CONDITION

Hypothyroidism

Hypothyroidism is a condition in which the thyroid does not make enough thyroid hormone.

WHAT IT IS
Too little thyroid hormone for the body's needs

BODY SYSTEM
Hormone system and whole body

MAIN SYMPTOMS
Tiredness, feeling cold, weight gain, dry skin

WHAT CAUSES IT
Usually autoimmune; sometimes treatment, medicines, or pituitary problems

HOW IT IS DIAGNOSED
TSH and free T4 blood tests

MAIN TREATMENT
Thyroid hormone replacement

CAN IT BE CURED?
Sometimes - temporary causes may resolve

IS IT AN EMERGENCY?
Sometimes - severe confusion or reduced consciousness

LONG-TERM OUTLOOK
Usually a normal life with well-adjusted treatment

Overview

Hypothyroidism, also called an underactive thyroid, means your thyroid gland does not make enough thyroid hormone for your body's needs.

The thyroid is a small, butterfly-shaped gland at the front of your neck. Its hormones help regulate how your body uses energy. They affect your temperature, heart rate, digestion, muscles, concentration, mood, skin, menstrual cycle, and many other functions.

Symptoms often develop slowly. They can resemble the effects of stress, poor sleep, ageing, menopause, or other health conditions. A blood test is therefore needed to confirm hypothyroidism.

Most people feel well once they are taking the right amount of replacement hormone.

Treatment is often lifelong, although hypothyroidism caused by some medicines, thyroid inflammation, or pregnancy-related changes may improve.

A milder form, called subclinical hypothyroidism, means the thyroid-stimulating hormone level is raised but the thyroid hormone level remains within the laboratory range. It may cause few or no symptoms. Whether it needs treatment is based on factors such as test results, symptoms, age, pregnancy, and other health conditions.

Symptoms

Hypothyroidism can affect many parts of the body. Symptoms usually appear gradually and differ from person to person.

Common symptoms include:

Some people develop a goitre, which is an enlarged thyroid that causes swelling at the front of the neck. A goitre does not always mean the thyroid is underactive.

Symptoms alone cannot confirm hypothyroidism. Some people with clearly abnormal blood tests have few symptoms, while others with similar symptoms have normal thyroid function.

- Ongoing tiredness or needing more sleep
- Feeling unusually cold
- Modest weight gain or difficulty losing weight
- Dry, rough skin and dry or thinning hair
- Constipation
- Muscle aches, cramps, or weakness
- Slower thinking, poor concentration, or memory problems
- Low mood
- A slower heart rate
- A hoarse voice
- Puffy skin around the face or eyes
- Heavy, irregular, or less frequent periods
- Reduced fertility or lower sexual interest

Causes and risk factors

The most common cause is Hashimoto's thyroiditis. This is an autoimmune condition, meaning the immune system mistakenly attacks the thyroid. The damage usually develops over time and is often permanent.

Other causes include:

The pituitary gland normally releases thyroid-stimulating hormone, or TSH, which tells the thyroid to work. A pituitary or hypothalamic problem can reduce this signal. This uncommon form is called central hypothyroidism.

Hypothyroidism is more likely if you have a family history of thyroid conditions or another autoimmune condition, such as type 1 diabetes or coeliac disease. Risk also increases with age and is higher after thyroid surgery or neck radiation. People with Down syndrome or Turner syndrome have an increased risk.

Pregnancy can reveal an existing thyroid problem. Autoimmune thyroid inflammation can also begin during the first year after giving birth.

- Surgery that removes all or part of the thyroid
- Radioactive iodine or radiation treatment involving the neck
- Medicines that affect thyroid function, such as lithium or amiodarone
- Thyroid inflammation, including inflammation after pregnancy
- Too little or too much iodine
- Being born without a working thyroid
- Problems affecting the pituitary gland or hypothalamus in the brain

Diagnosis

Diagnosis is based mainly on blood tests.

The usual tests are:

In primary hypothyroidism, where the problem begins in the thyroid, TSH is usually high and free T4 is low. The pituitary is producing more TSH because it is trying to make the thyroid work harder.

A raised TSH with a free T4 level still within the laboratory range may indicate subclinical hypothyroidism. The test is often repeated before decisions are made because levels can change temporarily during illness or for other reasons.

Central hypothyroidism can produce a low free T4 without the expected rise in TSH. Further hormone tests and specialist assessment may then be needed.

A thyroid antibody test can help show whether Hashimoto's thyroiditis is the cause. Antibody levels are not normally used to adjust treatment. An ultrasound scan is not routinely needed unless there is a lump, goitre, or another concern about the structure of the thyroid.

Biotin, a vitamin found in some hair and nail supplements, can interfere with certain thyroid tests. Tell the healthcare professional arranging your test about all medicines and supplements you take. Do not stop prescribed medicine unless you have been advised to do so.

- TSH: A hormone made by the pituitary gland to stimulate the thyroid
- Free T4: The main thyroid hormone available for the body to use

Treatment and management

The standard treatment is levothyroxine, a manufactured form of T4 thyroid hormone. It replaces the hormone the thyroid cannot make.

Levothyroxine is usually taken every day. The amount needed differs between people and may change over time. Factors such as age, body size, pregnancy, heart conditions, the cause of hypothyroidism, and other medicines can affect treatment.

Blood tests are repeated after treatment starts or the amount is changed. Once levels are stable, testing is usually needed less often. Symptoms may begin improving within weeks, but changes in skin, hair, weight, or energy can take longer.

Food and some medicines or supplements can reduce levothyroxine absorption. Common examples include iron, calcium, some antacids, and certain medicines for digestive conditions. Follow the instructions supplied with your medicine and ask a pharmacist how to separate products that may interact.

Do not change the amount or stop treatment based only on how you feel. Too little replacement may leave hypothyroidism untreated. Too much can cause symptoms such as a racing heart, shakiness, sweating, sleep problems, or loss of bone strength over time.

Some people continue to have symptoms despite blood tests being within the target range. This does not automatically mean more thyroid hormone is needed. Sleep problems, anaemia, menopause, depression, medication effects, and other conditions can cause similar symptoms and may need assessment.

Liothyronine, a manufactured form of T3 hormone, is not routinely used for most people. A specialist may consider it in selected circumstances after reviewing persistent symptoms and other possible causes. Animal-derived thyroid products contain a mixture of hormones and are not standard treatment.

Pregnancy can increase the body's need for thyroid hormone. If you take levothyroxine and become pregnant, arrange an early review rather than changing treatment yourself.

Complications

Untreated or undertreated hypothyroidism can raise cholesterol and may contribute to heart and circulation problems. It can also affect menstrual cycles, fertility, mood, nerve function, and muscle strength.

During pregnancy, poorly controlled hypothyroidism can affect both the pregnancy and the baby's development. Early testing and careful monitoring reduce these risks.

A goitre may become large enough to cause pressure, swallowing difficulty, or a change in voice, although this is not common.

Severe, prolonged hypothyroidism can very rarely lead to myxoedema coma. Despite its name, a person may not initially be in a coma. Warning signs include marked drowsiness or confusion, reduced consciousness, very low body temperature, slow breathing, and severe weakness. This is a medical emergency.

Prevention

Most cases cannot be prevented. In particular, there is no established way to prevent inherited risk or stop autoimmune Hashimoto's thyroiditis from developing.

Avoid taking iodine or "thyroid support" supplements unless a qualified healthcare professional has identified a need. Both too little and too much iodine can interfere with thyroid function, and some supplements may contain undeclared thyroid hormones.

If you take a medicine known to affect the thyroid, routine blood-test monitoring may identify changes before symptoms become significant. Do not stop such a medicine on your own.

Newborn screening can detect congenital hypothyroidism soon after birth. It does not prevent the condition, but early treatment helps protect growth and brain development.

Living with it and what to expect

For many people, hypothyroidism is a long-term condition managed with one daily medicine and periodic blood tests. Once the replacement amount is stable, most people can work, exercise, travel, become pregnant, and take part in everyday activities without special

restrictions.

Improvement is often gradual. Energy and concentration may recover before changes in hair, skin, or weight become noticeable. Treatment corrects the hormone shortage, but it may not reverse every symptom if another condition is also contributing.

Your replacement needs can change over months or years. Pregnancy, major weight changes, ageing, digestive conditions, new medicines, and changes in how tablets are taken can all affect blood results. Switching between formulations may also lead to a review if symptoms or test results change.

Hashimoto's thyroiditis and hypothyroidism following complete thyroid removal are usually permanent. Thyroid inflammation after pregnancy or a viral illness may improve, but some people later develop lasting hypothyroidism. Ongoing testing shows whether thyroid function has recovered.

Taking medicine consistently and attending planned blood tests are the main parts of long-term management. There is no specific hypothyroidism diet that can replace thyroid hormone.

When to get medical help

Arrange a routine appointment if you have persistent symptoms such as tiredness, cold intolerance, constipation, unexplained weight change, heavy periods, or swelling at the front of your neck. These symptoms have many possible causes, so testing is important.

Also arrange follow-up if:

Seek prompt medical advice for a rapidly enlarging neck swelling, new trouble swallowing, or a persistent unexplained voice change.

Call emergency services if someone with possible severe hypothyroidism has marked confusion, cannot stay awake, loses consciousness, has very slow or difficult breathing, or is unusually cold and seriously unwell. Chest pain or severe breathing difficulty also requires emergency assessment, whatever the suspected cause.

- Symptoms return or continue after treatment
- You develop symptoms that could suggest too much replacement hormone
- You start or stop medicines or supplements that may affect levothyroxine
- You have difficulty taking your medicine consistently
- You are planning a pregnancy or have a positive pregnancy test

Common questions

Can hypothyroidism go away?

Sometimes. Hypothyroidism caused by temporary thyroid inflammation or certain medicines may resolve. Autoimmune hypothyroidism and hypothyroidism after complete thyroid removal are generally permanent. Blood tests, not symptoms alone, show whether the thyroid has recovered.

Does hypothyroidism cause weight gain?

It can contribute to weight gain, partly through fluid retention and slower energy use. The gain is often modest. Thyroid treatment may reverse some of it, but it is not a weight-loss treatment, and weight may not return to a previous level through levothyroxine alone.

Can I have normal TSH and still have hypothyroidism?

A normal TSH usually makes primary hypothyroidism unlikely. Rare pituitary or hypothalamic problems can cause central hypothyroidism, in which TSH may be normal or low despite a low free T4. Symptoms and other test results guide whether this needs investigation.

Will I need levothyroxine for life?

Many people do, especially when the thyroid has been permanently damaged, removed, or treated with radioactive iodine. Temporary causes may not require lifelong treatment. Levothyroxine should only be stopped with planned blood-test follow-up.

What foods should I avoid with hypothyroidism?

Most people do not need to avoid particular foods. The main issue is that food and certain supplements can affect levothyroxine absorption. Follow the medicine instructions consistently and discuss iron, calcium, antacids, iodine products, and major diet changes with a pharmacist or healthcare professional.

Why am I still tired when my thyroid tests are normal?

Recovery can take time, and tiredness has many causes. Poor sleep, anaemia, low mood, menopause, medication effects, nutritional problems, and other conditions may contribute. Taking extra thyroid hormone when levels are already appropriate can cause harm rather than improve energy.

Sources

- National Institute for Health and Care Excellence. Thyroid disease: assessment and management (NG145). Published 2019; updated 2023.
- National Institute of Diabetes and Digestive and Kidney Diseases. Hypothyroidism (Underactive Thyroid). National Institutes of Health.
- American Thyroid Association. Hypothyroidism. Patient information.
- NHS. Underactive thyroid (hypothyroidism).
- Jonklaas J, Bianco AC, Bauer AJ, et al. Guidelines for the Treatment of Hypothyroidism. Thyroid. 2014;24(12):1670-1751.
- Alexander EK, Pearce EN, Brent GA, et al. 2017 Guidelines of the American Thyroid Association for the Diagnosis and Management of Thyroid Disease During Pregnancy and the Postpartum. Thyroid. 2017;27(3):315-389.