CONDITION

# Goiter

A goiter is an enlargement of the thyroid gland that may occur with normal, low, or high thyroid hormone levels.

**WHAT IT IS**
Enlargement of the thyroid gland

**BODY SYSTEM**
Hormone system

**MAIN SYMPTOMS**
Neck swelling, tightness, coughing, trouble swallowing

**WHAT CAUSES IT**
Iodine deficiency, autoimmune conditions, thyroid nodules, or inflammation

**HOW IT IS DIAGNOSED**
Neck examination, thyroid blood tests, and ultrasound

**MAIN TREATMENT**
Monitoring, thyroid medicines, radioactive iodine, or surgery

**CAN IT BE CURED?**
Sometimes - cause may resolve with treatment

**IS IT AN EMERGENCY?**
Sometimes - severe breathing difficulty needs emergency care

**LONG-TERM OUTLOOK**
Usually manageable; outlook follows thyroid function and cause

## Overview

A goiter is an enlarged thyroid gland. The thyroid is a small, butterfly-shaped gland at the front of your neck. It makes hormones that help control how your body uses energy, including your heart rate, temperature, digestion, and muscle function.

A goiter describes the thyroid's size, not how well it works. You can have a goiter while making a normal amount of thyroid hormone. It can also occur with an underactive thyroid, called hypothyroidism, or an overactive thyroid, called hyperthyroidism.

The entire gland may be enlarged, called a diffuse goiter. In other cases, it contains one or more lumps called thyroid nodules. A goiter may extend behind the breastbone, where it is known as a substernal or retrosternal goiter.

Many goiters are small and cause few problems. Larger ones can press on the windpipe or food pipe, affecting breathing or swallowing. The underlying cause may also require treatment.

## Symptoms

The most noticeable sign is swelling at the lower front of the neck. It may be even on both sides or uneven if nodules are present. Small goiters are sometimes found during a routine examination or imaging test.

Possible symptoms include:

You may also have symptoms related to thyroid hormone levels.

An underactive thyroid can cause tiredness, feeling cold, dry skin, constipation, weight gain, slower thinking, or menstrual changes. These symptoms do not confirm a thyroid problem by themselves.

An overactive thyroid can cause a fast or irregular heartbeat, shakiness, sweating, heat intolerance, anxiety, muscle weakness, frequent bowel movements, or weight loss despite a normal appetite.

Some goiters cause no symptoms beyond neck enlargement.

- Visible or noticeable swelling in the lower neck
- A tight, full, or uncomfortable feeling in the neck
- Coughing or frequent throat clearing
- A hoarse or changed voice
- Trouble swallowing food or tablets
- Shortness of breath, especially when lying flat
- Noisy breathing if the windpipe is significantly narrowed

## Causes and risk factors

A goiter develops when thyroid tissue grows or becomes inflamed. Several conditions can cause this change.

Worldwide, too little iodine is an important cause. The thyroid needs iodine to make hormones. When intake is too low, signals from the brain repeatedly stimulate the thyroid, causing it to enlarge. Iodine deficiency is less common where iodized salt and iodine-rich foods are widely available.

Autoimmune conditions are another common cause. Hashimoto thyroiditis usually leads to an underactive thyroid and may cause a firm, enlarged gland. Graves disease usually causes an overactive, evenly enlarged thyroid.

Thyroid nodules may enlarge part or all of the gland. Most are not cancer. Some make extra thyroid hormone, while others do not affect hormone levels.

Other possible causes include:

Goiters become more common with age and are more likely in women. Family history of thyroid or autoimmune conditions can also increase risk. Previous radiation treatment to the head, neck, or upper chest raises concern about thyroid nodules and should be mentioned during an assessment.

- Thyroid inflammation, called thyroiditis
- Hormonal changes during pregnancy
- Thyroid cysts
- Certain medicines, including lithium and amiodarone
- Rarely, thyroid cancer

## Diagnosis

A healthcare professional will examine your neck while you swallow. They may assess the thyroid's size and texture, check for nodules or swollen lymph nodes, and ask about symptoms, medicines, radiation exposure, and family history.

Blood tests show how the thyroid is working. The first test is often thyroid-stimulating hormone, or TSH. Free T4, and sometimes T3, may be measured if TSH is abnormal. Antibody tests can help identify Graves disease or Hashimoto thyroiditis.

An ultrasound uses sound waves to show the thyroid's size and structure. It can identify solid nodules, fluid-filled cysts, and features needing closer assessment without exposing you to radiation.

If a nodule has concerning features, a fine-needle aspiration biopsy may be recommended. A thin needle removes a small sample of cells for examination. Most nodules do not need a biopsy.

A radioactive iodine or technetium scan may be used when TSH is low to show whether a nodule is making excess hormone. It is not the same as radioactive iodine treatment.

CT or MRI may be needed if a large goiter extends into the chest or appears to press on the

windpipe. CT contrast can contain iodine, so tell the imaging team about thyroid problems before the test.

## Treatment and management

Treatment depends on the goiter's cause, size, growth, symptoms, hormone levels, and ultrasound findings. A small goiter with normal hormone levels and no concerning nodules may only need monitoring. Follow-up can include neck examinations, blood tests, or repeat ultrasound.

An underactive thyroid is usually treated with thyroid hormone replacement. This restores hormone levels but may not completely shrink a long-standing goiter.

An overactive thyroid may be treated with antithyroid medicine, radioactive iodine, or surgery. Radioactive iodine gradually damages overactive thyroid cells and can reduce the gland's size. It may later cause an underactive thyroid requiring hormone replacement.

Surgery may be considered when a goiter:

Removing the entire thyroid means lifelong thyroid hormone replacement will be needed. Partial removal may also cause an underactive thyroid. Surgery can affect the nearby parathyroid glands, which control blood calcium, or nerves involved in voice movement.

High doses of thyroid hormone are generally not used to shrink a goiter because excess hormone can affect the heart and bones. Do not start iodine supplements or seaweed products for neck swelling without medical advice. Excess iodine can worsen some thyroid conditions.

- Causes breathing or swallowing problems
- Extends into the chest and compresses nearby structures
- Continues to grow or causes significant discomfort
- Contains a nodule suspicious for cancer
- Produces excess hormone that is not well controlled
- Seriously affects quality of life because of its appearance

## Complications

A large goiter can narrow the windpipe or press on the food pipe, causing shortness of breath, noisy breathing, coughing, or difficulty swallowing. A goiter behind the breastbone may cause

pressure before much swelling is visible.

Thyroid hormone problems can also develop. Untreated hyperthyroidism can affect heart rhythm and bone strength. Untreated hypothyroidism can affect energy, cholesterol, thinking, fertility, and pregnancy.

Bleeding into a thyroid cyst or nodule can cause sudden swelling and pain. This needs prompt assessment, especially if breathing or swallowing changes.

Most thyroid nodules are noncancerous. However, a goiter can contain thyroid cancer, so a new, firm, enlarging, or suspicious nodule should be assessed.

## Prevention

Not every goiter can be prevented. Autoimmune thyroid conditions, inherited risks, and many thyroid nodules have no proven prevention method.

Goiters caused by iodine deficiency can often be prevented through adequate iodine intake. Sources include iodized salt, fish, dairy products, eggs, and some fortified foods. Food content differs by country and diet.

More iodine is not always better. Supplements and kelp or seaweed products may provide large or unpredictable amounts. Too much iodine can trigger an underactive or overactive thyroid. If you are pregnant, planning pregnancy, follow a restricted diet, or avoid iodine-containing foods, ask a healthcare professional whether your intake needs review.

Do not stop medicines linked with thyroid changes on your own. Thyroid blood tests can be used when monitoring is appropriate.

## Living with it and what to expect

A small, symptom-free goiter may remain stable for years. Some slowly enlarge or develop more nodules, while others shrink when the underlying problem settles or is treated.

You may have periodic blood tests even if hormone levels are initially normal. Thyroid function can change over time, particularly with autoimmune conditions or after radioactive iodine or surgery. Nodules may also be followed with ultrasound according to their size and appearance.

Report new growth, hoarseness, swallowing difficulty, breathing changes, or symptoms of low or high thyroid hormone. Avoid repeatedly pressing or checking your neck.

Most people can continue their usual work, exercise, and daily activities. Treatment may be unnecessary when the gland is stable and causes no symptoms. When treatment is needed,

managing hormone levels or relieving pressure often improves comfort. Long-term hormone replacement may be required after some treatments.

## When to get medical help

Arrange a routine appointment if you notice new swelling or a lump at the front of your neck, even if it is painless. Also seek review if a known goiter appears to be growing or you develop symptoms of an overactive or underactive thyroid.

Request prompt medical advice if you develop:

Call emergency services if you are struggling to breathe, have harsh or noisy breathing, cannot swallow your saliva, or have rapidly increasing neck swelling that affects breathing. Chest pain, fainting, or severe breathlessness also needs emergency care.

- Rapid enlargement or sudden pain in the thyroid area
- New or persistent hoarseness
- Increasing trouble swallowing
- Shortness of breath when lying down
- Fever with a painful, swollen thyroid
- A fast or irregular heartbeat that persists

## Common questions

Is a goiter cancer?

A goiter is not itself cancer. Most enlarged thyroid glands and nodules are benign. However, cancer can occur within a goiter. Ultrasound and, when needed, a needle biopsy help assess suspicious nodules.

Can I have a goiter with normal thyroid tests?

Yes. Blood tests measure thyroid function, while goiter describes the gland's size. An enlarged thyroid can still produce the correct amount of hormone.

Will a goiter go away on its own?

Some temporary goiters caused by inflammation or hormonal changes may shrink. Others remain stable or slowly grow. Treating an underlying hormone problem may reduce swelling, but a long-standing or nodular goiter may not disappear completely.

Should I take iodine for a goiter?

Not unless iodine deficiency has been identified or a healthcare professional recommends it. Extra iodine can worsen some thyroid conditions. Kelp and seaweed supplements may contain especially high amounts.

Will I need surgery?

Many people do not. Surgery is mainly considered for pressure symptoms, substantial growth, suspicious nodules, certain forms of hyperthyroidism, or serious effects on quality of life.

Can a goiter make it hard to breathe or swallow?

Yes, if it presses on the windpipe or food pipe. Mild or gradual symptoms need medical assessment. Severe or rapidly worsening breathing difficulty is an emergency.

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