



Underactive Thyroid Can Be The Secret Cause of Many Health Problems

The thyroid gland is a butterfly-shaped organ located in the front of the neck. Its main function is to produce thyroid hormones which control the body's metabolic rate.

People can develop an underactive thyroid, especially as they age, and this is more common in women. An underactive thyroid can occur more frequently after menopause, and can be worsened by taking estrogen. An underactive thyroid can also be associated with other autoimmune diseases such as Systemic Lupus Erythematosus (SLE), Raynauds Disease, Rheumatoid Arthritis, and Celiac disease.

The most common cause of hypothyroidism is an autoimmune disorder known as Hashimoto's thyroiditis. This condition is characterized by an overactive immune system response that floods the thyroid gland with white blood cells that attack the gland. Hashimoto's thyroiditis is more common in women than in men, and there is a genetic component to the disease.

The thyroid gland uses iodine (mostly available from the diet in foods such as seafood, seaweed and table salt) to produce thyroid hormones. The problem is that many people now avoid table salt (having rock salt or sea salt instead), and our soil in New Zealand is deficient in iodine.

Besides iodine, thyroid function can be affected by a number of nutrients, including zinc and selenium. Deficiencies in either of these have been shown to increase the risk of hypothyroidism. There is also a deficiency of selenium in New Zealand soil.

The standard blood test reference ranges may cause many cases of hypothyroidism to be missed. Many people have raised LDL cholesterol, and symptoms such as feeling cold, weight gain, constipation, sleep problems, anxiety and depression, etc.

Current tests do not always identify the problem

A good way of not missing the diagnosis of hypothyroid is to fill in a thyroid questionnaire in addition to looking at the blood test. This is because the blood test does not give all the information about the thyroid.

TSH – thyroid stimulating hormone is made by the pituitary in response to a messenger from the hypothalamus (part of the primitive brain). Its job is to stimulate the thyroid gland so it will make the thyroid hormone – T4.

However, there are certain conditions that cause a normal looking TSH test, but the person is still hypothyroid. A zinc deficiency causes lowered production of TSH from the pituitary. Increased stress causes suppression of TSH from increased release of cortisol from the adrenal glands, and release of another messenger, CRF (Corticotrophin Releasing Factor) from the hypothalamus.

T4 – this is the first thyroid hormone made by the thyroid gland in response to stimulation by TSH. To make T4, you need to have adequate iodine and tyrosine. Tyrosine is an amino acid (protein building block) that comes from an adequate protein diet.

Problems here can cause low T4 production. But... T4 is not as active as its down the line product, T3.

T3 is the result of conversion of T4 to T3. For this to happen in the body, you need to have adequate progesterone, iron, selenium, B vitamins, etc. You also need to not be stressed because increased cortisol from the adrenal glands as a result of stress causes reduced T3 production and increased Reverse T3.

Reverse T3 production is increased from stress. It acts to block the action of T3. We have another problem – T3 is not measured in New Zealand.

So, if you use TSH as your guide to adequate thyroid function, you do not have adequate information to make a decision. If you use the more active hormone, T3 as a guide to thyroid function, you still don't have enough information there either, because the reverse T3 result is not available.

A helpful addition to the thyroid function blood tests will therefore be to "listen to the patient". If a person seems to have many symptoms of underactive thyroid, has a relatively positive thyroid questionnaire and fits into a few more factors that an experienced doctor knows to look for, then the doctor will give that patient a trial of thyroid hormone supplementation.

Consequences of low thyroid hormone

T4 and T3 are essential for regulating metabolic processes throughout the body, including

- maintaining the basal metabolic rate
- making more glucose available to meet the elevated metabolic demands
- stimulating new protein synthesis
- increasing metabolism of lipids and conversion of cholesterol into bile acids, activating lipoprotein lipase (which breaks down fat), and increasing sensitivity of fat tissue to hormones that stimulate the breakdown of fat
- increasing cardiac output and blood flow
- increasing nerve transmission

Additional possible complications of chronic hypothyroidism include:

- **Depression and psychiatric disorders.** Panic attacks, anxiety, depression, phobias, and obsessive compulsive disorders. (Subclinical hypothyroidism is the most commonly encountered organic cause of depression.)
- **Reduced cardiac output.** In overt hypothyroidism, cardiac contractility and cardiac output are decreased, and vascular resistance is increased.
- **High cholesterol.** Hypothyroidism is characterized by a marked increase in low-density lipoproteins (LDL) and apolipoprotein A. These changes accelerate atherosclerosis, which causes coronary artery disease. Hypothyroidism has been associated with endothelial dysfunction, aortic atherosclerosis, and myocardial infarction. Thyroid hormone replacement

therapy may slow the progression of coronary artery disease because of its beneficial effects on lipids.

- **Reproductive system problems.** In women, hypothyroidism is associated with menstrual irregularities, absence of ovulation, and infertility.

Undiagnosed hypothyroidism can be behind the lack of progress with many health problems, and must be considered.

What treatment is best?

Many people do well on synthetic T4 preparations which have been available for decades in New Zealand. Sometimes, however, the T4 does not successfully convert to enough of the more active T3 molecule to get results.

If you are already using synthetic T4, but are not having results, there are two options:

- Consider adding in synthetic T3 which is available from compounding pharmacists.
- Ask to try Whole Thyroid. This is the original treatment used in New Zealand before synthetic T4 was used. Whole thyroid is a pig thyroid extract and contains T1, T2, T3 and T4, so you know you will be getting the more active T3 compound.

How you can check your thyroid health

- Fill in an online thyroid questionnaire – there are many on the Internet.
- Discuss the questionnaire findings as they relate to your health concerns with your doctor. Ask whether a trial of thyroid hormone is advisable.

If you don't seem to be making progress and wish to get another opinion, you could:

- Ask your family doctor for a referral to an endocrinologist.
- Find a doctor experienced in the safe use of bioidentical hormones by checking out these websites:
 - <http://www.pharmaceutical.co.nz/>
 - <http://www.optimushealth.co.nz/>