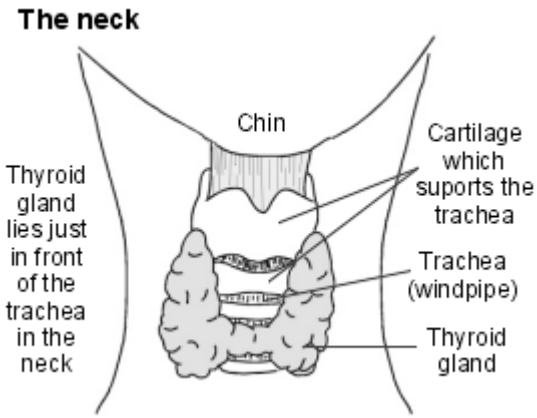
# Goitre (Swelling of the Thyroid)

A goitre is an enlarged thyroid gland. Some people with a goitre (but not all) have an underactive or overactive thyroid (make too much or too little thyroid hormones). There are various causes of goitre and treatment depends on the cause.

## What is a goitre?

A goitre is an enlarged thyroid gland. A goitre can mean that all the thyroid gland is swollen or enlarged, or one or more swellings or lumps develop in part or parts of the thyroid.

The thyroid gland is in the lower part of the front of the neck. It lies just in front of the trachea (windpipe). It has a right and left lobe which are connected together by a narrower band of thyroid tissue. (It is roughly the shape of a butterfly.) You cannot usually see or feel a normal thyroid gland. If the thyroid enlarges it causes a swelling in the neck which you can see - a goitre.




The thyroid gland makes thyroid hormones - called thyroxine (T4) and triiodothyronine (T3). These are carried round the body in the bloodstream. Thyroxine and T3 help to keep the body's functions (the metabolism) working at the correct pace. Many cells and tissues in the body need thyroxine and T3 to keep them working correctly.

## There are different types of goitre, each with various causes

**Diffuse smooth goitre**
This means that the entire thyroid gland is larger than normal. The thyroid feels smooth but large. There are a number of causes. For example:

- Graves disease - an auto-immune disease which causes the thyroid to swell and make too much thyroxine. (See separate leaflet called hyperthyroidism.)
- Thyroiditis (inflammation of the thyroid) - which can be due to various causes. For example a viral infection can cause 'viral thyroiditis'.
- Iodine deficiency. The thyroid gland needs iodine to make thyroxine and T3. If you lack iodine in your diet the thyroid swells as it tries to make enough thyroxine and T3.
- Certain medicines can cause the thyroid to swell as a side-effect. For example, lithium.
- Hereditary factors - some people inherit a tendency for a thyroid to swell. In particular it may swell at times of life when you may make more thyroxine and T3 such as when you are pregnant, or during puberty.
- Various other problems with making thyroxine or T3 may cause the thyroid to swell.

**Nodular goitres**
A thyroid nodule is a small lump which develops in the thyroid. There are two types.

- A multinodular goitre. This means the thyroid gland has developed many lumps or 'nodules'. The thyroid gland feels generally lumpy.
- A single nodule. Causes include:
  - a cyst (a fluid-filled benign tumour).
  - an adenoma (a solid benign tumour).
  - a cancerous tumour (rare).
  - other rare causes.

## Goitres and thyroid function (production of thyroid hormones)

- In many cases, a goitre does not affect the amount of thyroxine or T3 that you make. You are then 'euthyroid' which means you make the correct amount of these hormones.
- In some cases, the goitre is associated with an abnormality of thyroid function. You may make too much thyroxine or T3 (hyperthyroidism or overactive thyroid) or too little thyroxine or T3 (hypothyroidism or underactive thyroid). See separate leaflets about these conditions.

Note: you can also develop an overactive or underactive thyroid without having a goitre.

## What are the symptoms of a goitre

- In many cases there are no symptoms apart from the appearance of a swelling in the neck. The size of a goitre can range from very small and barely noticeable, to very large.
- Most goitres are painless. An inflamed thyroid (thyroiditis) can be painful.
- If your thyroid makes too much or too little thyroxine or T3, this can cause a range of symptoms. See separate leaflets.
- A large goitre may press on the trachea (windpipe) or even the oesophagus (gullet) behind the trachea. This may cause difficulty with breathing or swallowing.

## Assessing the situation

When you have a goitre a doctor will usually do some blood tests to check if you are making too much or too little thyroxine or T3. Blood tests may also help to find out the cause of some goitres. Other tests may be done to find out the cause of the goitre. For example:

- An ultrasound scan of the thyroid. This may be done if you have a single nodule. An ultrasound scan is a safe and painless test which uses sound waves to create images of organs and structures inside your body. It can tell if a nodule is a cyst or a solid lump.
- A small piece of tissue (a biopsy) may be taken from a nodule to look at under the microscope. The biopsy is done by pushing a fine needle into the nodule (a bit like taking a blood sample but the needle is smaller). It is a simple and safe procedure.
- A radioactive iodine scan or similar test. This may be done to see if any nodules are making too much thyroxine or T3. (The radioiodine concentrates in tissue that makes thyroid hormones.) See separate leaflet called 'Radionuclide (Isotope) Scan'.

## What is the treatment for a goitre?

Treatment depends on the cause, the size of the goitre, and whether it is causing symptoms. For example:

- If you have a small goitre that is not due to a cancerous nodule, and your thyroid is making the correct amount of thyroxine and T3, then you may not need any treatment.
- You will need treatment if you make too much or too little thyroxine or T3.
- An operation to remove some or all of the thyroid may be an option in some cases.
- Radioactive iodine treatment may be an option for a goitre causing an overactive thyroid. This involves taking a drink, or swallowing a capsule, which contains radioactive iodine. The radioactive iodine builds up in the thyroid gland. As the radioactivity is concentrated in the thyroid gland, it destroys some thyroid tissue.
- If you have cancer of the thyroid, you will probably need surgery.
- Iodine replacement, if the goitre is due to lack of iodine in the diet.