

Everything You Need to Know About Testosterone Optimization In Men

My total testosterone levels are “normal”. What does this mean?

The reference range for total testosterone is 250 - 827 ng/dl. If your blood test comes back between these numbers, most doctors will tell you that your levels are “normal.” There are several issues with this mindset:

1. You’re not interested in **normal** levels. You’re interested in **optimal testosterone levels**.
2. The wide range of “normal levels” should make you question if it’s an accurate representation of the optimal level. A man with total testosterone of 800 ng/dl usually feels a lot better than a man with a level of 500 ng/dl, who himself feels better than a man with a level of 300. But, all of these men will be labeled as having “normal” testosterone levels.
3. A single total level does not take into consideration trends or previous levels. Maybe your level is in the “normal” range, but it’s a few hundred points lower than when you were younger.
4. It doesn’t take into consideration the more important free testosterone levels.

What is free testosterone?

Testosterone is a hormone that is carried throughout the body by proteins (albumin and sex hormone binding globulin or SHBG). In order to be utilized, testosterone must be free from these proteins. Therefore optimizing the free testosterone level is much more important than the total testosterone level.

Think of total testosterone as your statement of net worth. How much money a financial planner says you’re worth on paper. On the other hand, free testosterone is similar to how much is in your checking account. The amount of cash you can use today. We all know that “cash is king”. In terms of hormone levels, free testosterone is king.

In other words, free testosterone is more important but most medical professionals and insurance companies only care about the total testosterone levels?

Yes, this is correct and it makes no sense. Unfortunately, insurance companies are in the business of denying you care. Our medical education on hormone optimization is very archaic and not focused on wellness either. As a result, thousands of men suffer with symptoms of low T, but are not offered the care they deserve.

If my free testosterone is low because my SHBG levels are high is there anything I can do to lower my SHBG levels?

Unfortunately no. There are no proven medications or lifestyle changes that can lower your SHBG levels. The only thing you can do is to raise your free testosterone levels.

What benefits can I expect from hormone optimization?

Every man responds to TRT differently. Some men notice improvements immediately, some take several weeks to months and others don't notice a change at all. Most men report some if not all of the following changes:

- Increased energy throughout the day
- Less irritability
- Better sleep
- Happier, more content mood.
- Better workouts in the gym
- Improved libido
- Stronger more frequent erections
- Better urination
- Improved muscle mass with decreased body fat percentage

I tried TRT and didn't feel any better. What are the possible reasons?

There are several reasons you may not feel any better with TRT.

1. **You haven't been patient enough.** Some changes take several weeks to months.

2. **Your levels were not optimal.** Your goal for free testosterone is between 250-350 pg/ml.
3. **You're ignoring your self care:** All the testosterone in the world won't make you feel better if you don't eat healthy, exercise 5 days a week, sleep 7-8 hours every night, and manage your stress levels. You've got to put in the work.

I'm really interested in losing weight and being healthier. Are there other ways you can help?

Yes! We offer a comprehensive weight loss program with Pazona MD. We partner with you to address all of the necessary components to achieve a healthy lifestyle:

1. **Healthy eating:** food education, eating schedule, delicious simple recipes.
2. **Exercise program:** from home, no fancy equipment, developed with a physical therapist
3. **Weight loss medications and hormone optimization:** safe and effective medications curb food cravings and ramp up your fat-burning metabolism.
4. **Sleep hygiene:** allows your mind and body the rest it needs for success!
5. **Mindfulness:** we'll help you develop a positive mindset so you believe in yourself!

Email (hello@pazonamd.com) or call (615-527-4700) us today to schedule a free consultation..

I heard TRT can cause strokes. Is this true?

False. This is one of the many myths of TRT. While on TRT, your body will produce more red blood cells (polycythemia). Many health care professionals incorrectly assume that this "thickened blood" will lead to blood clots and subsequent heart attacks, strokes or pulmonary emboli. There is no definitive, consistent data to support this finding. Although single studies have shown an increased risk in older, sicker patients with pre-existing risk factors, larger studies show no definitive link.

Here's one way to think about this. If you move to Denver or anywhere with lower oxygen levels from the altitude, you will produce more red blood cells to help carry oxygen throughout your body. Are people in Denver dropping dead of heart attacks at higher rates because their blood is thicker? They are not.

Also think about the cyclists who cheated during the Tour De France. They doped with EPO which produced abnormally high levels of red blood cells. Again, these cheaters did not drop dead of heart attacks or strokes while cycling 2000 miles in the mountains.

What do I do if my red blood cell count (hemoglobin or hematocrit) is high?

Absolutely nothing if you like. Some patients choose to donate blood to be a good citizen. Others donate blood because their other doctors won't educate themselves and force them to do so.

One legitimate reason to donate is if you develop facial or chest wall flushing/redness that is bothersome from the higher blood count.

What are some of the other side effects of TRT?

- Testicular shrinkage
- Testicular discomfort or retraction
- Infertility (unable to father children)
- Fluid retention with weight gain (5-10 lbs of water weight)
- Oily skin/acne
- Hair loss
- Worsening sleep apnea
- Higher red blood cell count
- Facial or chest flushing/redness
- Raised blood pressure

Why do my testicles shrink while on TRT?

When you provide your body with outside testosterone (exogenous), the brain senses high levels and stops sending signals to the testicle to produce testosterone. As a result of shutting down the production facility, the testicles will atrophy or shrink.

Most men are not bothered by this side effect but some others are bothered. You should decide this for yourself before considering TRT.

Do you prescribe HCG? I heard that it prevents testicular shrinkage.

I do not prescribe HCG. Although this is commonly used in the weight loss and wellness space, there is not much scientific data to support its use. Anecdotally I've met patients on HCG to limit testicular shrinkage who claim it helps them.

If you're interested in HCG you should find a different provider to manage your TRT.

Do I have to stay on TRT the rest of my life?

The short answer is "no". You can stop TRT at any time. However, since the cause of low testosterone is typically not reversible, once you stop TRT, you will likely feel the same way you did before you started: low energy, problems in the bedroom and irritability.

What happens if I stop TRT? I heard there's a bad withdrawal.

As noted above, while on TRT your testicles will stop producing as much testosterone. Once you stop TRT you may have a temporary period of lower than baseline levels. How low your levels fall and how quickly they rebound varies based on your:

- Age
- Baseline levels
- Length of time on TRT

If you only administer a short (few months) trial of TRT, you should not have much of a withdrawal if you choose to stop TRT. However, everyone is different and this can vary.

I'm losing my hair on TRT! What can be done?

Testosterone is converted to DHT (dihydrotestosterone). DHT is linked with androgenic alopecia or male pattern baldness.

There are a number of options for treating hair loss related to TRT. The first thing we recommend is decreasing the dose of your testosterone. Sometimes too much of a good thing can lead to other side effects. With time, your hair will grow back. Second, there are some medications that can be prescribed including:

- Finasteride (Propecia) 1mg
- Spironolactone
- Minoxidil (Rogaine)
- BioTE Hair Activate and Rescue (available at our clinic)

I'm interested in fathering children in the future. Can TRT affect my fertility?

Yes. TRT will lower your sperm count, even down to undetectable levels. Your age, the duration of TRT and how long you are off TRT will ultimately determine whether your sperm count returns to your baseline levels. Younger men who use a short-term course of TRT are more likely to have their sperm counts returned. Older men who are on TRT for years may not be able to naturally conceive a child, even after stopping TRT.

If having children in the future is a consideration, then your alternatives are:

1. Freezing sperm (sperm cryopreservation offered through our office).
2. Natural testosterone boosters (see below).
3. Off-label prescription of clomiphene (Clomid) to raise testosterone and sperm count.

Where do I receive the testosterone?

INJECTIONS

Typically men will pick up their testosterone injection at a local retail pharmacy (e.g. Kroger, Publix, Walmart are usually the least expensive). The prescription includes: vials of testosterone (1 ml), needles (22 gauge) and syringes (1-3 ml).

TOPICAL

We recommend using MedQuest, a compounding pharmacy based out of Utah. They manufacture a bioidentical testosterone cream made from natural substances. In our experience, their product is high quality and works well for most of our patients. MedQuest will call you directly to obtain payment and shipment details. They will mail a 90 ml pump to your house.

As an alternative, we are happy to send a prescription for topical testosterone to your local pharmacy (e.g. Testim, Androgel). However, a number of patients report not feeling better on these formulations because they don't consistently raise testosterone levels.

PELLETS

Pellets are inserted in the office via a minor 5 minute procedure. You will lay on your side in one of our exam rooms. The insertion is in the upper buttock area so be prepared to partially lower your pants and underwear. Our medical assistant will apply a numbing spray while you await our provider.

We inject 7 -10 ml of lidocaine with epinephrine 1% mixed with sodium bicarbonate (local anesthesia).. Once you're "numb", you'll mainly feel pressure as we make a small skin incision

and implant the pellets. If you feel any sharp pains, please let us know so we can inject more local anesthesia. Once completed, we will place steristrips, gauze and a clear tegaderm dressing over the skin poke.

For full post-pellet instructions please go to:

<https://www.pazonamd.com/post-op-instructions/>

The pellets should start taking effect within 1 week, but often take 1 month to really notice an improvement in low T symptoms. Men typically report that the pellets start “wearing off” after 4-5 months. Be sure to schedule your next pellet insertion at the time of your initial visit.

How do I get refills of testosterone?

By law we can prescribe up to a 3 month supply of testosterone. If you are on injections, then you should always contact your pharmacy first to make sure you have refills remaining. If you are out of refills then we can send a new prescription electronically to the pharmacy by contacting our office. Please give us up to 24 hours from the time of your request to send the new prescription.

Topical testosterone through MedQuest is usually sent as a 3 month supply. If you are applying the cream more than once a day, you may run out sooner. Again always contact the pharmacy first before contacting our office.

How do I inject myself with testosterone?

Here are the steps to inject testosterone:

1. Choose the site of injection:
 - a. **Upper outer quarter of buttocks**
 - b. **Outer middle thigh** (preferred by most men)
 - i. While sitting, pinch the outer portion of the leg about halfway up the thigh.
 - ii. Insert the needle about one inch into the muscle right above the V in the center of the thigh.
2. Preparing the Injection Dose:
 - a. Take the cap off the vial. Clean the rubber stopper with one alcohol swab.
 - b. Check the package containing the syringe, if the package has been opened or damaged, do not use that syringe.
 - c. Pull the needle cover straight off the syringe. Then, pull back the plunger and draw air into the syringe. The amount of air drawn into the syringe should be the same amount (mL or cc) as the dose prescribed. Do not let the needle touch any surfaces.

- d. Keep the vial on your flat working surface and insert the needle straight down through the center of the rubber stopper. Do not put the needle through the rubber stopper more than once.
 - e. Push the plunger of the syringe down and push the air from the syringe into the vial.
 - f. Keeping the needle in the vial, turn the vial upside down. Position the needle so the liquid is covering the tip of the needle.
 - g. Keeping the vial upside down, slowly pull back on the plunger to fill the syringe with the medication to the number (mL or cc) that matches the dose your doctor ordered.
 - h. Keeping the needle in the vial, check for air bubbles in the syringe. If there are air bubbles, gently tap the syringe with your fingers until the air bubbles rise to the top of the syringe. Then slowly push the plunger up to force the air bubbles out of the syringe without removing the needle from the bottle.
 - i. After air bubbles are gone, pull the plunger back to the number (ml or cc) marking on the syringe that matches your dose. Remove the 18g needle and replace it with the IM needle (22g needle).
 - j. Check to make sure that you have the correct dose in the syringe.
 - k. Remove the syringe from the vial but do not lay it down or let the needle touch anything.
3. Giving the Injection
- a. Clean the injection site skin with an alcohol swab; let it air dry.
 - b. Hold the skin around the injection site in the manner described above.
 - c. Insert the IM needle into the muscle at a 90 degree angle with **one** quick and firm motion.
 - d. After you insert the needle into the muscle, take your hand off the skin, there may be burning or pressure as the medicine enters your muscle.
 - e. When you finish injecting the full dose of the medication into the muscle, remove the needle
 - f. Hold pressure on site until there is no bleeding. You can place a band aid if needed.
 - g. Replace cap over needle CAREFULLY, dispose with sharps if possible.

How do I apply the testosterone cream?

The cream will be mailed to you from the compounding pharmacy MedQuest. It is a dose-metered pump which means that each time you press down on the white pump, you should theoretically receive the same volume of the testosterone (200 mg per 1 ml pump). We recommend starting with one pump a day.

We recommend applying the cream in the morning after a shower. Lather the medication in your fingers and then begin rubbing it into the skin of your inner upper thighs/arms or scrotum. Continue rubbing in the medication for at least 30-60 seconds until you no longer see any of the white cream on your hands.

When you are finished, get a little water in your hands and lather them again to see the remaining cream. Rub them onto your thighs or abdomen. Wash your hands thoroughly with soap and water.

Let the cream dry for at least 5 minutes before putting on your clothes. If we need to increase your dosage, then we will recommend a second application in the evening.

I heard the testosterone cream can be transferred to other people. Is this true?

Yes! It's important that you follow the above instructions for application of testosterone cream. If you do so, then the risk of transfer is minimal. Please be certain to store the testosterone cream outside of the reach of any children.

Why is TRT not covered by insurance?

Insurance companies are focused on "sick care" instead of "well care." They don't care if you feel sluggish or have put on 5 lbs every year in your 30's or 40's. As a result TRT is typically not covered by insurance.

The only exception is for men whose **total testosterone is under 250 ng/dl**. This fits their "medical diagnosis" of "low testosterone". Everyone else is out of luck. Even if your total testosterone levels are <250 ng/dl, then typically insurance will **ONLY** cover testosterone injections. The more expensive topical therapies and pellets are usually not covered.

Also be prepared for delays in getting your medication if you expect insurance to flip the bill. They usually require prior authorizations and multiple blood draws documenting total levels under 250 ng/dl before they agree to pay for the injections.

How much does TRT cost?

The estimated total costs of our hormone plans average between **\$125 - \$200 per month** depending on the type of TRT:

- Testosterone injections: \$125 per month
 - \$100 fee to Pazona MD + \$25 a month to pharmacy with Good Rx card
- Testosterone topical: \$150 - \$200 per month

- \$100 fee to Pazona MD + \$50-\$100 a month to MedQuest compounding pharmacy
- Testosterone pellets: \$200 per month
 - \$800 per pellet insertion every 4-5 months

What exactly do I get for \$100 a month? Why are there different charges?

For the time being we have decided not to be in the dispensing medication (pharmacy) business. Most other “low T” centers will purchase the testosterone medication and charge you a premium for the medication. Instead we have decided to separate the fees.

The recurring \$100 a month fee covers:

- Two lab draws a year (costs up to \$500 when run through insurance).
- All patient portal, telephone and telemedicine encounters.
- Management of your prescription including writing the prescription, management of dose changes, interpretation of labs, and management of side effects.
- Basic dietary, exercise, sleep hygiene and stress management tips.

Basically, the fee covers all of the time and medical care required to give you an exceptional experience with your hormone optimization. Insurance companies sometimes won't cover this work because according to them “you don't *REALLY* have low testosterone.” This fee allows us to be paid for our efforts and allows you to avoid unnecessary office visits.

We can manage your TRT from the comfort of your home without asking permission from insurance companies.

What do I do if I get a bill from Quest even though I pay the monthly membership?

On occasion you may receive a lab bill directly from Quest. If you are enrolled in the monthly membership please notify Pazona MD of the invoice number and amount. We will contact Quest directly and satisfy the amount due for hormone labs.

Now that I've started TRT, what's the next step?

About 4-6 weeks after consistently using the injections or cream (or after your pellet insertion), you will go to Quest Lab (1916 Patterson St, 1st floor) to have your blood drawn. We want to recheck your total and free testosterone levels along with a complete blood count (CBC) and estradiol level.

Once the blood is drawn, make sure to schedule a telemedicine or phone check-in to review the labs with one of the Pazona MD providers. We will also be checking in your progress and making any additional changes to your treatment course.

How often do I need labs checked? Why do my friends have labs at the "low T centers" more often?

We recommend checking your labs 4-6 weeks after starting TRT. If we are making any dose adjustments, we will also recommend repeat labs in 4-6 weeks. Once your levels are steady, we only need to check labs every 6 months. On occasion, we may check labs more often depending on your medical history.

Most "low T centers" recommend blood draws more often because they are either making money off the blood draws, or they don't have familiarity with managing TRT.

What is an estrogen blocker? Why are my friends taking it?

As you start TRT, you can expect a rise in both your testosterone and estrogen levels. Testosterone is converted to estrogen in the fat cells of our body. It is important as a man to have a healthy balance of testosterone and estrogen. An estrogen blocker (aromatase inhibitor) is a medication (e.g. anastrozole) that will minimize this conversion of testosterone to estrogen. As a result, many men who are started on TRT are also placed on anastrozole to lower estrogen levels.

Unfortunately, there is little medical data to support the use of anastrozole in men. There are also side effects such as hot flashes, back pain, arthritis, depression and bone fractures. We therefore reserve prescribing anastrozole for men who have been on it in the past and/or for men who develop breast enlargement on TRT.

What are some other ways to lower my estrogen levels?

If your estrogen levels become too elevated while on TRT (>80-100), then there are some natural ways to lower the levels. The first is weight loss. The less body fat you have, the harder it is for your body to convert testosterone into estrogen.

The second option we recommend is taking the BioTE supplement DIM SGS+. DIM is a compound that promotes healthy estrogen metabolism. It minimizes the conversion of testosterone to estrogen. You can purchase DIM SGS+ through our office.

Do I need to be on any supplements while on TRT?

It is important to support the positive effects, while minimizing any side effects, of TRT with high-quality supplements (nutraceuticals). Many of our TRT patients are on the following supplements:

- DIM SGS+
- Vitamins ADK
- Iodine+ (Iodine/Zinc/Selenium)
- Magnesium

Again these are available for sale through our office.

Are there natural ways to raise testosterone levels?

Absolutely! Whether you want to go completely natural, or further augment the benefits of TRT, testosterone boosting supplements and activities can definitely help. In fact the 4 supplements we just listed are natural testosterone boosters that I take myself everyday.

If you're interested in learning more, check out this thorough blog article I wrote about testosterone boosters:

<https://www.pazonamd.com/testosterone-boosters-blog/>