

# HYPOTHYROIDISM

## What is hypothyroidism?

Hypothyroidism (underactivity of the thyroid gland) occurs when the thyroid gland produces less than the normal amount of thyroid hormone. The result is the “slowing down” of many bodily functions. Although hypothyroidism may be temporary, it usually is a permanent condition. Of the nearly 30 million people suffering from a thyroid condition, most have hypothyroidism.

## What are the features of hypothyroidism?

In its earliest stage, hypothyroidism may cause few symptoms, since the body has the ability to partially compensate for a failing thyroid gland by increasing the stimulation to it, much like pressing down on the accelerator when climbing a hill to keep the car going the same speed. As thyroid hormone production decreases and the body’s metabolism slows, a variety of features may result:

- Pervasive fatigue
- Drowsiness
- Forgetfulness
- Difficulty with learning
- Dry, brittle hair and nails
- Dry, itchy skin
- Puffy face
- Constipation
- Sore muscles
- Weight gain and fluid retention
- Heavy and/or irregular menstrual flow
- Increased frequency of miscarriages
- Increased sensitivity to many medications

## What are the major causes of hypothyroidism?

### AUTO IMMUNE THYROIDITIS

The body’s immune system may produce a reaction in the thyroid gland that results in hypothyroidism and, often, a goiter (enlargement of the thyroid). Other autoimmune diseases may be associated with this disorder, and additional family members may also be affected.

### RADIOACTIVE IODINE TREATMENT

Hypothyroidism frequently develops as a desired therapeutic goal after the use of radioactive iodine treatment for hyperthyroidism.

### THYROID SURGERY

Hypothyroidism may be related to surgery on the thyroid gland, especially if most of the thyroid has been removed.

### MEDICATIONS

Lithium, high doses of iodine, and amiodarone (Cordarone, Pacerone) can cause hypothyroidism.

### SUBACUTE THYROIDITIS

This condition may follow a viral infection and is characterized by painful thyroid gland enlargement and inflammation, which results in the release of large amounts of thyroid hormone into the blood. Fortunately, this condition usually resolves spontaneously. The thyroid usually heals itself over several months, but often not before a temporary period of hypothyroidism occurs.

### POST PARTUM THYROIDITIS

Five percent to ten percent of women develop mild to moderate hyperthyroidism within several months of giving birth. Hyperthyroidism in this condition usually lasts for approximately one to two months. It is often followed by several months of hypothyroidism, but most women will eventually recover normal thyroid function. In some cases, however, the thyroid gland does not heal, so the hypothyroidism becomes permanent and requires lifelong thyroid hormone replacement. This condition may occur again with subsequent pregnancies.

### SILENT THYROIDITIS

Transient (temporary) hyperthyroidism can be caused by silent thyroiditis, a condition which appears to be the same as postpartum thyroiditis but is not related to pregnancy. It is not accompanied by a painful thyroid gland.



## CONGENITAL HYPOTHYROIDISM

An infant may be born with an inadequate amount of thyroid tissue or an enzyme defect that does not allow normal thyroid hormone production. If this condition is not treated promptly, physical stunting and/or mental damage (cretinism) may develop.

## CENTRAL HYPOTHYROIDISM

Thyroid-stimulating hormone (TSH) is produced by the pituitary gland, which is located behind the nose at the base of the brain. Any destructive disease of the pituitary gland may cause damage to the cells that secrete TSH, which stimulates the thyroid to produce normal amounts of thyroid hormone. This is a rare cause of hypothyroidism.

## How is hypothyroidism diagnosed?

Characteristic symptoms and physical signs, which can be detected by a physician, can signal hypothyroidism. However, the condition may develop so slowly that many patients do not realize that their body has changed, so it is critically important to perform diagnostic laboratory tests to confirm the diagnosis and to determine the cause of hypothyroidism.

### TSH (THYROID – STIMULATING HORMONE OR THYROTROPIN) TEST

An increased TSH level in the blood is the most accurate indicator of primary (not central) hypothyroidism. Production of this pituitary hormone is increased when the thyroid gland even slightly under-produces thyroid hormone.

### OTHER TESTS

- **Estimates of free thyroxine:** The active thyroid hormone in the blood. It is important to note that there is a range of free thyroxine levels in the blood of normal people, similar to the range for height, and that a value of normal free thyroxine values for the general populations vary a great deal.
- **Thyroid autoantibodies:** Indicates the likelihood of auto-immune thyroiditis being the cause of hypothyroidism. A primary care physician may make the diagnosis of hypothyroidism, but assistance is sometimes needed from an endocrinologist, a physician who is a specialist in thyroid diseases.

## How is hypothyroidism treated?

Hypothyroidism is generally treated with a single daily dose of levothyroxine, given as a tablet. An experienced

physician can prescribe the correct form and dosage to return the thyroid balance to normal. Older patients who may have underlying heart disease are usually started at a low dose and gradually increased while younger healthy patients can be started on full replacement doses at once. Thyroid hormone acts very slowly in some parts of the body, so it may take several months after treatment for some features to improve.

Since most cases of hypothyroidism are permanent and often progressive, it is usually necessary to treat this condition throughout one's lifetime. Periodic monitoring of TSH levels and clinical status are necessary to ensure that the proper dose is being given, since medication doses may have to be adjusted from time to time. Optimal adjustment of thyroid hormone dosage is critical, since the body is very sensitive to even small changes in thyroid hormone levels. Levothyroxine tablets come in 12 different strengths, and it is essential to take them in a consistent manner every day. A dose of thyroid hormone that is too low may fail to prevent enlargement of the thyroid gland, allow symptoms of hypothyroidism to persist, and be associated with increased serum cholesterol levels, which may increase the risk for atherosclerosis and heart disease. A dose that is too high can cause symptoms of hyperthyroidism, create excessive strain on the heart, and lead to an increased risk of developing osteoporosis.

It is extremely important that thyroid medications for women who are planning to become pregnant are kept well adjusted, since hypothyroidism can affect the development of the baby. During pregnancy, thyroid hormone replacement requirements often change, so more frequent monitoring is necessary. Various medications and supplements (particularly iron) may affect the absorption of thyroid hormone; therefore, the levels may need more frequent monitoring during illness or change in medication.

Thyroid hormone is critical for normal brain development in babies. Infants requiring thyroid hormone therapy should NOT be treated with purchased liquid suspensions, since the active hormone may deteriorate once dissolved and the baby could receive less thyroid hormone than necessary. Instead, infants with hypothyroidism should receive their thyroid hormone by crushing a single tablet daily of the correct dose and suspending it in one teaspoon of liquid and administering it promptly.

Appropriate management of hypothyroidism requires continued care by a physician experienced in the treatment of this condition.