

LOW TESTOSTERONE PATIENT GUIDE

Understanding evaluation, treatment options,
benefits, risks, and follow-up



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Welcome

You may be reading this guide because you have symptoms of low testosterone, are being tested for Low T, have recently been diagnosed, or are deciding which treatment is right for you.

Low testosterone can affect sexual health, energy, mood, muscle, and bone health, and other areas of your life. Many of these symptoms can also have other causes, so proper evaluation is important.

- 1 Understand Low T
- 2 Get Tested
- 3 Consider Treatment
- 4 Choose an Option
- 5 Monitor Your Health

Our goal is not simply to raise a testosterone number.

We want to determine whether low testosterone is contributing to your symptoms. When treatment is appropriate, our goal is to help you feel better while treating you safely.

What Is Low Testosterone?

Testosterone is the main male sex hormone. It is made mostly by the testicles and plays an important role throughout the body.

Testosterone helps support:

- Sex drive
- Sperm production
- Muscle mass and strength
- Bone health
- Red blood cell production
- Body hair
- Mood and sense of well-being

What does “Low T” mean?

The American Urological Association (AUA) considers a total testosterone level below 300 ng/dL a reasonable cutoff to support the diagnosis of testosterone deficiency.

Testosterone levels can change from day to day and throughout the day. For that reason, the diagnosis usually requires two separate early-morning total testosterone levels.

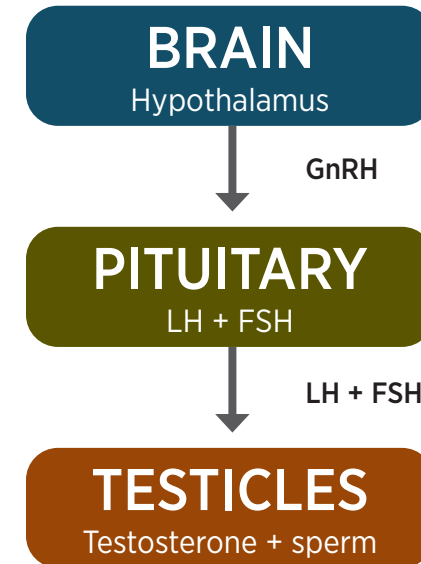
300 ng/dL is a guide, not a hard line. In selected men with persistent symptoms and supportive evaluation, your provider may consider additional testing or a trial of treatment even when total testosterone is above 300 ng/dL. Your symptoms and overall clinical picture matter.

One low testosterone result does not mean you have Low T.

A diagnosis is based on symptoms or signs plus consistently low testosterone levels on repeat testing.

How Your Body Makes Testosterone

Your brain and testicles work together to control testosterone and sperm production.



Brain signals help control testosterone and sperm production.

- **LH - luteinizing hormone:** Tells the testicles to make testosterone
- **FSH - follicle-stimulating hormone:** Tells the testicles to produce sperm

Why we check LH and FSH

These hormone levels can help your provider understand why your testosterone is low and which treatment approach may make the most sense.

Could My Symptoms Be from Low T?

Low testosterone affects men differently. Some men have several symptoms. Others may notice only one or two.

Sexual and reproductive

- Lower sex drive
- Erectile dysfunction
- Reduced sperm production or infertility

Physical

- Loss of muscle mass or strength
- Increased body fat
- Reduced body hair
- Breast tenderness or enlargement
- Weakening of the bones over time
- Hot flashes when testosterone is very low

Energy, mood, and thinking

- Low energy
- Decreased motivation
- Difficulty concentrating
- Irritability or depressed mood

These symptoms do not always mean you have Low T.

Poor sleep or sleep apnea, diabetes, obesity, depression or anxiety, thyroid problems, heart or blood-vessel disease, medication side effects, alcohol or substance use, and other health conditions can cause similar symptoms.

What Causes Low Testosterone?

Testosterone levels may gradually decrease as men get older. Getting older does not automatically mean that a man has testosterone deficiency or needs treatment.

Common causes and contributors include:

Weight and metabolic health

- Obesity
- Diabetes and other metabolic conditions

Sleep and overall health

- Obstructive sleep apnea
- Serious or chronic illness
- Significant undernutrition

Medications and substances

- Opioid pain medications
- Long-term corticosteroid use
- Previous anabolic steroid use
- Heavy alcohol use
- Certain other medications

Testicles, brain, or pituitary

- Testicular injury, infection, chemotherapy, radiation, or certain genetic conditions
- Pituitary disorders, elevated prolactin, or other hormone disorders

Sometimes the cause can be treated.

Weight loss, treatment of sleep apnea, medication changes, or treatment of another health condition may improve testosterone levels in some men.

How Is Low Testosterone Diagnosed?

The diagnosis is not based on a single number. We combine your symptoms, repeat blood testing, and the rest of your health information.

1 Tell us what you are experiencing

2 Morning testosterone

3 Repeat on a different morning

4 Look for the cause

5 Choose the right next step

Diagnosis is based on symptoms/signs + consistently low testosterone levels.

Why repeat the testosterone level?

Testosterone can vary from one day to another. Confirming a low result on a different morning reduces the chance of treating a temporary or misleading result.

Understanding Your Blood Tests

Not every patient needs every test. Your provider will choose testing based on your symptoms, health history, and treatment.

Diagnosis and cause

- **Total testosterone** - measures the testosterone in your blood. Two separate morning levels are generally needed.
- **LH** - helps determine whether the problem may be coming from the testicles or from hormone signals in the brain/pituitary.
- **Prolactin** - may be checked when the hormone pattern suggests a possible pituitary cause.
- **Estradiol** - measures an important form of estrogen in men. We commonly check it early in the evaluation and monitor it during treatment.
- **Other hormone tests** - thyroid or other tests may be ordered when appropriate.

Treatment safety

- **Hemoglobin and hematocrit** - measure red blood cells. Testosterone can increase these levels.
- **PSA** - helps evaluate prostate health and may be checked before and during treatment when appropriate.

Other health monitoring

- **Lipid panel** - evaluates cholesterol and triglycerides; some testosterone treatments can affect these levels.
- **Liver function tests** - may be checked based on your medical history, medications, and treatment plan.
- **Other tests** - may be ordered based on your individual health needs.

Can Lifestyle Changes Help?

Yes. Healthy lifestyle changes can improve your overall health, may improve testosterone levels in some men, and may improve many of the same symptoms associated with Low T.

- **Maintain a healthy weight:** Excess body weight is commonly associated with lower testosterone levels. Losing excess weight may improve testosterone levels and overall health.
- **Stay physically active:** Regular exercise, including strength training, helps maintain muscle, strength, bone health, and a healthy weight.
- **Get enough quality sleep:** Poor sleep can affect testosterone and can also cause fatigue and low energy. Treating sleep apnea is important.
- **Limit heavy alcohol use:** Heavy alcohol use can interfere with normal hormone production.
- **Manage other health conditions:** Diabetes, obesity, sleep apnea, and other chronic conditions may contribute to low testosterone or similar symptoms.
- **Review your medications:** Some medications can lower testosterone. Do not stop a medication on your own; ask whether it could be contributing.

Lifestyle changes and testosterone treatment are not “either/or.”

Even if you need treatment for Low T, improving sleep, weight, exercise, and overall health can help you get the most from treatment.

What Can Testosterone Treatment Improve?

When low testosterone is contributing to symptoms or other health problems, treatment may help.

Treatment may help improve

- Sex drive
- Erectile function when Low T contributes
- Lean muscle mass
- Bone mineral density
- Anemia caused by Low T
- Depressive symptoms in some men

Improvement is less predictable for

- Energy or fatigue
- Memory or thinking
- Cholesterol levels
- Diabetes control
- Overall quality of life

Some patients report improvement in energy, fatigue, or “brain fog,” but these symptoms can have many causes. If they are not related to low testosterone, testosterone treatment may not improve them. Research has also shown less consistent improvement in these areas than in symptoms such as low sex drive.

The most important goal is that your symptoms improve.

The testosterone number helps guide treatment, but it is not the main goal. We want the symptoms that led you to treatment to improve while keeping your testosterone in an appropriate and safe range.

If your testosterone improves but your symptoms do not, your provider may look for other causes or reconsider whether testosterone treatment is helping.

What We Monitor and Why

Testosterone is generally well tolerated when it is prescribed appropriately and monitored. Like any medication, it can cause side effects. Many problems can be managed by adjusting treatment.

- **Red blood cell count:** Testosterone can increase hemoglobin and hematocrit.
- **Testicle size:** The testicles may become smaller during testosterone replacement.
- **Skin:** Acne or oily skin can occur.
- **Fluid retention:** Some men develop swelling from retaining extra fluid.
- **Fertility:** Testosterone replacement can significantly reduce sperm production.
- **Blood pressure:** Testosterone can increase blood pressure in some patients.
- **Breast symptoms:** Some men develop breast tenderness or enlargement.
- **Sleep apnea:** Testosterone may worsen sleep apnea in some patients.

Important heart rhythm and blood clot risks

In the TRAVERSE* clinical trial, atrial fibrillation (AFib) and pulmonary embolism (a blood clot in the lungs) occurred more often in men receiving testosterone than placebo. Tell your provider if you have a history of AFib or blood clots.

**Read more about the TRAVERSE clinical trial on page 12.*

Monitoring is part of treatment.

We follow your symptoms, testosterone level, blood count, prostate health when appropriate, and other testing based on your treatment.

Fertility

Testosterone replacement and fertility-preserving treatment are not the same thing.

If biological children may be important to you now or in the future, tell us before starting testosterone.

Testosterone replacement can significantly reduce sperm production. In some men, the sperm count can become extremely low or even fall to zero.

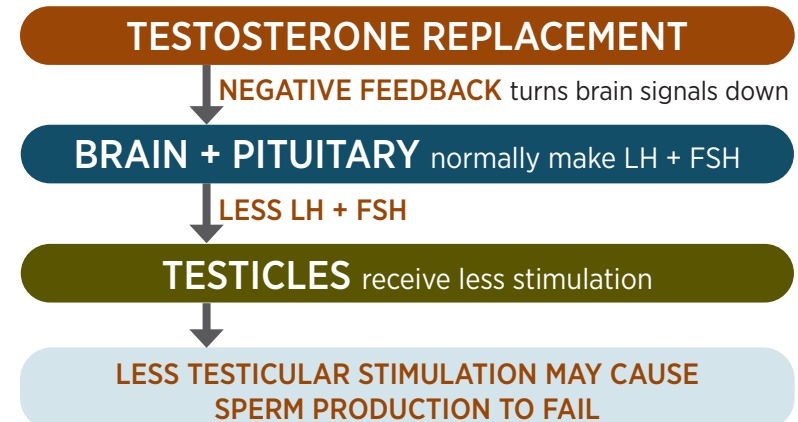
For many men, sperm production improves after testosterone is stopped. Recovery can take months and sometimes longer, and the timing cannot be predicted for an individual patient.

Fertility-preserving options may include

- Clomiphene
- hCG
- Aromatase inhibitors, such as anastrozole, in selected patients

Why this matters

- These medicines work differently from testosterone replacement.
- They may help raise testosterone while preserving the hormone signals needed for sperm production.

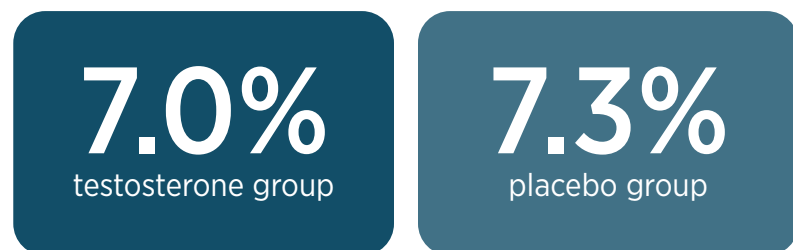


Is Testosterone Safe for My Heart?

For many years, there was concern that testosterone treatment might increase the risk of heart attack or stroke. More recent high-quality research has been reassuring.

What did the TRAVERSE research trial find?

TRAVERSE was a large randomized clinical research trial designed to evaluate the cardiovascular safety of testosterone treatment. It included more than 5,200 men with Low T who had heart or blood-vessel disease or were at increased cardiovascular risk. Rates of heart attack, stroke, or cardiovascular death were similar between men receiving testosterone gel and those receiving placebo.



What does this mean for me?

Current evidence is reassuring that appropriately prescribed testosterone does not appear to increase the overall risk of major cardiovascular events in men similar to those studied.

Testosterone can still increase blood pressure. In TRAVERSE, **atrial fibrillation (AFib)**, acute kidney injury, and **pulmonary embolism (a blood clot in the lungs)** occurred more often in the testosterone group. Your individual heart and vascular health remain important when deciding whether treatment is right for you.

If you recently had a heart attack, stroke, or another major cardiovascular event, tell your Low T provider. The timing of treatment requires additional consideration.

Testosterone and Prostate Health

Does testosterone cause prostate cancer?

Current evidence has not shown that appropriately prescribed testosterone therapy causes prostate cancer. Testosterone still affects prostate tissue, which is why prostate health remains an important part of treatment.

Why do we check PSA?

PSA, or prostate-specific antigen, is a blood test used to help evaluate prostate health. Depending on your age, health history, and individual risk, PSA may be checked before testosterone treatment and monitored during treatment.

What if I was previously treated for prostate cancer?

A history of prostate cancer does not automatically mean that testosterone treatment can never be considered. The decision depends on the type and stage of cancer, how it was treated, PSA results, whether there is evidence of recurrent disease, your Low T symptoms, and your overall health and goals.

What if I currently have prostate cancer?

Tell your Low T provider before starting treatment. Testosterone may be considered in carefully selected men with certain localized prostate cancers, but this requires individualized discussion and close follow-up with your urology team. Routine testosterone replacement is generally not used in men with metastatic prostate cancer.

History of prostate cancer?

Tell your Low T provider before starting or continuing testosterone.

Which Treatment Is Right for Me?

There is no single treatment that is best for everyone. We will help you choose based on your symptoms, testosterone levels, health history, lifestyle, fertility plans, insurance coverage, and preferences.

Want to maintain fertility?

Clomiphene, hCG, and selected use of aromatase inhibitors work differently from testosterone replacement and may be better choices for some men.

Your lifestyle matters when choosing treatment.

Some men prefer a pill. Others prefer a cream, an injection they can give at home, or a longer-lasting pellet. The right choice should be safe, effective, and practical for you.



	Oral Testosterone	Compounded topical	Injections	Pellets	Alternatives to testosterone replacement
How used?	Capsules by mouth	Applied to skin	IM or SQ injection	Office procedure	Pill or injection, depending on medication
How often?	Usually twice daily	Usually daily	Individual schedule	Every few months	Varies
Needles/procedure?	No	No	Yes	Office procedure	Sometimes
Easy to adjust?	Yes	Yes	Yes	Less easily	Yes
Transfer risk?	No	Yes	No	No	No
Can lower sperm count?	Yes	Yes	Yes	Yes	Usually preserves sperm production
Key advantage	Convenient pill	Flexible, individualized dosing	Effective and flexible	Low maintenance	Useful when fertility matters
Main consideration	Daily dosing + monitoring	Daily use + transfer precautions	Regular injections	Procedure + less flexible dose	Not right for every cause of Low T

Oral Testosterone

Newer forms of oral testosterone provide a convenient treatment option without creams, injections, or procedures.

Common oral options at The Urology Group

- Kyzatrex®
- Jatenzo®
- Tlando®

All three contain testosterone undecanoate, but they are different products and are not interchangeable dose-for-dose. These medications are generally taken twice daily. Follow the instructions for your specific medication, including how to take it with food.

Benefits

- Taken by mouth
- No needles or procedures
- No skin-transfer risk
- Effective at increasing testosterone
- Convenient for men who prefer oral medication

Things to consider

- Usually taken twice daily; follow the food instructions for your specific product
- Products are not interchangeable dose-for-dose
- Insurance coverage and cost vary

What about my liver?

Today's oral testosterone undecanoate medications are different from older oral testosterone drugs that were associated with serious liver problems. Your provider may still monitor liver health based on your overall medical history and medications.

Compounded Topical Testosterone

Compounded testosterone is prepared by a specialty pharmacy and is usually applied to the skin each day. One advantage is that the strength and amount prescribed can be individualized for your treatment plan.

Benefits

- No needles or office procedure
- Easy to use at home
- Flexible dosing
- Dose can be adjusted based on symptoms and blood tests
- Can provide relatively steady testosterone levels when used consistently

Things to consider

- Must be applied consistently
- Can transfer to another person through skin contact
- May cause skin irritation or acne
- Can reduce sperm production and cause infertility
- Instructions vary depending on the preparation

Preventing testosterone transfer

APPLY | WASH HANDS | ALLOW TO DRY | COVER THE AREA

Avoid skin-to-skin contact with the application area until it is safe to do so. Follow the instructions provided with your particular medication.

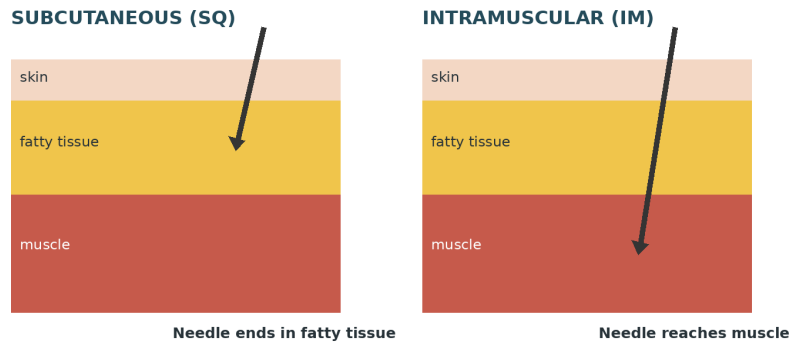
What does “compounded” mean?

Compounded testosterone is prepared by a specialty pharmacy for an individual prescription. This allows your provider to choose a strength and formulation that fits your treatment plan.

Good to know: Compounded medications are not individually FDA-approved in the same way as commercially manufactured medications. Regular blood testing helps us make sure your testosterone level and dose are appropriate.

Testosterone Injections

Testosterone can be given by injection into the muscle (IM) or into the fatty tissue under the skin (SQ). Most patients can learn to give their injections at home.



Both IM and SQ injections can be effective.

We support both techniques and can help you choose the approach that works best for you.

Benefits

- Very effective at raising testosterone
- Flexible dosing and schedule
- Can be given at home
- Choice of IM or SQ technique
- Generally affordable and often covered by insurance

Things to consider

- Requires regular injections
- Temporary soreness, bruising, or irritation may occur
- Testosterone levels may rise and fall between injections
- Red blood cell count may increase
- Can reduce sperm production and cause infertility

Testosterone Pellets

Testosterone pellets are small pellets placed beneath the skin, usually in the upper buttock/hip area, during a brief office procedure. Your provider numbs the area, makes a small opening, and places the pellets under the skin. The pellets slowly release testosterone over several months.

Benefits

- Long-lasting treatment
- No daily medication to remember
- No injections at home
- No skin-transfer risk
- Can provide relatively steady testosterone levels

Things to consider

- Requires an office procedure
- Mild soreness or bruising may occur
- Small risk of infection
- A pellet can occasionally work its way back out through the skin
- Dose cannot be easily changed after placement
- Can reduce sperm production and cause infertility

Who may like pellets?

Pellets may be a good option for men who prefer less frequent treatment and do not want to manage a medication every day or week.

Your dose and injection schedule will be individualized. Some men do better with smaller doses given more frequently to help reduce large changes in testosterone levels between injections.

Helping Your Body Make Its Own Testosterone

These treatments are different from testosterone replacement. Instead of supplying testosterone from outside your body, they work with your hormone system to increase your own testosterone production. They may be especially useful when maintaining fertility is important.

Clomiphene

Clomiphene is an oral medication that increases hormone signals from the brain to the testicles. It can raise testosterone while usually preserving sperm production. Its use in men is off-label. “Off-label” means the medication is FDA-approved, but it is being prescribed for a use not specifically listed in its FDA-approved labeling.

- Taken by mouth
- Often useful when fertility is important
- Possible side effects include headache, mood changes, breast tenderness, and uncommon visual symptoms
- Insurance coverage varies

hCG

Human chorionic gonadotropin, or hCG, acts similarly to LH and stimulates the testicles to produce testosterone.

- Given by injection
- Helps maintain testicular function
- May help preserve sperm production
- Can increase estrogen levels; cost and coverage vary

Aromatase inhibitors

Medications such as anastrozole reduce the conversion of testosterone into estrogen. They may be useful in selected men, particularly when estrogen levels are elevated.

Men need estrogen too.

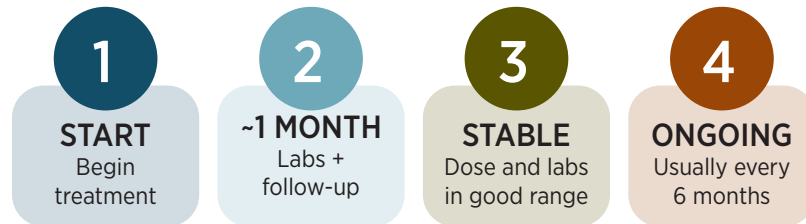
Lowering estrogen too much can affect bone health, sexual health, and overall well-being. These medications require careful monitoring.

After You Start Treatment

Starting treatment is the beginning of the process. We monitor both how you feel and how your body responds.

Testosterone is a controlled substance

Testosterone is a Schedule III controlled substance. Because it is a controlled medication and requires ongoing safety monitoring, our clinic requires blood work and a visit with a provider at least every 6 months. Your provider may require more frequent follow-up.



At about 1 month

- Blood work and follow-up visit, which can often be completed by telehealth.
- Review symptoms and side effects.
- Check testosterone and other tests based on your treatment.
- Adjust the dose or treatment if needed.

Once treatment is stable

- Follow-up and laboratory testing are required at least every 6 months.
- We continue to monitor symptoms, testosterone, blood count, PSA when appropriate, and other testing based on your health and treatment.

Finding the right dose may take time.

The goal is to improve your symptoms while keeping your testosterone and other health measures in a safe range.

When Should I Contact the Low T Team?

You do not need to wait for your next scheduled visit if something changes.

Contact the Low T team if:

- You are having trouble taking or using your medication.
- You develop bothersome side effects.
- Your symptoms are getting worse instead of better.
- You develop significant swelling.
- Your blood pressure becomes difficult to control.
- You are considering having children.
- You start an important new medication or develop a new medical condition.
- You have questions about laboratory results or treatment.

Seek urgent medical care if you experience:

- Chest pain
- Sudden shortness of breath
- Signs of a stroke
- New pain and swelling in one leg

Not sure whether something can wait?

Use secure text messaging or call the Low T Clinic navigator. The team can help decide the right next step.



Your Low Testosterone Clinic

The Low Testosterone Clinic at The Urology Group provides evaluation, treatment, and ongoing monitoring for men with testosterone deficiency. Most visits are completed through secure telehealth.

Your Low T team can help with:

- Reviewing symptoms and laboratory results
- Choosing a treatment
- Prescribing and adjusting medications
- Ordering follow-up blood work
- Managing refills
- Monitoring treatment safety
- Answering treatment questions
- Scheduling follow-up visits

How the process works:

1. Referral from your urology provider
2. Navigator contact
3. Complete requested blood work
4. Telehealth visit
5. Treatment and ongoing monitoring

Low T Clinic

Navigators: (513) 841-7738

Call Center: (513) 841-7400

Secure Text Messaging: (513) 450-8297

Secure Text Messaging

The Low Testosterone Clinic uses secure text messaging for appointment reminders, laboratory coordination, medication questions, and other treatment communication. You may be asked to verify your identity before discussing medical care.

Telehealth reminder

For a telehealth visit, you will need video capability and internet access, requested blood work completed, and you must be physically located in Ohio, Kentucky, or Indiana during the visit.

Pharmacy Information

The Urology Group has an onsite pharmacy at our Norwood campus. Some eligible prescriptions can also be mailed directly to your home.



The Urology Group Pharmacy

2000 Joseph E. Sanker Blvd.
Norwood, OH 45212

Phone: (513) 841-7508

Monday-Friday: 7:30 a.m.-4:30 p.m.

urologygroup.com/advanced-service/pharmacy

Tip

Keep this page handy for pharmacy questions, prescription refills, or medication pickup information.

Low T: Key Things to Remember

1. One low testosterone result is not enough.

Diagnosis usually requires symptoms or signs plus two low morning testosterone levels.

2. Treatment should improve more than a number.

How you feel matters.

3. Testosterone replacement can affect fertility.

Tell us before starting treatment if biological children may be important to you.

4. You have choices.

There are several ways to treat Low T, and treatment can be individualized.

5. Monitoring and follow-up are required.

Testosterone is a controlled substance. Lab testing and a provider visit are required at least every 6 months, and sometimes more often.

Questions are part of the process.

Choosing a Low T treatment is a decision you and your healthcare team make together.

Key medical references used for this guide

- American Urological Association. Evaluation and Management of Testosterone Deficiency: AUA Guideline (2018; validity confirmed 2024).
- American Urological Association / American Society for Reproductive Medicine. Diagnosis and Treatment of Infertility in Men: AUA/ASRM Guideline.
- Lincoff AM, et al. Cardiovascular Safety of Testosterone-Replacement Therapy. New England Journal of Medicine. 2023;389:107-117. (TRAVERSE trial).
- U.S. Food and Drug Administration. Class-wide testosterone labeling updates following TRAVERSE and ambulatory blood-pressure monitoring studies (2025), with additional testosterone labeling updates requested in 2026.
- U.S. Drug Enforcement Administration. Drug Scheduling: testosterone is a Schedule III controlled substance.
- AUA University Update Series (2026), Lesson 18: Testosterone Therapy: Is It Safe? A Case-Based Approach.

For the most current information

Medication instructions and recommendations can change. Follow the instructions provided by your Low T team and your specific prescription.

Notes

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The Urology Group is one of the largest single specialty groups of urologists in the United States.

Our group consists of more than 35 board-certified urologists with convenient neighborhood offices and a state-of-the-art outpatient surgery center in Norwood.

Together, we offer our patients a comprehensive team of urologic healthcare providers. We are the premier urology resource for Greater Cincinnati, Northern Kentucky, and Southeastern Indiana.



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