

# Testosterone

## replacement for men

### Testosterone

Testosterone is a hormone produced by the testicles in men. It is produced in much smaller amounts by the adrenal glands (above the kidneys) in both men and women. Production is controlled by luteinising hormone (LH) produced by the pituitary gland in the brain.

Symptoms of testosterone deficiency include:

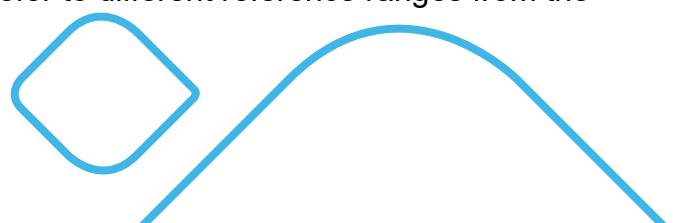
- Reduced libido (sex drive)
- Difficulty with erections
- Lower body muscle mass
- Anaemia
- Low bone density (osteopenia/osteoporosis)
- Tiredness and difficulty concentrating
- Low mood and feeling more emotional

It is important to recognise there are many reasons for these symptoms and many men who are experiencing them have normal levels of testosterone.

### Measuring testosterone

Measuring testosterone levels can be challenging:

- Levels of testosterone are usually highest first thing in the morning and fall throughout the day. In men who have very disrupted sleep, work shifts or who wake very early or late, this variability can be lost, and they may not demonstrate the same peak level as men who have regular, traditional sleep patterns. This does not mean they have a lower total amount of testosterone, just that they don't have the same morning peak.
- When testosterone is measured, it is attached to a protein called Sex Hormone Binding Globulin (SHBG). Variability in levels of SHBG will show variability in testosterone results, even if the actual level of testosterone is the same
- There are lots of different machines that testosterone can be measured on (testosterone assays). These vary across the country. It is important to compare a testosterone result with the local assay reference range as this varies from machine to machine. Some of the guidelines for testosterone replacement refer to different reference ranges from the



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RUH assay. It is important to consult local expertise rather than relying on a number in a guideline.

## Measuring testosterone

Blood results will be:

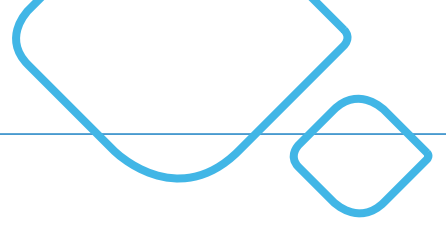
- Definitely normal – no testosterone replacement therapy required
- Definitely abnormal – testosterone replacement therapy may be offered if suitable
- Unclear – further investigations indicated. In this case, further blood tests including a fasting early morning testosterone level, SHBG, LH level and blood count are checked. In some cases, a DEXA scan is also arranged to assess bone density.

Society for Endocrinology guidelines advise that when blood results remain unclear, if the blood count is normal and bones are normal, then testosterone replacement treatment is unlikely to be helpful.

## Testosterone replacement therapy options

In patients for whom Testosterone replacement is suggested, there are two main ways of receiving treatment, gels or injections. Testosterone implants and oral testosterone are no longer available.

1. Testosterone gel e.g. Testogel, Testim
  - a. Patients usually start on a gel to ensure the patient doesn't have any side effects
  - b. Applied daily to the skin, first thing in the morning after shower/bath
  - c. Avoid genital and chest wall area
  - d. Wash hands after application. If applying for another person, use gloves
  - e. Avoid bare skin to skin contact of the area that the gel was applied to with another person for 2 hours afterwards
2. Testosterone injections e.g. Nebido 1g 12 weekly, Sustanon 3 weekly (Sustanon currently has limited availability), Testosterone enantate 3-6 weekly (very limited availability)
  - a. Injection into buttock by nurse at GP practice. Can be quite uncomfortable at time of injection and shortly afterwards
  - b. Can be very convenient – may only need treatment once every three months
  - c. Takes a long time to reach steady levels in the blood, at least three doses



## Side effects

Most patients do not get any side effects with Testosterone replacement therapy. The following risks/side effects need to be monitored for:

1. **Polycythaemia (high blood count).** Untreated polycythaemia can cause strokes. All patients on Testosterone replacement need regular blood count measurements to ensure the blood count is stable. If it rises, the testosterone dose may need to be reduced, the frequency of treatment extended or treatment stopped. Other causes of polycythaemia include smoking, increased weight, obstructive sleep apnoea, alcohol and a family history.
2. **Prostate enlargement.** Testosterone replacement does not cause prostate cancer but it can cause undiagnosed prostate cancer to grow more quickly. It can also worsen benign prostatic hypertrophy (simply enlarged prostate). If you developed urinary symptoms, such as hesitancy, poor flow, dribbling, increased waking at night to pass urine on starting testosterone please let your doctor know immediately.
3. **Reduced testicle size.** Some men with low testosterone levels already have small testes. However, long term testosterone replacement treatment, especially injections, can reduce the size of testes that were previously normal.
4. **Infertility.** If you are seeking to have a baby currently or at some time in the future, you should discuss this with your doctor before starting testosterone replacement treatment as it may reduce fertility.
5. **Angina.** There was a concern about testosterone causing heart problems is mixed. However a recent study has shown that testosterone treatment is safe even in men with known coronary heart disease.
6. **Acne and mood disturbance.** If you struggle with acne or mood disturbance on testosterone replacement, contact your doctor.

## Safety monitoring

Patients on testosterone replacement require regular blood test monitoring. Once levels are optimised, the frequency of monitoring reduces. In addition, your doctor will monitor your blood count and possibly PSA (prostate blood test). Your doctor will tell you when to have these tests taken and will give you forms. It is very important to have these taken at the times advised. We cannot recommend ongoing prescriptions in patients who do not have safety monitoring.

## Improving testosterone levels and libido naturally

The level of testosterone in your blood is affected by a range of factors. There are many things that can be done to improve testosterone levels (and libido) in patients that have borderline results. Below are some ways that have been shown in scientific studies to improve testosterone levels.

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- Keeping a healthy weight
    - Talk to your GP about local services.
    - Watch Giles Yeoh Weight loss shorts on YouTube
    - Consider reading, Why we eat too much by Dr Andrew Jenkin
  - Good diabetes control
    - Talk to your diabetes nurse if you have diabetes
  - Good quality sleep, at least 7 hours a night
    - If you have sleep problems talk to your GP to rule out sleep apnoea
    - Consider reading Why We Sleep, by Matthew Walker.
  - Exercise regularly – even if your weight stays stable, exercise can increase testosterone levels
  - Avoid morphine-based medications, such as tramadol, which can suppress testosterone levels by affecting LH levels.
  - Avoid ‘testosterone boosting supplements’ and any testosterone replacement that is not supplied by a registered doctor. Doses are often higher than is safe, there is the risk of the side effects, there is no safety monitoring. The body’s own testosterone production can be suppressed for up to two years after using these preparations.

## Relevant information & contact details

If you have any concerns or questions, please contact the endocrine specialist nursing team on:  
Telephone: 01225 824101  
Email: [ruh-tr.endocrinediabetes@nhs.net](mailto:ruh-tr.endocrinediabetes@nhs.net)

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01225 428331 | [www.ruh.nhs.uk](http://www.ruh.nhs.uk)

If you would like this leaflet in email form, large print, braille or another language, please contact the Patient Support and Complaints team on 01225 825656.

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