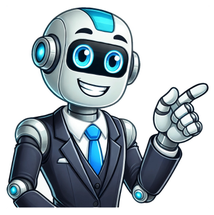
Click Here



Do you need to fast for thyroid test

Several factors can affect thyroid test results, the blood tests used to measure thyroid-stimulating hormone (TSH), triiodothyronine (T3) and thyroxine (T4), and the levels that are key to your thyroid health. Some may be short-term fluctuations in thyroid hormone levels that go away when your medication dose changed, or small differences in results when the hour of your test has changed. Other factors that affect thyroid test results may be longer-term, such as pregnancy or a lifestyle factor like smoking that can alter the levels recorded by your test. This article looks at 10 factors that can affect your thyroid blood test results. It explains why they may alter your results and, in some cases, how you can limit the impact on your thyroid tests. andresr Studies have shown that time of day and fasting can affect your results. If you test in the early morning after overnight fasting, the results may show higher (TSH) levels. If you get your blood test in the afternoon when you have not been fasting, your TSH levels will be lower. That can be a problem if you have subclinical hypothyroidism. It occurs when you have a mildly elevated TSH and normal free T4, but no symptoms. Subclinical hypothyroidism may be missed if you take your test in the afternoon and you have not been fasting. Ask your healthcare provider if you need to fast for your TSH and related thyroid tests. Factors that can affect thyroid test results include mental stress and overall stress on your body, such as sleep deprivation or dieting. The evidence for the influence of these things is unclear. Still, it is a good idea to have your thyroid levels checked under the same conditions each time. This can help avoid false fluctuations on your test results. If you are taking thyroid hormone replacement, it's a good idea to get your tests under the same conditions every time. Schedule your TSH tests for around the same time of day. If you fasted for one test, fast for all of them. Your weight and body mass can affect thyroid function and have an impact on thyroid tests. For example, TSH levels and thyroid hormone levels rise with the release of the hormone leptin, which also rises with obesity. But many factors are at play in how thyroid function and your weight and body mass actually affect each other. As a general rule, people with an overactive thyroid tend to have lower body weights and those with lower function tend to gain thyroid-related weight. Researchers aware of the limitations of body mass index (BMI) in assessing thyroid health are looking at new tests, like waist-to-hip ratio (WHR) and body shape index (ABSI). They're finding more nuances in how weight and body mass affect thyroid function. The impact of smoking on thyroid function has been known for decades, with higher free triiodothyronine (free T3) levels and lower TSH levels in people who smoke. A recent study of more than 5,700 people in the Netherlands noted modestly higher free T4 levels as well, when smokers were compared with former smokers and people who never did. Thyroid tests from people who quit smoking show their TSH goes up and the T4 goes down. The reasons why smoking affects thyroid function remain under investigation. Some studies show a lower free T4 level that's seen in people who consume alcohol. Lower free T3 and free T4 levels also have been reported in people following their alcohol withdrawal. The reasons for thyroid level changes in people who use alcohol remain unclear, but there is some evidence to suggest that alcohol acts on other hormone-producing structures that in turn affect thyroid function, including the hypothalamus (TRH) and pituitary glands (TSH). It's also possible that elements in the beverages themselves, like resveratrol polyphenols found in red wine, may act on the thyroid and, therefore, affect thyroid test results. Iodine deficiency has long been known to contribute to hypothyroidism, but many other foods may have an impact on TSH and thyroid hormone levels. Those under study include: Soy-based foodsOlive oilBroccoli and other brassica vegetablesTea and coffee Some studies have found diets high in processed foods affect TSH and thyroid hormone levels. A 2021 study of 4,585 people found thyroid-related changes in people with diets high in protein and fats (like bacon and sausage), sugar sources like fruit juice, and grains like those in white bread. You may be asked to avoid iodine in foods like kelp, or in medicine, for about a week before a thyroid scan test. The iodine is a factor that may affect your thyroid test results because of a small amount of radioactive iodine that's used during the scan. Certain medications can cause thyroid dysfunction. These drugs can interfere with your thyroid hormone levels or with their action. This may alter TSH because your body may try to compensate for the high or low thyroid hormones. Some medications can alter thyroid hormone function and test results. These include: Lithobid (lithium) Pacerone (amiodarone) Iodine or kelp supplements Immunomodulating drugs like interferon alpha and interleukin-2 Certain chemotherapy drugs Antidepressants Tyrosine kinase inhibitors, like Nexavar (sorafenib) or Sutent (sunitinib) Estrogens, like those in birth control pills, can cause high levels of T3 and T4. If you are taking estrogens, be sure to have a TSH and free T4 test as part of your thyroid evaluation since they typically will not be affected. Certain supplements and medications can get in the way of your body's ability to absorb thyroid medications. These include: Calcium carbonateIron sulfateProton pump inhibitors like Prilosec (omeprazole) and Prevacid (lansoprazole) These may prevent you from getting enough of your medication into your system. This is why it's typically recommended that you avoid taking any supplements or medications within three to four hours of your thyroid medication. Other medications can interfere with thyroid lab measurements. These drugs do not affect the actual functioning of the thyroid. A few examples include: Certain nonsteroidal anti-inflammatory drugs (NSAIDs) Certain anticonvulsants Heparin (a blood thinner) Lasix (furosemide) Glucocorticoids (steroids such as cortisone) Isotretinoin Research has found that the supplement biotin can interfere with thyroid blood test results. If you take biotin, stop two days before your thyroid blood test. Certain drugs and supplements may interfere with your test results. Some can change thyroid function or get in the way of your body's ability to absorb thyroid medications. Others may interfere with the test itself. Thyroid hormone levels change during pregnancy. In fact, the ranges considered normal also change throughout pregnancy. What is considered normal may be slightly different depending on the lab where you get your blood test. Thyroid levels are measured in milliunits per liter (mU/L) and picomoles per liter (pmol/L). A mole is a way to measure large amounts of very small things like atoms and molecules. A picomole is one trillionth of a mole. Normal ranges for non-pregnant people are as follows: TSH: 0.5-4.7 mU/LFree T4 (FT4): 8.0-18 pmol/LFree T3 (FT3): 2.30-4.2 pmol/L Normal ranges for pregnant people are different. The American Thyroid Association (ATA) recommends that healthcare providers use these ranges based on trimester when evaluating the thyroid tests of pregnant people. 1st Trimester 2nd Trimester 3rd Trimester TSH 0.1 - 2.5 mU/L 0.2 - 3.0 mU/L 0.3 - 3.0 mU/L FT4 10.30-18.11 pmol/L 10.30-18.15 pmol/L 10.30-17.89 pmol/L FT3 3.80-5.81 pmol/L 3.69-5.90 pmol/L 3.67-5.81 pmol/L Certain illnesses can temporarily affect thyroid hormone results. Diarrhea can interfere with your medication absorption and may alter your lab results. Infections or a bout of an inflammatory condition such as lupus can also have an effect. People with this condition have a normal TSH level with a low T4 and T3 level. These changes in thyroid levels are thought to be protective. For that reason, people with this condition do not receive treatment to correct thyroid levels. Some heavy metals and other toxins can interfere with thyroid function, which can affect thyroid hormone levels and test results. These environmental exposures include: ArsenicLeadMercuryNitrate fertilizersPesticidesPerfluoroalkyl substances (PFAS) "forever" chemicals These toxins can change how thyroid hormones are produced and metabolized (used in the body). However, research on these compounds has led to mixed results, and scientists continue to work to understand how toxins affect thyroid function in both the short and long term. Keep in mind that different kinds of tests, or even the same test done at different laboratories, can yield results that are inconsistent or use different ranges. Talk with your healthcare provider about the kind of blood test or imaging you'll have, and how the pathology (the lab work) or radiology assessment will be done. Outside factors may affect the results of your thyroid test. This can include whether or not you ate before your test, what time of day you take the test, and things like stress, diet, and sleep. Some medications and supplements may also affect your results. This may be because they change your thyroid function. It may also be because they reduce your body's ability to absorb thyroid hormone. Other drugs and supplements may just interfere with the test itself. Pregnant people have different normal thyroid levels than those who are not pregnant. Certain illnesses may also interfere with your results. Thyroid blood tests are an important part of diagnosing and treating thyroid disease. Based on how high or low the different values are—including key hormones such as TSH and T4—the lab can determine which type of thyroid disease you have (hypothyroidism vs. hyperthyroidism) and narrow the possible causes. The results can be difficult to understand because the diagnosis can change based on the relationship of values. For instance, a high TSH and low T4 may suggest Hashimoto’s disease, while a low TSH and high T4 may suggest Graves' disease. Different combinations of values can mean different things, and there is often more than one meaning. Thyroid tests are done to determine how well the thyroid gland is working. This gland, situated in the front of your throat, produces hormones that regulate heart rate, blood pressure, digestion, metabolism, and other body functions. When you have thyroid disease, your thyroid gland produces too little or too much of a hormone. The tests will help diagnose the type of disease, which can fall into two broad categories: Hypothyroidism: Also referred to as an underactive thyroid gland, it is most commonly caused by an autoimmune disorder called Hashimoto's thyroiditis. Hyperthyroidism: Also referred to as an overactive thyroid gland, it is most commonly caused by an autoimmune disorder called Graves' disease. If you have a family history of thyroid disease or symptoms of an imbalance of thyroid hormones, your doctor may order these tests. With hypothyroidism, symptoms include weight gain, fatigue, and a slow heart rate. With hyperthyroidism, the overproduction of hormones can cause weight loss, agitation, and a racing heart. The purpose of thyroid blood tests is to determine how well your thyroid gland is functioning. This is done by measuring hormones produced by the thyroid gland as well as other organs (like the pituitary gland) that influence the thyroid gland. Thyroid-stimulating hormone (TSH) is produced by the pituitary gland situated at the base of the brain. It acts as a chemical messenger, telling the thyroid gland when to start producing thyroid hormones. When thyroid hormone levels are low, more TSH is produced to stimulate production. When levels are normal, the pituitary gland stops producing TSH. The TSH test measures how much or how little TSH there is in the bloodstream. Thyroxine (T4) is one of two hormones produced by the thyroid gland. It is an inactive thyroid hormone that freely circulates in the bloodstream, ready to be converted to the active form called T3. There are two types of T4: bound T4 (which is attached to proteins that prevent it from entering tissues) and free T4 (which is not attached to proteins and can enter tissues freely). When measuring T4, the lab will look at two different values: Total T4: The total amount of T4 (bound and unbound) in your bloodstreamFree T4: The total amount of unbound T4 available for use in tissues Free T4 is arguably more important to measure because it is the type that will be more active once converted to T3. Triiodothyronine (T3) is the active thyroid hormone converted from T4. As with T4, there is both bound and free T3. T3 blood tests include: Total T3: The total amount of T3 (bound and unbound) in your bloodstream Free T3: The amount of unbound T3 available for use in tissues Reverse T3: An inactive form of T3 that has no utility but can block free T3 from entering tissues T4 is generally the more important thyroid hormone to measure. This is because it describes how much thyroid hormone is available for use rather than how much has been converted. Thyroglobulin (Tg) is a protein made by the thyroid gland. It's mostly used to help guide the treatment of thyroid cancer. Thyroidectomy (surgical removal of the thyroid gland) or radioactive ablation (RAI) therapy are commonly used to treat thyroid cancer. A high Tg level is a sign that cancer cells are still present after these treatments. By comparing baseline values with later values, the Tg test can tell your provider if cancer treatments are working. It can also tell them if the cancer is in remission. Some thyroid diseases like Hashimoto's thyroiditis and Graves' disease are autoimmune disorders. These are diseases in which the immune system targets and attacks normal thyroid cells. There are three common antibodies associated with autoimmune thyroid disease: Thyroid peroxidase antibodies (TPOAb): The type of antibody is detected in 90% of people with Hashimoto's. For those with Graves' disease, the frequency of TBOAb has been varied with estimates of 50% to 90%. A high TPOAb is also seen after childbirth in people with postpartum thyroiditis. Thyroid-stimulating hormone receptor antibodies (TRAb): These are found in up to 100% of Graves' disease cases, depending on the method used to detect the antibodies. TRAb may also be found in people with Hashimoto's disease but in significantly fewer cases. Thyroglobulin antibodies (TgAb): These are produced by your body in response to the presence of Tg. One in four people with thyroid cancer will have elevated TgAb. It is also detected in 60% to 80% of people with Hashimoto's and between 50% to 60% of those with Graves' disease. These blood tests measure the amount of proteins that can bind to T3 and T4. They can help determine the cause of a thyroid problem if your thyroid gland is functioning normally. The tests include: Thyroid binding globulin (TBG): This is the specific protein that binds to T4 and T3.T3 resin uptake (T3RU): This calculates the percentage of TBG in the blood. Thyroid blood tests involve a basic blood draw, also known as a venipuncture. You will be seated while a skilled nurse or phlebotomist performs the procedure, which takes a few short minutes to complete. A tourniquet is wrapped around the upper portion of your arm.The phlebotomist checks your arm for a vein to use.The insertion site is cleaned with alcohol.A needle is inserted into the vein.The blood is collected into vials.After removing the needle, a bandage is applied. You may feel a pinch when the needle is inserted or withdrawn and there may be some bruising after the procedure. While there is little risk of complications with a thyroid blood test, it does involve a blood draw that may cause side effects such as: Mild bleeding at the puncture site Mild redness or swelling Bruising or hematoma (a small pocket of blood under the skin) In rare instances, a skin infection may occur. See a healthcare provider immediately if you develop a fever with chills; a pus-like discharge; and increased swelling, redness, pain, or heat at the puncture site. The results of thyroid blood tests are described in a reference range of values. The reference range has a high and low value between which results are considered normal. Values near the upper or lower limit are borderline, while anything outside of these limits is considered abnormal. Normal thyroid levels for adults are as follows: TSH: 0.5 to 5.0 mIU/L (milli-international units per liter)Total T4: 5.0 and 12.0µg/dL (micrograms per deciliter)Total T3: 80 and 220 ng/dL (nanograms per deciliter) Abnormal values may indicate thyroid disease, either primary thyroid disease (caused by damage to the thyroid gland) or central thyroid disease (caused by damage to organs like the pituitary gland that regulates thyroid function). Thyroid disease may also be subclinical, meaning that there is only mild thyroid failure, usually with few notable symptoms. Reference ranges and units can vary from lab to lab. To ensure consistency in your test results, use the same lab for every test. Get our printable guide for your next healthcare provider's appointment to help you ask the right questions. On its own, the TSH test can diagnose thyroid disease, albeit with limitations. According to the American Association of Clinical Endocrinologists (AACE) and the American Thyroid Association (ATA), TSH values can be interpreted as follows: Subclinical hypothyroidism: 4.7 to 10 milliunits per liter (mU/L)Primary Hypothyroidism: 10 mU/L or higherSubclinical hyperthyroidism: 0.1 to 0.5 mU/LPrimary Hyperthyroidism: 0.1 mU/L and lower While the TSH test is valuable, it is more useful when referenced to T3/T4 results. By comparing TSH with T3/T4 values, your healthcare provider may have a clearer picture of the cause of thyroid disease. TSH T3/T4 Interpretations Low High Primary hyperthyroidism, most often due to Graves' disease High Low Primary hypothyroidism, most often due to Hashimoto's thyroiditis Low Normal Subclinical hyperthyroidism High Normal Subclinical hypothyroidism Normal to low Low Central hypothyroidism Normal to high High May be caused when a person has a genetic thyroid hormone resistance disorder or has a TSH-producing pituitary adenoma Other thyroid tests may be included in the workup. Some have specific aims, while others are used for screening purposes or to evidence possible causes. RT3 tests can detect euthyroid sick syndrome (ESS), a condition in which abnormal thyroid hormone levels are due to an illness unrelated to the thyroid gland. Tg tests can be used to predict long-term treatment outcomes. Research has shown that 4% of people with a Tg level under 1 will experience cancer recurrence within five years. TPOAb tests can help confirm Hashimoto's disease if TSH is high and T4 is low. TRAb tests can help diagnose Graves' disease or confirm a diagnosis of toxic multinodular goiter. Many thyroid blood tests are available, including tests for the thyroid hormones T3 and T4, thyroid stimulating hormone (TSH), and thyroid antibodies. The combined results can paint a clearer picture of the cause of thyroid disease. The tests can also monitor how effective thyroid treatments are, including the treatment of thyroid cancer. PreparationWhen to fastWhen to testTest resultsTakeawayYou generally don’t need to fast before a thyroid test, but a healthcare professional may advise you to prepare in other ways. The thyroid gland sits at the front of your neck and helps control your metabolism. If this gland produces too much, or too little, thyroid hormone, it could indicate a thyroid disorder. While certain imaging tests are available to diagnose these disorders, healthcare professionals more commonly check thyroid function with a blood test. It’s not necessary to fast, or to go without eating, before a thyroid function test unless a healthcare professional recommends it.In this article, you will learn why you might need a thyroid test and what special preparations — such as fasting — you may need to do beforehand.A thyroid test is a simple blood test done at your doctor’s office or in a laboratory.Technically, you don’t need fasting or other special preparations before you have your thyroid test.But recent research suggests that meal timing, how long it’s been since your last meal, and the time of day can affect TSH levels. Healthcare professionals may need to consider this in regard to testing. If you need to have regular thyroid tests, scheduling them at consistent times of day may offer better results.There are no official guidelines that require fasting for a thyroid test, but if you’re having other blood work done alongside thyroid blood tests, it may be part of your general blood test preparation. Be sure to ask a healthcare professional for any special instructions before your thyroid testing.Some blood tests require you to fast, or not eat, for a certain length of time before the test. This is so your results will be more accurate, and not altered by any recent food. Particular types of foods, or any meal in general, can affect the results of these tests.Other types of medical tests may also require fasting, but a healthcare professional will give you specific instructions when this is necessary.Thyroid testing is not always part of a comprehensive health exam, but you can request it if you think you need it.Usually, healthcare professionals order thyroid tests if you have a family history of thyroid issues, or you have symptoms that are common to thyroid disorders.You might want to request a thyroid test if you’re experiencing:fatigue (low energy)unexplained weight changesjoint or muscle pain and weaknesstemperature intolerances (either hot or cold)thinning hairdepressionnervousness or irritabilityan enlarged area of your neck called a goiterSymptoms of thyroid disease can also overlap with other disorders, but a thyroid test can confirm or rule out your thyroid gland as a source of these problems. Thyroid tests measure how well your thyroid gland is working.Blood tests measure the individual hormones produced by your thyroid gland:Thyroid-stimulating hormone (TSH): This is usually the first test a doctor may order. The standard range for TSH is 0.5–5 mU/L , but this can vary based on age, gender, and stage of life.T3: Healthcare professionals most often use a T3 test to diagnose hyperthyroidism. It measures the amount of the hormone triiodothyronine. They may order this test ordered if T4 levels are higher than usual.T4: A T4 test checks the level of thyroxine in your body. Too much or too little can indicate thyroid disease.Doctors usually only order imaging tests for thyroid issues if you have any irregularities or are experiencing symptoms.Thyroid testing uses a sample of blood to measure levels of hormones made by the thyroid gland. These hormones help regulate growth and metabolism, and levels that are too high or too low could be a sign of thyroid disorder.You don’t need to fast for thyroid function tests, although a healthcare professional may recommend it for you specifically, or if you need other blood work done at the same time. In hypothyroidism, the thyroid gland fails to produce enough of the thyroid hormone thyroxine (also called T4). Because T4 is critically important in regulating the body's metabolism, digestive function, muscle function, and cardiac function, hypothyroidism is always a serious problem. The thyroid gland itself is regulated by the hormone TSH (thyroid stimulating hormone), which is produced in the pituitary gland. If the thyroid gland is not producing enough T4, the TSH levels increase in order to stimulate the thyroid to work harder. In hypothyroidism—in which the thyroid simply cannot make enough T4—the TSH levels are almost always greatly elevated. Verywell / Emily Roberts Subclinical hypothyroidism is the condition in which T4 levels remain in the normal range (that is, frank hypothyroidism is not present), but TSH levels are elevated: the high TSH levels are required in order to maintain that normal T4 level. So subclinical hypothyroidism implies that the thyroid gland itself is not functioning entirely normally. It's only by "whipping" the thyroid (with high TSH levels) that adequate T4 levels can be maintained. There is quite a bit of controversy today regarding the true significance of subclinical hypothyroidism. Because the T4 levels are in fact normal in this condition, in theory, subclinical hypothyroidism should not be much of a problem. But evidence suggests that subclinical hypothyroidism does produce clinical problems at least sometimes—and so, at least in some cases, it should be treated. Perhaps the biggest concern with subclinical hypothyroidism is that it may affect the heart if the TSH level goes above 10. This condition is diagnosed with blood tests, specifically, by measuring T4 levels and TSH levels. Subclinical hypothyroidism is present if the T4 levels are in the normal range (4 to 12 ug/dL), and the TSH levels are above the normal range (0.3 to 4 mU/L). However, many experts consider subclinical hypothyroidism to be "significant" only when the TSH levels are substantially elevated: above 10 mU/L. Should You Be Tested? In the old days (a decade or two ago), thyroid function testing was a routine part of a medical evaluation. But in the interest of cost savings, it is often no longer routine. It's reasonable to ask your healthcare provider to get thyroid blood tests if you have symptoms suggestive of hypothyroidism (see above), if you have elevated cholesterol levels, or if you just want to be sure you're doing everything you can to reduce your cardiac risk. It is believed that subclinical hypothyroidism is merely a mild form, or an early form, of the disorders that commonly produce frank hypothyroidism—most typically autoimmune thyroiditis (Hashimoto's thyroiditis). Indeed, over time, as many as half the people with subclinical hypothyroidism will go on to develop frank hypothyroidism, with low T4 levels and all the symptoms that go along with it. So, one reason some healthcare providers treat subclinical hypothyroidism is to prevent the eventual development of the much more serious condition of true hypothyroidism. Get our printable guide for your next doctor's appointment to help you ask the right questions. While this condition apparently doesn't produce symptoms in most people, some will admit to mild symptoms suggestive of hypothyroidism, such as constipation, fatigue, or unexplained weight gain. It's also been suggested that people with subclinical hypothyroidism may have a higher incidence of significant anxiety, depression, or cognitive disorders. Aside from the risk of eventually developing frank hypothyroidism, the chief worry with subclinical hypothyroidism is that it is associated with an increased incidence of cardiovascular disease. Several studies have now shown an association between high TSH levels (greater than 10 mU/L) and the development of coronary artery disease (CAD). In a pooled analysis of several clinical studies which included more than 25,000 patients, subclinical hypothyroidism was associated with an increased incidence of heart attack, symptomatic CAD, and cardiac death. Another pooled analysis found a significantly increased risk of heart failure in patients with subclinical hypothyroidism. And several studies have associated subclinical hypothyroidism with increased cholesterol levels. While an association does not prove cause-and-effect, it is notable that overt hypothyroidism certainly does produce significant cardiac disease. This fact gives credence to the idea that subclinical hypothyroidism may also negatively impact the heart. The increase in cardiac risk seen with subclinical hypothyroidism is indeed the most worrisome feature of this condition. Subclinical hypothyroidism can be treated by giving thyroid hormone replacement therapy. Treatment is guided by carefully monitoring TSH blood levels; sufficient thyroid hormone is given to reduce TSH levels back into the normal range. There is only limited evidence from clinical studies that treating subclinical hypothyroidism improves symptoms. In studies that suggest that it does reduce symptoms, the measurable benefit appears limited to those patients whose initial TSH levels are substantially elevated (that is, greater than 10 mU/L). Similarly, evidence that treating subclinical hypothyroidism reduces the risk of heart disease is also limited. In a study conducted in Great Britain, among younger patients (less than 70 years of age) with subclinical hypothyroidism, the risk of subsequent heart disease was significantly lower in patients who received thyroid hormone therapy. No treatment benefit was seen in older patients with subclinical hypothyroidism. Further, treating subclinical hypothyroidism significantly improves several cardiovascular risk factors, including cholesterol levels, CRP levels, and vascular function. Most experts recommend treating subclinical hypothyroidism when TSH levels are greater than 10 mU/L, whether or not symptoms are present. Whether subclinical hypothyroidism ought to be treated when TSH levels are less than 10 mU/L remains a point of contention. Many healthcare providers recommend treatment even in this lower range if patients have symptoms suggestive of hypothyroidism, or if they have elevated cholesterol levels or other risk factors for cardiac disease.