyl palmitate, also referred to as “pre-formed vitamin A” is the form of vitamin A that is stored in the liver. It is converted into retinol and then into retinal by enzymes that are zinc-dependent. Beta-carotene has not been used in this formula because individuals with hypothyroidism may lack the ability to effectively convert beta-carotene or other carotenoids into vitamin A.²

Retinyl palmitate may have an effect on 43 genes that in turn regulate enzymes possessing powerful antioxidant activity.³ Hypothyroid individuals tend to have elevated lipid levels and therefore need adequate antioxidants to prevent oxidation of cholesterol.⁴

Vitamin D (cholecalciferol): This bioavailable form of vitamin D facilitates intestinal absorption of calcium and maintains calcium:phosphorous balance. Hyperphosphatemia may be present in hypothyroid individuals and contribute to cardiovascular involvement.⁵ Higher dose, longer duration exogenous thyroxine, depletes skeletal sites such as the femoral neck, rich in cortical bone.⁶

Vitamin E (d-alpha tocopherol succinate): This powerful biological antioxidant makes it a useful component of the MedCaps T3™ formula. In a study of 34 patients with various thyroid disorders researchers found elevated vitamin E levels in their thyroid tissue. They concluded that vitamin E acts as a scavenger in thyroid follicular cell dysfunction.⁷ Researchers in Poland demonstrated that active oxygen radicals inhibit the activity of an enzyme responsible for the conversion of T4 to the active hormone T3.⁸

Iodine (Atlantic Kelp): Eighty percent of the body's iodine pool, (about 15 mgs in adults) is contained in the thyroid gland. Iodine is primarily used as a substrate for the manufacture of the thyroid hormones, thyroxine and triiodothyronine. To avoid the negative impact excess iodine might have, XYMOGEN® has added selenium to its Medcaps T3™. High iodine intake in the presence of insufficient selenium may permit thyroid tissue damage; whereas even a moderately low selenium intake normalized circulating T4 concentration in the presence of iodine deficiency.⁹

Zinc (as zinc citrate): Human studies have demonstrated consequent reduced concentrations of thyroid hormones when a zinc deficiency is present. The mean Zn and Se concentrations in thyroid cancer tissue were significantly lower than in the thyroid tissue of other patients suggesting that a deficiency of zinc participates in the carcinogenic process.¹⁰ Zinc deficiency has also been suggested as the possible cause for sub-clinical hypothyroidism sometimes seen in children with Down's Syndrome.¹¹

Selenium (as L- selenomethionine): Selenium is an integral component of the detoxifying enzymes glutathione peroxidase (GPx) and iodothyronine 5' deiodinase. The latter is responsible for peripheral T3 production. There is a narrow therapeutic threshold with respect to selenium. Xymogen® limits the selenium in MedCaps T3™ because high selenium plasma levels have been shown to be inversely related to serum T3 and T4.¹²



Guggulsterones: This gum resin helps to lower cholesterol and decrease lipid peroxidation; and appears to increase T3 concentrations and enhance the T3/T4 ratio.¹³

Rosemary Leaf Extract: This antioxidant is added to prevent free radical damage to thyroid tissue.

Ashwagandha Root Powder: This ayurvedic herbal tonic or adaptogen is added for adrenal/thyroid support.¹⁴

Supplement Facts		
Serving Size: 4 Capsules Servings Per Container: 30		
	Amount per serving	%Daily Value
Vitamin A (as retinyl palmitate)	3000 IU	60%
Vitamin D (as cholecalciferol)	400 IU	100%
Vitamin E (as d-alpha tocopherol succinate)	100 IU	333%
Iodine (as atlantic kelp)	150 mcg	100%
Zinc (as zinc citrate)	10 mg	67%
Selenium (as L-selenomethionine)	200 mcg	286%
Guggulsterones (from guggul extract)	100 mg	**
Rosemary Leaf Extract	100 mg	**
Ashwaganda Root Powder	100 mg	**

** Daily value not established.

Other ingredients: Cellulose, Stearic Acid & Silicon Dioxide.

References

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Additional references available upon request.

Precautions

Excess vitamin A intake may be toxic and may increase the risk of birth defects. Pregnant women and women who may become pregnant should not exceed 5,000 IU of pre-formed vitamin A (retinyl acetate or retinyl palmitate) per day. It is also recommended that children under four should not regularly consume more than 2,500 IU per day. Individuals who are pregnant, lactating or taking medication should be closely supervised.

*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.