



TESTOSTERONE REPLACEMENT THERAPY

Which Option is Right for You?

Hypogonadism, also known as low testosterone or “low T,” can lead to symptoms of decreased energy and libido, difficulty building lean muscle mass, moodiness, difficulty concentrating, and even loss of bone density. Men who are symptomatic and demonstrate low testosterone on a blood draw are candidates for testosterone replacement therapy (TRT). There are many options for TRT, each of which has its benefits and disadvantages. The decision about which one is right for you will depend on your personal preferences and a discussion with an Advanced Urology physician. In some cases, different insurance companies may cover one option and not another, which may also be taken into consideration. If the desired effects are not achieved with your initial choice, a different option can be tried to see if it is a better fit for you, your health, and your lifestyle. A summary of the most commonly used TRT options is provided below.

1. **Topical Gels:** Advantages include more constant levels with daily dosing, high patient satisfaction, and avoidance of needles. Disadvantages include increased cost compared to injectables, the potential for transference of the gel to others (e.g., spouses and young children) through contact with your skin or clothes, messiness of gel application, and potential skin irritation. Topical options are listed below.
 - a. **Testim:** Testosterone gel (1%). Single-use tubes, each containing 50mg of testosterone in 5g of gel. Usual starting dose is 1 tube daily, applied to the shoulders and upper arms.
 - b. **AndroGel:**
 - AndroGel 1%. Single-use packets containing 50mg of testosterone in 5g of gel. Usual starting dose is 1 packet daily or 4 pumps, applied to the shoulders, upper arms, and abdomen.
 - AndroGel 1.62%. This formulation comes in a pump applicator with 40.5mg of testosterone in 2 pumps. Usual starting dose is 2-4 pumps daily, applied to shoulders, upper arms, and abdomen.
 - c. **Fortesta:** Testosterone gel (2%). Pump applicator with 20mg of testosterone (0.5g gel) per pump. Usual starting dose is 4-6 pumps daily, applied to the inner thighs.



- d. **Axiron:** Testosterone solution (2%). 30 mg testosterone per (1.5 cc) pump. Usual starting dose is 2 pumps daily applied to underarms (1 pump to each underarm).
2. **Transdermal Patch:** No longer recommended due to skin irritation.
 - a. **Androderm:** Transdermal patches, in two different strengths: 2mg testosterone per 24-hour patch and 4mg testosterone per 24-hour patch. The usual starting dose is one 4mg patch applied to skin daily. Formerly used but no longer recommended due to skin irritation.
3. **Injectables:** Advantages include efficacy and patient satisfaction, dosing ranging from weekly to as infrequently as every 10 weeks, and low cost. Disadvantages include increased fluctuation (peaks and valleys) in testosterone levels compared to daily dosing options and the requirement for needles and self-injection.
 - a. **Testosterone Cypionate (TC):** 200mg testosterone per cc, which is injected into the muscle (IM). Injections can be done in the clinic, or you can be taught by our nurse how to self-administer. The usual starting dose is 1cc IM weekly to every other week.
 - b. **Testosterone Enanthate:** 200mg testosterone per cc, which is injected into the muscle. Some patients may experience less water retention than with TC.
 - c. **Testosterone Undecanoate (Aveed):** 750mg in 3cc is injected into the muscle. Injections are performed in the clinic upon initiation, at 4 weeks, and then every 10 weeks.
4. **Implantable:** The advantages of this therapy include convenience and decreased frequency of dosing. As this requires a short office procedure, there are risks including bleeding, infection, and pellet extrusion in less than 1% of cases.
 - a. **Testopel (Subcutaneous Testosterone Pellets):** This comes in cylindrically shaped pellets that are about the size of a grain of rice. Each sterile pellet contains 75mg of testosterone. The usual starting dose is 10-14 pellets implanted subcutaneously in the office under sterile conditions once every 3 months.
5. **Inhalable:** The advantages of this modality is that avoids needles, and implants. Additionally it cannot be passed from skin to skin contact between people.
 - a. **Natesto (Inhalable Testosterone):** After you blow your nose one can administer the gel by inhalation. It is recommended to apply one pump to each nostril three times daily.

Regardless of the type of testosterone replacement therapy chosen, you will need to be monitored by your physician at regular intervals (usually every 3, 6 months) both to confirm good control of your



hypogonadal symptoms and to ensure that there are no potentially dangerous side effects. The follow-up regimen usually consists of the following:

- Physical examination, including digital rectal exam to rule out prostate nodules (yearly).
- Routine bloodwork for testosterone levels and other hormones (every 3-6 months).
- Routine blood work for lipids, hemoglobin and hematocrit, and PSA (prostate-specific antigen) (every 6 months).

Other medications that may be combined with your testosterone replacement therapy:

- **Arimidex (anastrozole):** This is an oral medication that decreases the conversion of testosterone to estrogen, and may be used when estrogen levels are high. This can help reduce breast tissue growth and fluid retention.
 - **Nolvadex (tamoxifen):** This is an oral medication that blocks the effects of estrogen in the body without decreasing the level of estrogen in the blood. It can help reduce breast tissue growth and breast sensitivity.
 - **HCG:** This is a subcutaneous injection that can be used to preserve testicular size or function. It stimulates the production of testosterone within the testicles.
 - **Clomid:** This is an oral medication that increases the production of testosterone as well as sperm production within the testicles. It can help enhance and preserve testicular function.
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