

The Thyroid Gland — What Is It and What Does It Do?

A patient guide written by Dr Andrew Ong FRACS, Breast & Endocrine Surgeon

Many people have very little idea what the thyroid gland is or what it does — until they are told there is a problem with it. This guide has been written by Dr Ong to help his patients understand the thyroid gland, the conditions that can affect it, and what those conditions may mean for their health and treatment.

What is the thyroid gland?

The thyroid is a small, butterfly-shaped gland situated at the front of the lower neck, just above the collarbones. Its name comes from the Greek word “thyros”, meaning shield — a reference to its shape.

It has two lobes — a right lobe and a left lobe — connected by a central bridge of tissue called the isthmus. A normal thyroid weighs between approximately 15 and 20 grams in total, or roughly 7 to 10 grams per lobe. Despite its small size, it has an outsized influence on the body.

Feature	Detail
Shape	Butterfly-shaped
Location	Lower front of the neck, just above the collarbones
Structure	Two lobes (right and left) connected by a central bridge called the isthmus
Normal weight	Approximately 15–20 grams in total (7–10 grams per lobe)
Function	Produces thyroid hormones that regulate metabolism throughout the body

What does the thyroid do?

The thyroid’s primary job is to produce thyroid hormones — principally thyroxine (T4) and triiodothyronine (T3). These hormones regulate the body’s metabolism: the rate at which cells generate and use energy. Virtually every organ system in the body is affected, including:

- Heart rate and cardiac function
- Brain function and mental state
- Muscle strength and activity
- Bone metabolism and density
- The menstrual cycle in women
- Bowel activity and digestive function
- Body weight and temperature regulation

When the thyroid is working normally, the body’s metabolism is balanced. When it produces too much or too little hormone, the effects can be felt across multiple systems simultaneously.

What is an overactive thyroid (thyrotoxicosis)?

Thyrotoxicosis is the medical term for an overactive thyroid — a state in which the thyroid is producing more hormone than the body needs. This accelerates the body’s metabolism and can cause:

- An abnormally rapid heart rate (palpitations)
- Fine tremor of the fingers
- Restlessness, anxiety, and difficulty sleeping
- Excessive sweating
- Unintentional weight loss

The two most common causes of thyrotoxicosis in Australia are Graves’ disease and toxic multinodular goitre (also known as Plummer’s disease).

What is Graves’ disease?

Graves’ disease is an autoimmune condition in which the immune system produces abnormal antibodies that attach to receptors on the thyroid gland and continuously stimulate it to produce thyroid hormones. Unlike most antibodies, which are protective, these act as a constant “on switch” for the thyroid — causing it to overproduce hormones regardless of what the body actually needs. The result is thyrotoxicosis, and Graves’ disease must be treated. Left untreated, it can cause serious cardiovascular complications.

Graves’ disease and the eyes: Graves’ disease can also cause inflammation and swelling of the tissues around and behind the eyes — a condition called thyroid eye disease (Graves’ ophthalmopathy). This can cause prominent or bulging eyes, double vision, and eye discomfort. In severe cases it can threaten vision and, at its worst, can lead to blindness. This complication requires specialist ophthalmological review.

What is a goitre?

A goitre is simply an enlarged thyroid gland. It does not by itself indicate cancer, overactivity, or underactivity — a goitre can occur in a thyroid that is otherwise functioning normally.

However, goitres can cause problems by virtue of their size. The neck contains many vital structures within a confined space, and a growing thyroid can exert pressure on the:

- Trachea (windpipe), causing difficulty breathing or a sensation of tightening in the throat
- Oesophagus (food pipe), causing difficulty swallowing
- Recurrent laryngeal nerves, which control the voice

A goitre can also grow downwards into the chest (a “substernal” or “retrosternal” goitre), where it may compress structures in the upper chest.

What is a multi-nodular goitre?

Multi-*nodular goitre* means a thyroid that is enlarged and contains multiple nodules (lumps) within it. “Mutli” means many; “nodular” refers to the lumps.

These nodules are most commonly benign, but some can be cancerous or have the potential to become so. The challenge with multi-nodular goitre is that, with many nodules present, it can be difficult to determine with certainty whether any one of them harbours cancer. Dr Ong will discuss the appropriate investigations and management plan at your consultation.

Do I need surgery on my thyroid?

Surgical removal of the thyroid is called a **thyroidectomy**. Depending on the situation, this may involve removing one lobe (a **hemi-thyroidectomy** or **lobectomy**) or the entire gland (a **total thyroidectomy**).

Surgery is recommended in a number of situations. Common indications include:

- Confirmed or suspected **thyroid cancer**
- **Graves' disease** that has not responded to, or is not suitable for, medical or radioactive iodine treatment
- **Multi-nodular goitre** causing compressive symptoms or growing in size
- A thyroid nodule where **cancer cannot be excluded** based on imaging or needle biopsy
- An **indeterminate needle biopsy** result — where the biopsy could not provide a definitive benign or malignant diagnosis
- A nodule that is **increasing in size** on serial imaging

How is surgery decided? Each patient's situation is unique. Dr Ong reviews the clinical history, blood tests, ultrasound findings, and biopsy results together before recommending surgery. The decision is always discussed with the patient at a formal consultation.

Making an appointment

To see Dr Ong, you will need a referral from your general practitioner (GP) or Specialist. Once you have your referral, please contact either of the following rooms to make an appointment:

Campbelltown / Macarthur rooms:

Suite 101, 1 Centennial Drive, Campbelltown NSW 2560

Phone: (02) 4610 7933

Macquarie University Hospital rooms:

Suite 301, 2 Technology Place, Macquarie University Hospital NSW 2109

Phone: (02) 9812 3899

Website: DrAndrewOng.com.au