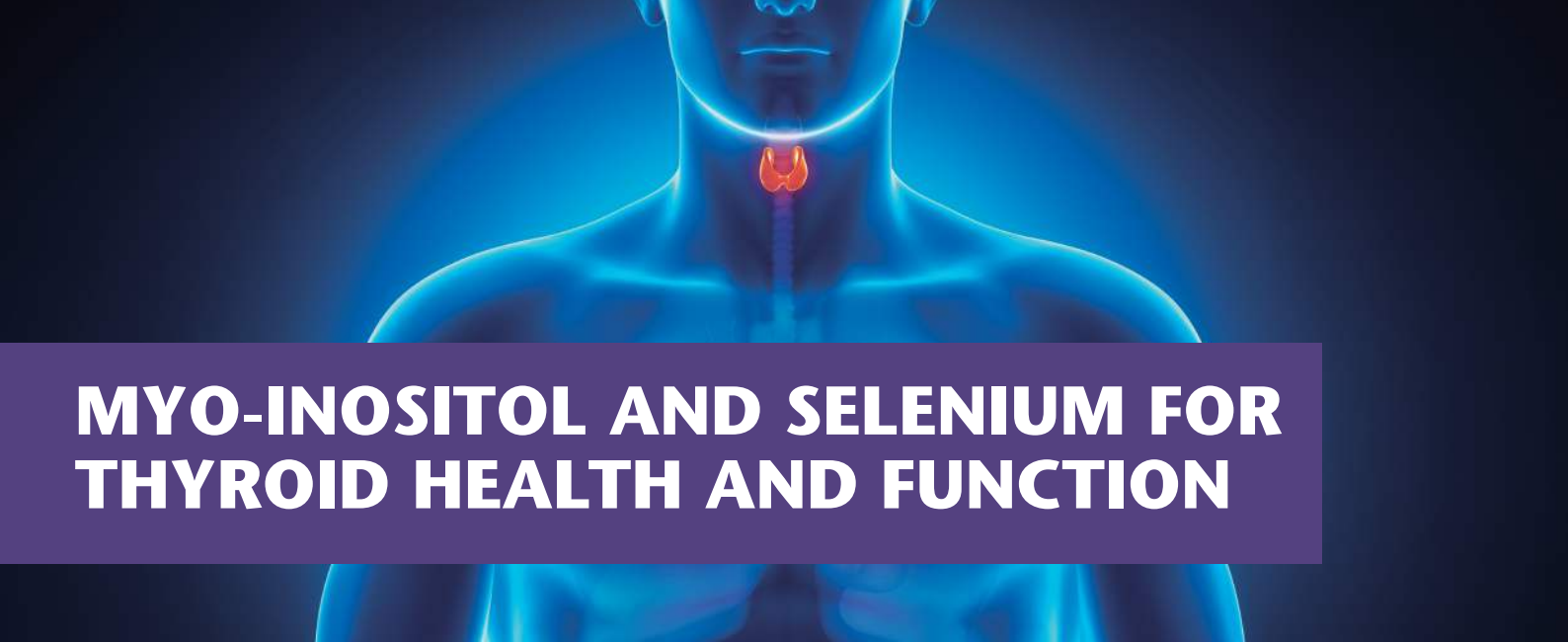




MYO-INOSITOL AND SELENIUM FOR THYROID HEALTH AND FUNCTION

Selenium and myo-inositol are both nutrients needed for healthy thyroid function.¹⁻⁸ When used in combination, supplemental selenium (83 mcg daily) and myo-inositol (600 mg daily) have been shown to reduce TSH levels and symptoms of mild or subclinical hypothyroidism as well as to help reduce thyroid autoantibody levels in some patient populations.⁹⁻¹¹

Selenium (Se) is an important element in thyroid hormone synthesis and metabolism and an essential component of the enzymes that convert T4 to T3 (iodothyronine deiodinases).^{1,2} Selenium deficiency can, therefore, decrease the ability of T4 to transform to T3.^{1,2} In addition, the iodothyronine deiodinases are involved in thyroid hormone regulation.² Selenoproteins, such as glutathione peroxidase, also play an important role in antioxidant defence mechanisms that help protect the thyroid gland from free radical damage.² Thyroid tissue has the highest selenium concentration in the body.¹

Myo-inositol is also integral to normal thyroid function.³⁻⁸ It is a second messenger in the TSH cell signalling pathway which leads to the production of H₂O₂, which is required for thyroid hormone biosynthesis.^{3,7} Myo-inositol indirectly regulates iodine organification, increases sensitivity of thyrocytes to TSH and is involved in thyrocyte replication.^{3,7} Clinical evidence indicates patients with impaired thyroid function have a higher demand for myo-inositol compared to healthy subjects.³ Myo-inositol has also been shown to improve thyroid autoantibody levels.³

Research focus: combined use of myo-inositol and selenium for thyroid function

Myo-inositol combined with selenium has been shown to reduce TSH levels, maintain thyroid function and improve signs and symptoms of mild or subclinical hypothyroidism (SCH).⁹

- A 6-month prospective study reported that the combination of myo-inositol 600 mg and selenium 83 mcg daily improved thyroid status as well as perceived quality of life.⁹
- The participants were women aged 18-50 years. They were all given the same treatment protocol, but divided into two different groups, depending on baseline characteristics.⁹
 - **Group 1:** raised TSH levels (2.5-5 mIU/L) and positive thyroid autoantibodies (TPO-Ab/Tg-Ab).
 - **Group 2:** raised TSH levels (5-10 mIU/L), either with or without positivity for thyroid autoantibodies.

Key research findings following daily intake of selenium 83 mcg plus myo-inositol 600 mg.⁹

TSH levels	• A significant reduction in TSH levels was reported in both groups after 3 months.
Thyroid autoantibodies	• The thyroid autoimmune index (AIT) improved after 3 months. • More than 57% of the women who were positive for thyroid autoantibodies at baseline showed a significant decrease in antibody levels after 6 months.
Symptomatic changes	• Significant reductions in symptoms of fatigue, cold intolerance and the sensation of pins and needles were reported after 3 months of the treatment protocol, as well as improvements in weight. • Significant decreases in memory impairment and swelling were also reported after 6 months of the treatment protocol.
Cholesterol	• A significant reduction in total cholesterol was reported after 6 months.
Menstrual cycle regularity	• Significant improvements in menstrual cycle regularity were reported within 3 months.

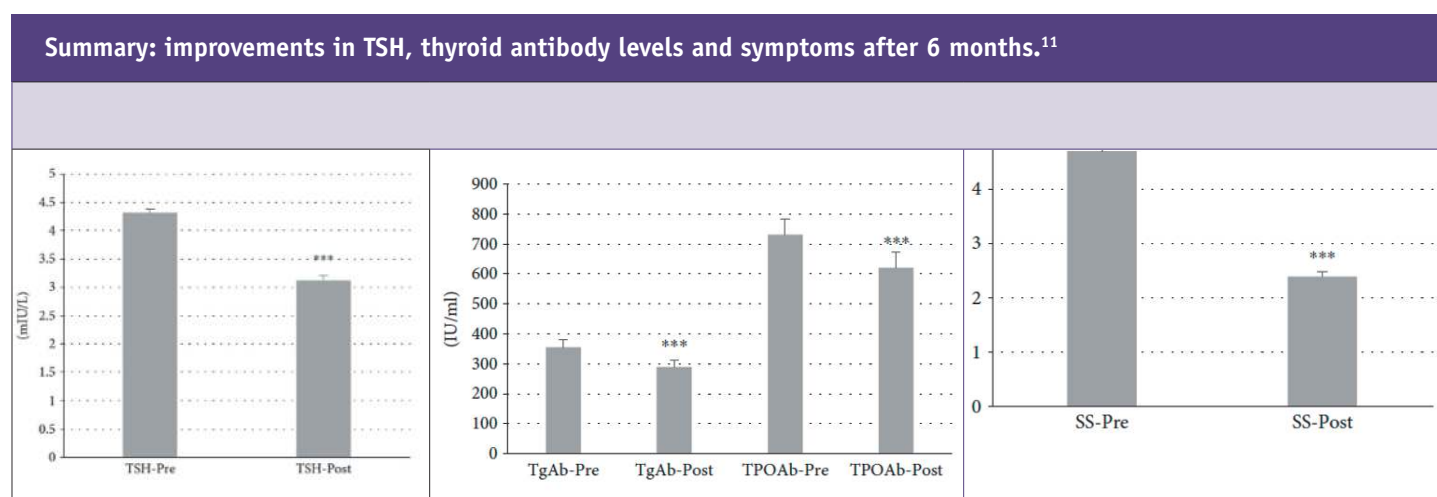
The combination of myo-inositol and selenium has been shown to help restore and maintain a euthyroid state in individuals with raised thyroid autoimmune antibodies.¹⁰

- This was an observational and retrospective study that was conducted over 12 months. It included 101 participants (85% women and 15% men) who commenced the study with raised TSH and positivity for thyroid autoantibodies.¹⁰
- The study compared the effect of taking the combination of myo-inositol 600 mg and selenium 83 mcg daily, vs selenium 83 mcg daily only, vs no intervention.¹⁰
- **Inclusion criteria:**¹⁰
 - o Raised TSH (2.5-10mIU/L) but normal free T4 and T3 levels.
 - o Positive for serum thyroid autoantibodies.
 - o Either euthyroid or with symptoms of subclinical hypothyroidism.

Key research findings across the 3 different intervention groups. ¹⁰	
TSH	• Selenium plus myo-inositol: a significant decrease in TSH levels was reported after 6 months, which reached a 38% reduction after 12 months. • Selenium alone: after 12 months, TSH levels decreased by 31%. No significant decrease was reported after 6 months. • Untreated: TSH levels increased after 12 months.
Free T4 and T3	• No changes were observed in any of the 3 treatment groups.
Symptoms of subclinical hypothyroidism	• Selenium plus myo-inositol: a decrease in SCH symptoms were reported after 6 months, which then stabilised. • Selenium alone: there was a trend towards an increase in symptoms after both 6 and 12 months, but the change was not statistically significant. • Untreated group: SCH symptoms increased from 34.5% at baseline to 75.9% after 12 months

The combination of myo-inositol and selenium helps restore a normal thyroid function in individuals with raised thyroid autoantibodies and can reduce symptoms of subclinical hypothyroidism.¹¹

- This 6-month study included 86 men and women with TSH levels between 3-6mIU/L at baseline, elevated thyroid autoantibodies (TPO-AB and/or Tg-Ab) and normal T4 and T3.¹¹
- All participants were given a daily dose of myo-inositol 600 mg and selenium 83 mcg



In conclusion, clinical research has shown that the combination of myo-inositol 600 mg daily and selenium 83 mcg daily supports healthy thyroid function, especially in those with normal T4 and T3, but raised thyroid autoantibody levels, raised TSH and symptoms of subclinical hypothyroidism.⁹⁻¹¹

*References available on request.