

Magnesium



## **Benefits**

The ingredients in Calcium Magnesium have been clinically proven to:

- Improve bone health
- Maintain sufficiency of calcium and magnesium
- Stabilize parathyroid function

#### How to Use

Take 3 capsules once daily with food.

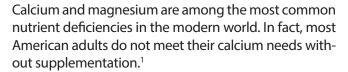
#### **Essential Macrominerals**

Calcium Magnesium is a blend of the citrate forms of both calcium and magnesium. Both are categorized as essential macrominerals. Calcium Magnesium is a therapeutic dose of these macrominerals in a 2:1 ratio of calcium to magnesium.

Both are in their citrate forms due to improved absorption and lack of lead contamination.

Calcium and magnesium citrate have been shown to help adults with thyroid disease maintain bone, heart, and overall health.





Thyroid disease creates greater demands for dietary calcium and magnesium. It can also cause them to be poorly absorbed, and can lead to a higher than normal rate of excretion.

The ingredients in Calcium Magnesium can help:

- Maintain essential levels of macrominerals
- Maintain bone health
- Reduce muscular tension
- Improve depth of sleep
- Regulate ovarian hormones

# TSF Ingredient Selection

In constructing Thyroid Specific Formulations, all ingredients considered must share the following properties.

## **Thyroid Safety**

All considered ingredients must be natural compounds that have been safely consumed by humans for centuries. They must be generally recognized as safe (GRAS) by toxicologists. Finally, they must not contain unsafe levels of iodine.

## **Evidence and Efficacy**

All considered ingredients must have high-quality evidence proving their efficacy. The best quality evidence is that which demonstrates significant positive outcomes on human subjects in multiple double-blinded controlled studies. These human subjects and the outcomes should be clinically relevant to the product's end-users.



The following is a complete discussion of the active ingredients. It includes their relevance to thyroid disease, mechanisms of action, and a review of supportive research.

#### Calcium Citrate

Thyroid disease creates an elevated risk for bone thinning and hip fracture. This risk emerges from a lack of thyroid hormones, an excess of thyroid hormones, or from the presence of elevated thyroid autoantibodies.

Thyroid disease can impact calcium requirements by causing a more rapid rate of bone turnover and a slower rate of bone repair.<sup>2</sup>

Supplemental calcium citrate has been shown to improve bone density in those with osteoporosis. Unlike other forms of calcium, calcium citrate can be helpful for those with too little stomach acid such as from thyrogastric syndrome or post bariatric surgery. It also has been shown to help chronic hypoparathyroidism and lower the risk of calcium-based kidney stones.<sup>3</sup>

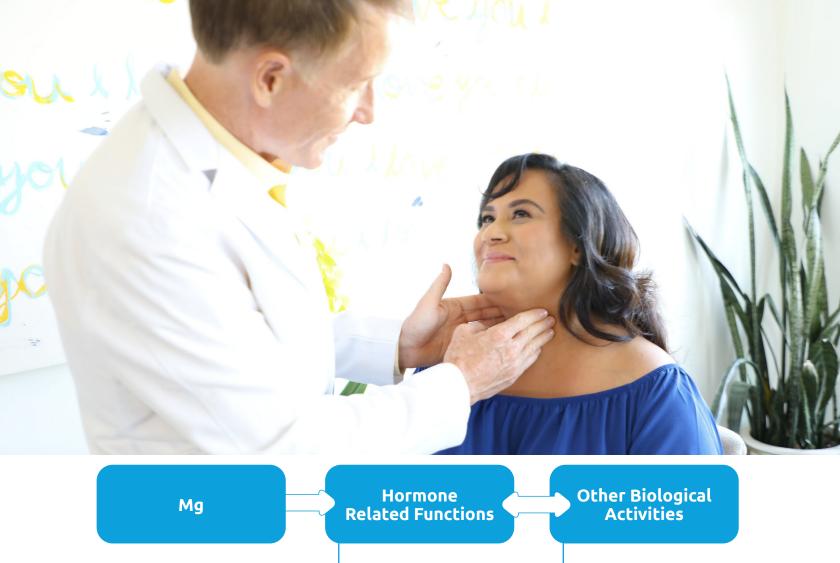
Calcium citrate is one of the two best studied forms of calcium. It is the only one of the two that has been proven to be well absorbed even with poor stomach acid production and to reverse bone thinning.<sup>4</sup>

### **Magnesium Citrate**

Magnesium citrate has been shown to be more bio available than other forms of magnesium and can even absorb well in those with too little stomach acid.<sup>5</sup>

Magnesium plays essential roles in the regulation of hormones. Studies have shown that perimenopausal and menopausal women tend to lack magnesium in proportion to the severity of their hormonal symptoms. Those with sufficient magnesium have fewer clinical complaints during times of hormonal transitions.<sup>6</sup>





**Thyroid Hormones** 

(Uptake of lodine and de-lodination)

Balanced Secretion of Estrogen and Progesterone

Balanced Secretion of Cortisol

Regulates HPA-axis Hormones Co-factor for Energy Dependant Reactions

Detoxification by Conjugation of Estrogen

Tryptophan Metabolism to Produce Serotonin and Melatonin

Synthesis of GABA



Along with selenium, low levels of magnesium may be a risk factor for thyroid cancer.<sup>7</sup>

Magnesium supplementation has been proven to reduce vascular health in adults prone to heart disease.8

In pre-clinical study, animals were fed a high-fat diet that led to diabetes and thyroid disease. A subgroup given supplemental magnesium was largely protected from thyroid disease.

Fish oil products can vary in their iodine content. Those with over 10 mcg of iodine per serving can lead to levels of iodine unsafe for those with thyroid disease.<sup>9</sup>

## Dosage

3 capsules once daily with food. Take at least one hour after thyroid medication. For those prone to unstable thyroid levels, take 4 or more hours after thyroid medication.

## **Does Not Contain**

- Caffeine
- Stimulants
- Thyroid hormones
- Iodine
- GMO
- Gluten
- Dairy

#### **Supplement Facts**

Serving Size 3 Capsules Servings Per Container 30

Amount Per Serving		%DV
Calcium (as Calcium Citrate)	300 mg	23%
Magnesium (as Magnesium Citrate)	150 mg	36%

† Daily Value not established.

†† Daily Values based on a 2,000 calorie diet.

## **Cautions**

# **Timing**

 TSF Supplements must be taken at least an hour after thyroid replacement medication.

## **Dosage Modification**

Those taking TSF supplements while on thyroid replacement medication (hypothyroidism, Hashimoto's) or thyroid suppression therapy (Graves' Disease) are advised to monitor thyroid levels closely. When thyroid antibodies reduce, some need decreases or other adjustments made to their medication.

#### **Medication Interactions**

Interactions can occur with many nutraceutical ingredients and prescription medications. If you are on prescription medication, please check with your doctor or pharmacist for specific guidance.



## **Allergy Warning**

TSF products are contraindicated in individuals with a history of hypersensitivity to any of its ingredients.

#### **Pregnancy Warning**

If pregnant, nursing, an organ transplant recipient, or have multiple sclerosis, do not use TSF Products unless on the advice of and under the direct supervision of a health professional.

#### **Side Effects**

#### Calcium Citrate

 Calcium supplements can cause constipation and nausea, especially when taken without magnesium.

## **Magnesium Citrate**

High doses of magnesium in excess of 1000 mg may cause nausea, cramps, and loose stools. Calcium Magnesium contains 150 mg of magnesium per serving.

## References

- 1. Straub DA. Calcium supplementation in clinical practice: a review of forms, doses, and indications. Nutr Clin Pract. 2007 Jun;22(3):286-96. doi: 10.1177/0115426507022003286. PMID: 17507729.
- 2. Bassett JH, Williams GR. Role of Thyroid Hormones in Skeletal Development and Bone Maintenance. Endocr Rev. 2016;37(2):135-187. doi:10.1210/er.2015-1106
- 3. Palermo A, Naciu AM, Tabacco G, Manfrini S, Trimboli P, Vescini F, Falchetti A. Calcium citrate: from biochemistry and physiology to clinical applications. Rev Endocr Metab Disord. 2019 Sep;20(3):353-364. doi: 10.1007/s11154-019-09520-0. PMID: 31643038.
- 4. Straub, D. A. (2007). Calcium Supplementation in Clinical Practice: A Review of Forms, Doses, and Indications. Nutrition in Clinical Practice, 22(3), 286–296. doi:10.1177/0115426507022003286
- 5. Lindberg JS, Zobitz MM, Poindexter JR, Pak CY. Magnesium bioavailability from magnesium citrate and magnesium oxide. J Am Coll Nutr. 1990 Feb;9(1):48-55. doi: 10.1080/07315724.1990.10720349. PMID: 2407766.

- 6. Kolanu BR, Vadakedath S, Boddula V, Kandi V. Activities of Serum Magnesium and Thyroid Hormones in Pre-, Peri-, and Post-menopausal Women. Cureus. 2020;12(1):e6554. Published 2020 Jan 3. doi:10.7759/cureus.6554
- 7. Shen F, Cai WS, Li JL, Feng Z, Cao J, Xu B. The Association Between Serum Levels of Selenium, Copper, and Magnesium with Thyroid Cancer: a Meta-analysis. Biol Trace Elem Res. 2015 Oct;167(2):225-35. doi: 10.1007/s12011-015-0304-9. Epub 2015 Mar 29. PMID: 25820485.
- 8.Joris PJ, Plat J, Bakker SJ, Mensink RP. Long-term magnesium supplementation improves arterial stiffness in overweight and obese adults: results of a randomized, double-blind, placebo-controlled intervention trial. Am J Clin Nutr. 2016 May;103(5):1260-6. doi: 10.3945/ajcn.116.131466. Epub 2016 Apr 6. PMID: 27053384.
- 9. Ige AO, Chidi RN, Egbeluya EE, Jubreel RO, Adele BO, Adewoye EO. Amelioration of thyroid dysfunction by magnesium in experimental diabetes may also prevent diabetes-induced renal impairment. Heliyon. 2019;5(5):e01660. Published 2019 May 8. doi:10.1016/j. heliyon.2019.e01660

