# Thyroid Gland
## Fact Sheet

## Location

The thyroid is a small gland that sits in the front of the neck and wraps around the windpipe (or trachea). It is shaped like a butterfly or bow tie, with two lobes joined by a narrow bridge (called an isthmus).

Each lobe of the thyroid is 4-6 cm long and approximately 1.5 cm thick. It is generally larger in women than men, and increases in size during pregnancy.

## Functions/Roles

The thyroid makes hormones that regulate all cells in the body.

They help control:

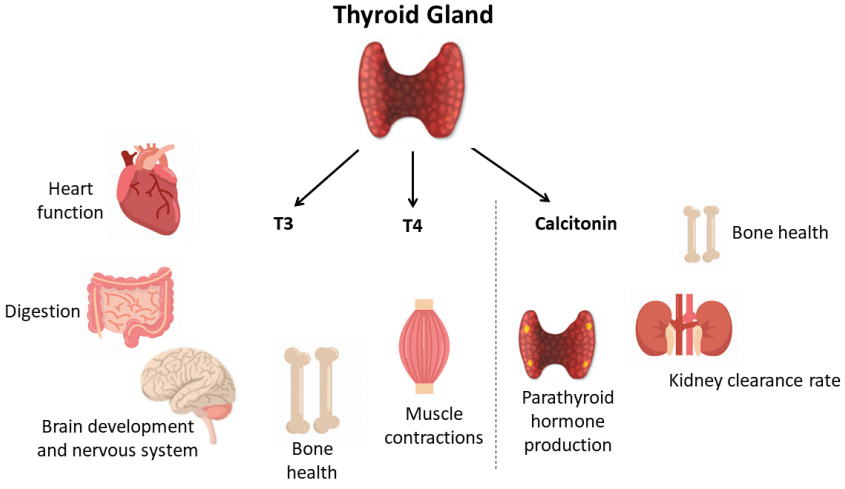
- Blood pressure
- Metabolism: breaking down foods to make energy
- Energy levels: production and use by cells in the body
- Body temperature/heat production
- Oxygen use by cells in the body
- Heart rate and blood flow
- Bone growth
- Calcium levels
- Vitamin metabolism
- Brain development, particularly before birth and during childhood
- Reproductive function

## Hormones produced by the thyroid gland

**Thyroxine** (T4) is the main hormone produced by the thyroid. Some of the T4 made is changed into T3, which is a more active hormone. T4 controls heart function, metabolism, bone and muscle health and brain development.

**Triiodothyronine** (T3) helps control basal metabolic rate, which is the least amount of energy needed to keep the body functioning while at rest. T3 also controls body temperature, glucose production, heart rate, blood pressure, and brain and lung development before birth and in early childhood. T3 works with other hormones to promote growth of long bones.

**Calcitonin** (CT) helps control the amount of calcium and phosphate in the blood. It does this in three ways: by altering the rate at which bones are broken down and reformed, by signalling the kidneys to pass more calcium into urine, and by signalling the parathyroid gland to make more parathyroid hormone (PTH).



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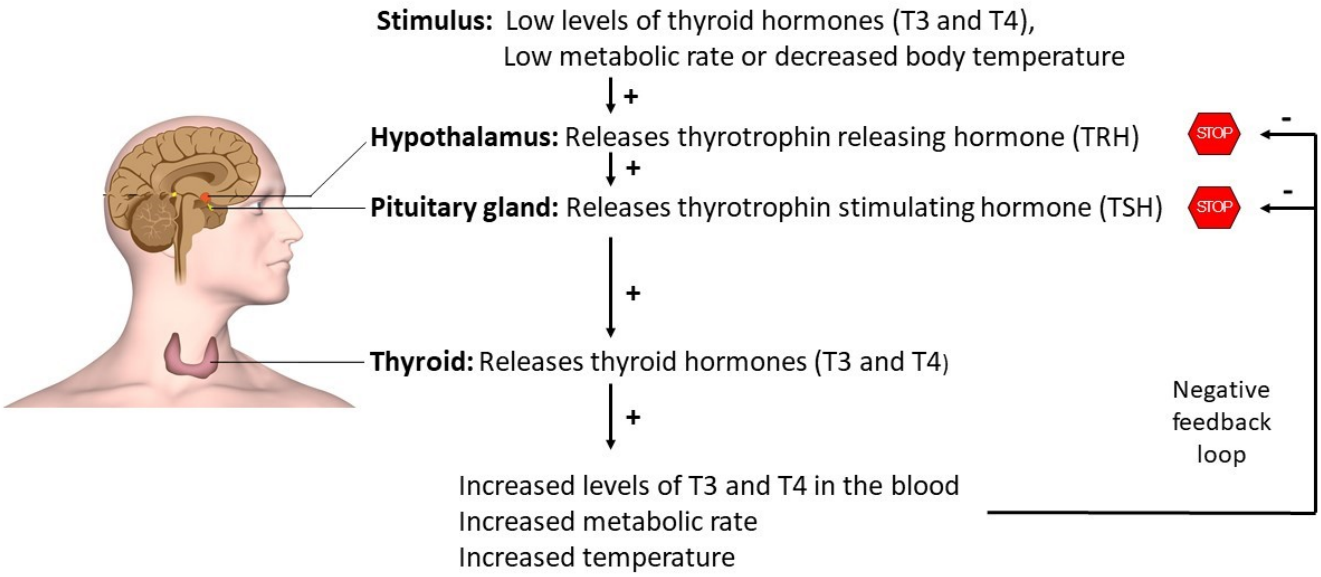
## Keeping thyroid hormones in balance

**Triiodothyronine** (T3) and **thyroxine** (T4) are regulated by negative feedback loops. T3 and T4 are made and released in response to signals starting in the hypothalamus of the brain. The hypothalamus makes thyrotrophin releasing hormone (TRH) which signals the pituitary gland to make thyroid stimulating hormone (TSH). TSH then signals the thyroid to start making T3 and T4. When T3 and T4 levels in the blood reach a certain threshold, the hypothalamus makes less TRH and the pituitary gland makes less TSH. This system keeps the level of T3 and T4 within a narrow range




## Common problems and conditions of the thyroid

Hypothyroidism

Hyperthyroidism

Graves' disease

**More information about hormones and the hormone system is available at** https://www.hormones-australia.org.au

**More Hormones-Australia factsheets are available at** https://www.hormones-australia.org.au/patient-resources/

**To find an endocrinologist near you, visit:** https://www.hormones-australia.org.au/find-an-endocrinologist/

This information is designed to support, not replace, the relationship that exists between a person and their existing health care professional/s. Please discuss any health concerns with your doctor or specialist.

Hormones Australia aims to improve the health of Australians through increasing understanding about hormones and hormone-related conditions. Hormones Australia is an initiative and governed by the Endocrine Society of Australia (ESA).