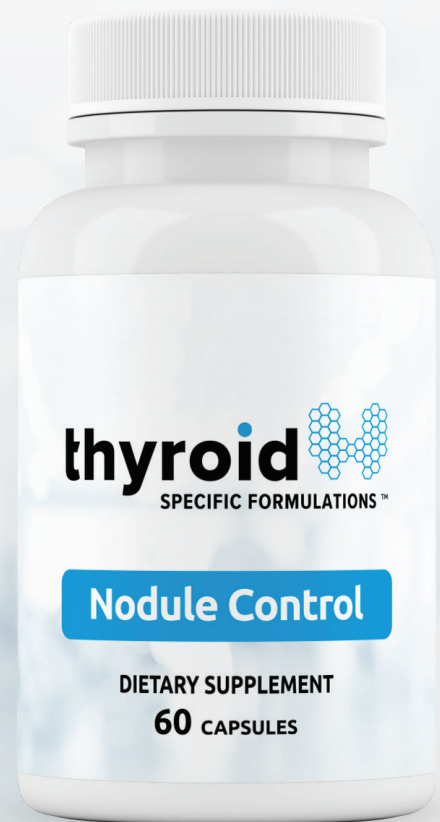


**thyroid**   
SPECIFIC FORMULATIONS

# Nodule Control



## Benefits

The ingredients in Nodule Control have been clinically proven to:

- Slow the rate of nodule growth
- Reduce the size of existing thyroid nodules
- Lower the risk of nodules progressing to thyroid cancer

## How to Use

Take 2 pills once daily in the morning with food. Use Nodule Control along with recommended monitoring and treatment of thyroid nodules.

## Formulation

- Spirulina - 400 mg
- Boswellia - 50 mg
- Turmeric - 50 mg
- Inositol - 100 mg
- Selenium 25 mcg
- Prunella - 25 mg

## Thyroid Nodules

Thyroid nodules are abnormal growths of thyroid tissue. They may be solid or fluid-filled. Nodules are common and become commoner with age. Roughly half of all people will have thyroid nodules by age 60.<sup>1</sup>



Thyroid nodules rarely cause symptoms but, if large enough, can cause discomfort or difficulty in swallowing or breathing.

Nodules present a risk for thyroid cancer. Roughly 4% of women's nodules contain thyroid cancer as in their thyroid nodules' size.<sup>2</sup>

There is no known single cause for thyroid nodules, but they are more common with age, excessive iodine intake, and higher body weight.

The mechanisms of action of supplements that may help reduce thyroid nodules include those that slow rates of cell division, those that act as anti-inflammatories, and those that regulate iodine metabolism.

## **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 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.

## **Ingredients**

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.

## **Spirulina**

Spirulina is a rich source of the antioxidant superoxide dismutase (SOD) which is one of the endogenous antioxidants that allows for normal thyroid cell replication.<sup>3</sup>

The thyroid cells are exposed to high amounts of free radical damage from the formation of iodine and its attachment to thyroglobulin. Unchecked free radical formation can lead to DNA damage that can result in the abnormal cell growth behind nodule formation and thyroid cancer.

## Boswellia

Boswellia is a tree resin with antiinflammatory effects which block NFkB pathways and normalize the activity of regulatory and effector T cells.<sup>4</sup>

## Turmeric

Turmeric has been shown to benefit oxidative pathways involved with nodule formation such as IL-6, hs-CRP, and MDA.<sup>5</sup>

In a double blinded human clinical trial, the combination of spirulina, boswellia, and turmeric was tested for its ability to reduce thyroid nodules.

In the study, adult patients with thyroid nodules were given a combination of the three nutrients or a placebo over the period of 6 weeks. Thyroid ultrasounds to evaluate nodule size were performed at the beginning of the study, after 6 weeks, and after 12 weeks.

Of those taking the nutrient combination, over 85% showed a significant decrease to the size of their thyroid nodules. The average reduction in nodule size for those on the active treatment ranged from 0.6 to 0.9 cm<sup>2</sup>.

It was noted that the results are especially significant in light of the fact that the supplements were only administered for the first half of the study.

They might have been even more pronounced had they been taken for the full 12 weeks.<sup>6</sup>

## Inositol

Inositol is a natural occurring sugar that is a conditionally essential nutrient. It has been shown to help regulate cell proliferation, morphogenesis, and glucose regulation.<sup>7</sup>

## Selenium

Selenium is essential for nearly all facets of thyroid function including iodine regulation, cell proliferation, and regulation of free radicals within thyroid follicles.

In a recent clinical trial, the combination of inositol and selenium was tested for its ability to reduce the mass of thyroid nodules. A total of 642 patients were evaluated for nodules. The average age of the patients was 41 and roughly 90% were female. Of them, 333 were randomly assigned to treatment with inositol and selenium or usual therapy.<sup>8</sup>

Of those treated, none developed thyroid cancer. The average nodule size was reduced by 26% (16.7 mm to 12.4 mm). No significant change in nodule size was seen in the control group.

Those treated with inositol plus selenium also saw their TSH scores go down from an average of 4.2 to 2.1. TSH scores in the control group went up from an average of 3.95 to 4.3.

## Summary Table

Characteristics	Control (16)		Treated (18)	
	T0	T1	T0	T1
Total number of mixed TNs, no. (%)	26 (72)	22 (61)	25 (64)	19 (49)
Mean no. of mixed TNs for patients	1.63±0.15	1.38±0.20 <sup>6</sup>	1.39±0.16	1.05±0.15**
Diameter of TNs (mm)	19.52±1.05	17.52±1.63	16.72±1.32	12.44±1.81*†
Multiple TNs, no. of patients (%)	3(11)	3 (11)	2 (9)	2 (9)
Thyroid cancer, no. (%)	0 (0)	0 (0)	0 (0)	0 (0)
Exposure to radiation, no. (%)	0 (0)	0 (0)	0 (0)	0 (0)
Presence of calcifications, no. (%)	0 (0)	0 (0)	0 (0)	0 (0)
Nodule vascularity, no. (%)				
Mixed	6 (23)	5 (23)	5 (20)	4 (21)
Peripheral	19 (73)	17 (77)	16 (64)	13 (68)
Absent	1 (4)	0 (0)	4 (16)	2 (11)
Elasticity Score (ES)	1.69 ± 0.11	1.54 ±0.17	1.80 ±0.13	1.24 ±0.18***
TSH (mIU/L)	3.95±0.18	4.3 ±0.22 <sup>6</sup>	4.2±0.21	2.1 ±0.20****†

## Prunella

Prunella vulgaris is an herb used in traditional Chinese Medicine. Also called heal-all, it is used as a common ingredient in teas and is used as a vegetable.<sup>9</sup> It has a wide range of historical applications including the treatment of abnormal growths and tumors.

A recent meta-analysis reviewed 11 randomized clinical trials totaling 1215 patients. It concluded that prunella caused:

*“improvement of thyroid function and thyroid autoantibodies, shrinkage of thyroid gland and nodule[s], and improvement of clinical symptoms such as fatigue and cold intolerance”<sup>10</sup>*

In vivo and in vitro studies have shown that prunella promotes apoptosis in thyroid cancer cells.<sup>11</sup>

## Thyroid Nodules - Supportive Strategies

### TSH Regulation

Thyroid nodules often grow in proportion to elevated TSH levels. Avoidance of TSH elevation and TSH suppression to a range of 0.4 to 0.6 may reduce the size of benign nodules.<sup>12</sup>

### Iodine Reduction

Excessive intake of iodine, even to small degrees, may promote the growth of thyroid nodules. Iodine reduction to a healthy intake of 50-200 mcg daily may improve the odds of nodule reduction.<sup>13</sup>

### Weight loss

Insulin resistance as associated with excess body weight may increase the likelihood of thyroid nodule formation and nodule growth.<sup>14</sup> Modest weight loss of 5-10% of body weight may improve the odds of nodule reduction.

## Directions

- 2 capsules once daily with food. Take at least one hour after thyroid medication.

## Supplement Facts

### Does not Contain

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

## Cautions

The ingredients listed have not been studied in pregnant or lactating women and should be avoided.

Those on thyroid medication may need a reduction in their dosage due to the usage of this product. Please work with your prescriber to monitor your thyroid levels regularly and report any new symptoms or changes to existing symptoms.

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