



# The Highs and Lows of **Thyroid Function**

by Tracey Karele - AIM Nutritionist

The thyroid is arguably one of the most important endocrine glands in the body. However, no one seems to have a definite idea as to what it actually does, other than having a vague idea that it "has something to do with hormones". This often gives way to fallacies including the myth that thyroid disease is contagious, the idea that only women have thyroids or that thyroid conditions always present with a large lump in the throat or goitre. Read on to learn more about the mythical thyroid - what and where it is, what it does, what can go wrong and ways to naturally support it.

The thyroid is a butterfly-shaped gland located in the front of the neck, below the larynx (voice box). It consists of two lobes, one on each side of the windpipe. The thyroid produces thyroid hormones which are needed by all the cells in the body. The thyroid gland is under the control of the pituitary gland, which is a small gland about the size of a peanut found at the base of the brain. The pituitary gland produces thyroid stimulating hormone (TSH) which stimulates the thyroid to produce more hormones.

#### Functions of the thyroid

The thyroid gland controls the metabolic rate as well as the calcium levels in the body. It produces 2 hormones – <u>thyroxine</u> and <u>calcitonin</u>. Thyroxine contains iodine and it speeds up the body's metabolic rate, is involved in cell division, improves the performance of the nervous system and increases heart rate and blood pressure. Calcitonin slows the rate at which bone is broken down, decreasing the amount of calcium that is dissolved in the blood.

The parathyroids are four small paired glands surrounded by the thyroid gland. They produce parathyroid hormone (PTH) which increases the rate at which bone is broken down. As a result, more calcium is released into the blood. PTH therefore has the opposite effect of calcitonin and works in partnership with it in order to keep blood calcium levels stable.

Thyroid disease is relatively common, affecting nearly 10% of

women and 5% of men in the United States, according to the University of Michigan. The thyroid's function is sometimes likened to that of the accelerator pedal in a car. When there is too much thyroid activity, one may feel tense or anxious and have difficulty sleeping. In comparison, when there is too little thyroid activity, one may feel sluggish, depressed and even gain weight.

#### Hypothyroidism - an underactive thyroid

The most common form of thyroid disease is hypothyroidism. Symptoms include lethargy, weight gain, shortness of breath, constantly feeling cold, thinning hair and heavy periods. Women, especially those over the age of 40 and who also have a family member with thyroid disease, are at the greatest risk for developing hypothyroidism. Endocrinologists have also found a relationship between hypothyroidism and cholesterol.

## Low levels of thyroid hormone are frequently found in combination with high cholesterol levels

Hashimoto's disease (chronic lymphocytic thyroiditis) is the most common cause of hypothyroidism in the United States. It is an autoimmune condition where the immune system attacks the thyroid gland and the resulting inflammation leads to an underactive thyroid. Doctors usually prescribe hormone tablets to treat hypothyroidism and standard treatment routinely involves daily use of levothyroxine, a synthetic thyroid hormone.

#### Hyperthyroidism - an overactive thyroid

Hyperthyroidism refers to an overactive thyroid gland which produces an excessive amount of thyroid hormones. Symptoms include weight loss, shaky hands, excessive sweating, heart palpitations and irritability. In some cases, the eyes can take on a bulging appearance.

The hypothalamus releases a hormone called thyrotropin releasing hormone (TRH), which stimulates the pituitary gland to release TSH. The thyroid is then stimulated to release thyroid hormones. If overactivity of any of these three occur (either the hypothalamus, pituitary or thyroid), an excessive amount of thyroid hormones can be produced and hyperthyroidism could result.

#### Graves' disease is an autoimmune disorder and is the most widespread form of hyperthyroidism

A common form of treatment for this condition is radioactive iodine treatment – where a patient drinks a solution containing radioactive iodine. The iodine collects in the thyroid and over time, the overactive thyroid cells are destroyed, inhibiting thyroid function and preventing the excessive production of thyroid hormones.

Goitrogens are compounds that can enlarge the thyroid gland and aggravate thyroid problems. Cabbage, turnips, mustard greens and radishes all contain small quantities of goitrogens. However, these effects only manifest under extreme conditions e.g. if an individual ate nothing but cabbage for an extended time period.

#### The lodine Connection

lodine is an essential part of thyroxine and must therefore be available for its synthesis. When the iodine concentration of the blood is low, the cells of the thyroid enlarge in an attempt to "trap" iodine particles. Occasionally, the thyroid will enlarge to such an extent that it forms a visible lump in the neck – a condition known as simple goitre. Thyroid enlargement due to an excess of iodine is known as toxic goitre. Both hyperand hypothyroidism can be causes of goitre. Although iodine is essential to the body, the actual quantity required is very little - estimated to be around one teaspoon over the course of a lifetime. Because of the potentially devastating effects of iodine deficiency (especially in pregnant women), South Africa and many countries around the world have introduced the mandatory iodisation of table salt.

The relationship between iodine and the thyroid is fairly complicated – excessive iodine intakes (i.e. upwards of 1700 micrograms per day) can actually result in either hypo- or hyperthyroidism. The adult RDA for iodine is 150 micrograms, and one serving of AIM's BarleyLife contains 4% of this RDA.

#### Natural progesterone

According to Dr. John R. Lee, natural progesterone cream may potentially increase thyroid activity. Therefore, if an individual has an overactive thyroid, natural progesterone could actually stimulate the thyroid to work even harder and this should be avoided. However, if one has an underactive thyroid, then a natural progesterone cream like AIM's Renewed Balance may actually help because of the thyroid-stimulating effect of the natural progesterone.

#### Selenium

Among the more recent discoveries about selenium is that it plays a role in activating thyroid hormone, and therefore has a role in regulating the metabolism. A 2002 German study concluded that selenium substitution may improve the inflammatoryactivity in patients with autoimmune thyroiditis (Hashimoto's disease) AIM's Proancynol 2000 contains 200 mcg of selenium per serving, or 286% of the RDA.

### Proancynol 2000

a powerful antioxidant supplement

- Anti-ageing effect
- Maintains immunity and fights free radical damage
- Quick absorption into the bloodstream
- Maintains immuno health



PROANCYNOL 2