

Pregnancy with thyroid disorders



Why the thyroid matters in pregnancy

The thyroid gland produces thyroxine, also called T4, and triiodothyronine, called T3. These hormones help regulate energy use, cardiovascular function, gastrointestinal motility, temperature regulation, and many aspects of growth and development. During pregnancy, thyroid hormone is particularly important for placental health and fetal neurodevelopment.

Several normal pregnancy changes affect thyroid function. Human chorionic gonadotropin, or hCG, can mildly stimulate the thyroid, sometimes lowering thyroid-stimulating hormone, known as TSH, in the first trimester. Estrogen increases thyroid-binding globulin, which changes total thyroid hormone concentrations. Iodine needs also rise because of increased renal iodine clearance and fetal thyroid hormone production later in pregnancy.

Because of these changes, a TSH or free T4 value that might be interpreted one way outside pregnancy may need different interpretation during pregnancy. Many guidelines emphasize using trimester-specific reference ranges where available. If local pregnancy ranges are not available, clinicians apply guideline-based thresholds and clinical judgment. This is one reason self-interpretation of thyroid tests can be misleading during pregnancy.

Hypothyroidism: underactive thyroid in pregnancy

Hypothyroidism means the body does not have enough thyroid hormone for its needs. The most common cause in iodine-sufficient settings is autoimmune thyroiditis, often called Hashimoto thyroiditis. Other causes include previous thyroid surgery, radioiodine treatment, certain medications, pituitary disease, and iodine deficiency in some regions.

Symptoms may overlap with ordinary pregnancy experiences, which can make recognition difficult. Fatigue, constipation, cold intolerance, dry skin, muscle cramps, slowed heart rate, low mood, or excessive sleepiness may occur, but some people have few symptoms. Laboratory testing typically centers on TSH and free T4, interpreted in the pregnancy context.

Untreated or inadequately treated overt hypothyroidism has been associated with increased risks such as miscarriage, anemia, preeclampsia, placental complications, preterm birth, low birth weight, and impaired fetal neurocognitive development. These associations are why known hypothyroidism usually requires early review when pregnancy is confirmed, and sometimes medication dose adjustment.

Levothyroxine, a synthetic form of T4, is the usual treatment. Many people who were taking levothyroxine before pregnancy need a higher dose during pregnancy, but the exact adjustment should be directed by a clinician. Prenatal vitamins containing iron or calcium can reduce levothyroxine absorption, so timing of doses is often discussed with the healthcare team.

Hyperthyroidism, Graves' disease, and gestational thyrotoxicosis

Hyperthyroidism means excessive thyroid hormone activity. In pregnancy, Graves' disease is the most common cause of persistent clinically significant hyperthyroidism. Graves' disease is autoimmune: thyroid-stimulating immunoglobulins activate the TSH receptor, driving thyroid hormone production. These antibodies can cross the placenta, so antibody testing may be relevant for fetal and neonatal risk assessment in some pregnancies.

Symptoms can include palpitations, tremor, heat intolerance, anxiety, insomnia,

weight loss or poor weight gain despite appetite, frequent stools, muscle weakness, and sometimes eye symptoms. However, normal pregnancy can also cause warmth, faster heart rate, and fatigue, so careful clinical and laboratory assessment is important.

Another condition is gestational thyrotoxicosis, often related to high hCG levels, and sometimes associated with severe nausea and vomiting, known as hyperemesis gravidarum. It is usually transient and differs from Graves' disease because it is not driven by TSH-receptor antibodies. Management may be supportive in some cases, but severe symptoms or abnormal tests should be assessed by healthcare professionals.

Uncontrolled hyperthyroidism can increase the risk of miscarriage, hypertensive disorders of pregnancy, heart failure, thyroid storm, preterm birth, fetal growth restriction, stillbirth, and neonatal thyroid dysfunction. Treatment decisions balance the risks of excess thyroid hormone against the risks and benefits of antithyroid medication.

Treatment principles and medication safety

Treatment during pregnancy is individualized. The aim is not simply to normalize every number as quickly as possible, but to maintain thyroid hormone levels in a range that supports maternal wellbeing while minimizing fetal exposure to both disease and medication-related risks.

For hypothyroidism, levothyroxine is considered the standard replacement therapy. It is chemically equivalent to the hormone the body normally produces, and treatment targets are guided by pregnancy-specific thyroid tests. People should not stop levothyroxine because they become pregnant; instead, they should contact their healthcare professional promptly for testing and dose review.

For hyperthyroidism requiring treatment, antithyroid drugs may be used. Propylthiouracil, often abbreviated PTU, is commonly preferred in the first trimester in many guidelines because of concerns about rare congenital anomalies associated with methimazole or carbimazole early in organ development. After the first trimester, some clinicians may consider switching to methimazole or carbimazole because PTU is associated with rare but serious

liver toxicity. These decisions are specialized and should not be made without medical supervision.

Radioactive iodine is contraindicated in pregnancy because it can damage the fetal thyroid. Thyroid surgery is rarely needed but may be considered in selected situations, usually in the second trimester, when medication is not tolerated or disease control is unsafe. Beta-blockers may sometimes be used briefly for severe adrenergic symptoms such as palpitations or tremor, but prolonged use has potential fetal effects and requires clinician oversight.

Monitoring: tests, timing, and coordinated care

Monitoring usually includes TSH and free T4, with total T4, free T3, thyroid peroxidase antibodies, or TSH-receptor antibodies added in selected situations. The frequency of testing depends on the diagnosis, gestational age, medication changes, symptom burden, and previous stability. Many patients with treated hypothyroidism are tested relatively frequently in early pregnancy and after dose changes.

For Graves' disease, TSH-receptor antibody measurement can help identify pregnancies in which the fetus or newborn may be at risk of thyroid dysfunction, even if the pregnant person has previously had thyroid ablation or surgery. If antibody levels are high or maternal disease is difficult to control, additional fetal surveillance may be recommended. Clinicians may look for signs such as fetal tachycardia, growth restriction, goiter, advanced bone maturation, or signs of heart strain.

Care is often shared. An obstetrician or midwife may coordinate routine pregnancy care, while an endocrinologist advises on thyroid targets and medication. Maternal-fetal medicine specialists may become involved when disease is severe, antibody levels are high, fetal concerns arise, or there are additional pregnancy complications.

It can help patients to keep a record of thyroid results, medication changes, symptom patterns, and prenatal supplements. However, treatment should be adjusted only with professional guidance, because both under-replacement and over-replacement can matter during pregnancy.

Risks to the baby and newborn follow-up

The fetal thyroid begins concentrating iodine and producing thyroid hormone as pregnancy progresses, but in the first trimester the fetus depends heavily on maternal thyroid hormone. This is one reason early control of maternal hypothyroidism is emphasized. Adequate maternal thyroid hormone supports early brain and nervous-system development.

In hyperthyroidism due to Graves' disease, maternal antibodies can cross the placenta and stimulate the fetal thyroid. Antithyroid drugs can also cross the placenta and reduce fetal thyroid activity. The clinical challenge is to keep maternal thyroid hormone controlled without causing fetal hypothyroidism. This is why treatment targets in pregnancy may allow maternal free T4 toward the upper part of the pregnancy-appropriate range, depending on the clinical situation.

After birth, some newborns may need thyroid function testing, particularly if the mother has current or past Graves' disease, high TSH-receptor antibodies, or antithyroid drug exposure close to delivery. Neonatal hyperthyroidism or hypothyroidism is uncommon but can be serious, so pediatric and neonatal teams may plan observation and testing.

Postpartum thyroid changes and breastfeeding

The postpartum period can bring new thyroid changes. Some people develop postpartum thyroiditis, an autoimmune inflammation of the thyroid that may cause a temporary hyperthyroid phase, a hypothyroid phase, or both. Symptoms can be mistaken for normal postpartum adjustment, anxiety, sleep deprivation, or depression, so thyroid testing may be appropriate when symptoms are persistent or disproportionate.

People with pre-existing hypothyroidism often need their levothyroxine dose reviewed after delivery because pregnancy-related dose increases may no longer be required. Those with Graves' disease may experience relapse or worsening postpartum, when immune activity shifts again. Follow-up after birth is therefore part of good thyroid care, not an optional extra.

Breastfeeding is often possible with thyroid disease. Levothyroxine is

compatible with breastfeeding. Antithyroid drugs may also be compatible at appropriate doses, with medical supervision and infant monitoring when indicated. Patients should discuss medication timing, dose, and infant follow-up with their clinician rather than stopping therapy abruptly.

Practical steps for patients

Living with thyroid disease during pregnancy can feel like one more layer of appointments and laboratory results. A structured plan can reduce uncertainty.

Tell your pregnancy care team about any thyroid history, including thyroid surgery, radioactive iodine treatment, nodules, autoimmune thyroid disease, Graves' disease, or family history.

Contact your clinician promptly after a positive pregnancy test if you take levothyroxine or antithyroid medication.

Take thyroid medication consistently and ask how to separate levothyroxine from iron, calcium, antacids, or prenatal vitamins.

Attend recommended blood tests even if you feel well, because symptoms and laboratory control do not always match.

Seek specialist advice before making medication changes, starting supplements with high iodine content, or using over-the-counter thyroid products.

Most importantly, remember that needing medication or extra monitoring is not a personal failure. Thyroid disorders are medical conditions, and careful treatment is an act of protection for both parent and baby.