



Fact Sheet

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The Patient Education Website of the American Society for Reproductive Medicine

Hypothyroidism

What is hypothyroidism?

Hypothyroidism (underactive thyroid) occurs when the thyroid gland produces less thyroid hormone than it should. In contrast, hyperthyroidism (overactive thyroid) occurs when the thyroid gland produces too much thyroid hormone. The thyroid gland is located in the lower portion of the throat. It partially wraps around the upper portion of the windpipe (trachea). The thyroid gland produces two hormones: triiodothyronine (T3) and thyroxine (T4). These two hormones play a critical role in metabolism, which is the body's ability to transform food into energy. The thyroid gland is regulated by thyroid stimulating hormone (TSH). TSH is produced by the pituitary gland which is located in the brain.

What are the symptoms of hypothyroidism?

When the thyroid gland produces less thyroid hormone than it should (hypothyroidism), the metabolism rate slows down and causes a variety of symptoms. At first, the symptoms of hypothyroidism may not be recognized, but over time these symptoms may become more noticeable and severe and can include the following:

- Fatigue (feeling tired)
- Weight gain
- Constipation (inability to have a bowel movement)
- Irregular periods
- Loss of sex drive
- Hair loss
- Brittle hair and nails
- Dry, itchy skin
- Difficulty learning and remembering
- Infertility
- Miscarriage
- Recurrent miscarriage

Unlike patients with hypothyroidism, patients with hyperthyroidism can have increased energy, nervousness, weight loss, heart palpitations, insomnia, excessive sweating, heat intolerance and tremors (shaking).

What causes hypothyroidism?

The most common cause of hypothyroidism is an autoimmune disorder called Hashimoto's thyroiditis. The body's immune system mistakenly sends out antibodies to destroy the cells in the thyroid gland. This autoimmune process may cause a goiter. A goiter is an enlargement of the thyroid gland. Hypothyroidism and a goiter can also occur in people who do not get enough iodine in their diet. In addition to these causes, hypothyroidism can occur after thyroid surgery or radioactive iodine therapy, which is often given to people in order to treat hyperthyroidism. In many cases, the specific cause of hypothyroidism is not identifiable.

How is hypothyroidism tested?

The main test used to detect hypothyroidism is by measuring the amount of thyroid stimulating hormone (TSH) in the blood. When the thyroid gland is not producing enough thyroid hormone, the pituitary gland responds by producing more TSH. An elevated blood TSH level usually means the thyroid gland is not making enough thyroid hormone. Other blood tests include measuring T4 and thyroid autoantibodies. An autoantibody is an antibody that attacks the cells and tissues of the organism in which it was formed. T4 is a hormone produced directly by the thyroid gland. It is typically low in patients with hypothyroidism. Thyroid autoantibodies are present in patients with Hashimoto's (autoimmune) thyroiditis.

How does hypothyroidism affect my fertility and my baby if I become pregnant?

Hypothyroidism can prevent the release of the egg from the ovary (ovulation). Typically, for those patients who have periods (menstruate) each month, an egg is released from the ovary each month. But women who have hypothyroidism may release an egg less frequently or not at all. Hypothyroidism can also interfere with the development of an embryo (fertilized egg). This increases the risk of miscarriage. Also, if you are pregnant and your hypothyroidism is not treated, your baby may be born preterm, weigh less than normal, and its full mental capacity may be reduced. That is why it is very important for patients to have their thyroid hormones checked and receive appropriate treatment if they wish to have a baby or are already pregnant.

How is hypothyroidism treated?

The most commonly used medication to treat hypothyroidism is called levothyroxine. Levothyroxine is a tablet that is usually taken once a day. Once you start taking levothyroxine, you should have your blood checked in 4-6 weeks to measure the level of thyroxine and to make sure you are taking the right dose. After this, it is still important to have your blood checked every so often because hypothyroidism is often a lifelong and progressive disease, and your doctor may need to adjust your dose of thyroid hormone replacement. Frequent monitoring is important because if the dose of thyroid replacement hormone is too high, patients may develop doctor-induced hyperthyroidism. This may lead to complications such as heart palpitations, nervousness and osteoporosis.

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