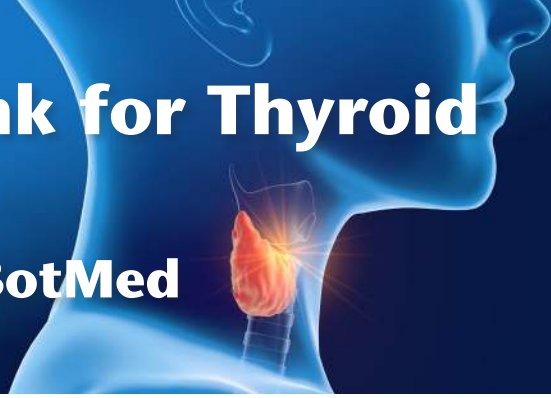


Myoinositol – A Missing Link for Thyroid Dysfunction?

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Article Highlights

- Thyroid conditions represent a significant health concern for millions of Australians, with a significant population estimated to have an undiagnosed thyroid condition.¹⁻⁴
- The function of sufficient iodine in optimal thyroid health is well-established, but is it the complete picture?
- Myo-inositol, a carbocyclic sugar abundant in the brain and other human tissues^{5,6}, has proven to be an important dietary supplement for improving thyroid pathology metrics and quality of life in people with thyroid disorders, especially when concurrently administered with the micromineral selenium (as selenomethionine).⁷⁻¹²

Thyroid disorders, both clinical and subclinical, represent one of the most common presentations and treatment challenges for complementary health practitioners. Due to the involvement of thyroid hormones in regulating the activity of every cell and tissue in the body, the symptoms of thyroid dysfunction are many and varied, primarily affecting energy, sleep and mood and having significant impact on the quality of life of many patients.

Iodine deficiency is recognised as being on the global increase¹ and investigating sufficiency of this critical mineral is paramount for every client experiencing thyroid dysfunction. But there's more to the picture in the clinical setting, and one of the keys to successful management of thyroid disorders may lie in the supplementation of a lesser-known molecule, myo-inositol.

Prevalence of Thyroid Dysfunction in Australia

The most common thyroid disorder in Australia is hypothyroidism, with an estimated 1 in 33 being affected and women and the elderly being the most likely to develop the disorder.² Hyperthyroidism is less common, with 3 in every 1000 patients presenting with symptoms.³ Hashimoto's disease, an autoimmune disorder, can cause either hypothyroidism, hyperthyroidism or swings between the two states.⁴ It's estimated that over 1 million Australians have an undiagnosed thyroid condition with women and the elderly being significantly more at risk.¹

What is Myo-inositol?

Myo-inositol is a carbocyclic sugar abundant in the brain and other human tissues. It is produced endogenously and also sourced from fresh fruit, vegetables, grains and nuts in the diet⁵ It has been established as a growth factor and lipotropic factor with complex involvement as an enzyme cofactor and signal transduction messenger molecule⁶ throughout the body.

Myo-inositol and Thyroid function

Myo-inositol plays a direct role within thyroid cells and an involvement in intracellular TSH signaling⁷ and regulating iodine organification.⁸

Evidence of the Therapeutic Use of Myo-inositol for Thyroid Patients

Several robust human studies support the therapeutic use of myo-inositol supplementation in an array of thyroid pathologies, particularly in combination with selenomethionine.

In a study on 48 women with subclinical autoimmune thyroiditis (AIT), myoinositol administered with selenomethionine was shown to significantly reduce elevated thyroid stimulating hormone (TSH) closer to physiological concentrations when compared to placebo. It was concluded that this was likely due to the function of myo-inositol as a TSH second messenger.⁹

Another study on 87 people, including 8 men, with AIT found that in addition to reducing TSH levels, combined administration of myo-inositol and selenomethionine also decreased elevated thyroid peroxidase and thyroglobulin antibodies to normal ranges. Further, quality of life metrics were investigated and improved significantly with supplementation.¹⁰

A study on 101 patients presenting with elevated TSH, elevated thyroid antibodies and abnormal ultrasound results examined the clinical outcomes of an untreated group, a group taking only selenomethionine and a group taking selenomethionine in combination with myo-inositol. At the 12-month conclusion of the study, it was found that TSH levels had increased in the untreated group, but reduced by 31% in the selenomethionine only group and 38% in the combined selenomethionine and myo-inositol group. Further, the combined prescription yielded a faster reduction of TSH than the single prescription. Both treated groups showed slight improvements in ultrasound imaging results.¹¹

To clarify the therapeutic dynamics of myo-inositol and selenomethionine, a systematic review and metaanalysis of studies showed that where significant decreases in TSH and increases in T4 were common to available and eligible study groups, supplementation did not alter T3 or thyroid peroxidase antibodies with significance overall.¹²

The positive clinical outcomes shown by these studies are likely to instigate further trials – an exciting area of emerging research for the clinical practitioner.

**References available on request.*