

Patient information

Testosterone Replacement Therapy

Urology Department

Testosterone replacement therapy is recommended in men who have problems caused by a low testosterone. It aims to return the testosterone levels back to normal. This information leaflet tells you about the types of testosterone therapy, its risks and benefits.

What is testosterone?

Testosterone is the male sex hormone. In childhood it is responsible for normal growth and development of male sex organs. In adults it maintains secondary sexual characteristics such as body hair, a deep voice and muscle bulk.

Where is testosterone produced?

Testosterone is produced in the testicles by Leydig cells. Its production and secretion are the end product of a series of hormonal interactions. Gonadotropin-releasing hormone (GnRH) is secreted by the hypothalamus and controls the pulsatile secretion of luteinizing hormone (LH) and follicle-stimulating hormone (FSH) by the anterior pituitary. Luteinizing hormone regulates the production and secretion of testosterone by the Leydig cells of the testes, and FSH stimulates spermatogenesis (the making of sperm).

What causes testosterone deficiency?

When the testes fail to produce normal levels of testosterone, testosterone deficiency results.

There are two different types of testosterone deficiency:

Hypergonadotropic hypogonadism or primary testosterone deficiency is caused by primary testicular failure.

Testosterone levels are low and pituitary gonadotropins (LH and FSH) are elevated.

Hypogonadotropic hypogonadism or secondary testosterone deficiency is caused by an inadequate secretion of pituitary gonadotropins. There is a low testosterone level. Levels of LH and FSH are low or low-normal. This is the most common type of testosterone deficiency in older men.

What symptoms may I experience if I have a low testosterone?

Men with low testosterone complain of a variety of symptoms.

These may include some or all of the following:

- Loss of libido (sex drive).
- Erectile dysfunction (impotence).
- Infertility.
- Breast enlargement (gynecomastia).
- Changes in body composition – decrease in muscle bulk and increase in fat deposits.
- Reductions in body and facial hair.
- Osteoporosis.
- Mood problems including anger, confusion, depression, and fatigue.

How is testosterone deficiency diagnosed?

You will have your history taken and a full physical examination.

Blood tests will be taken to measure testosterone and some other hormones. If the first blood tests are abnormal then these may be repeated on one or more occasion after intervals of time and before 10 o'clock in the morning.

What should I hope to gain from testosterone replacement therapy?

- Enhancing body composition by increasing muscle strength and reducing fat tissue.
- Improving energy and mood.
- Maintaining or restoring secondary sexual characteristics, libido and erectile function.
- Stabilising or increasing bone density.

What types of testosterone replacement therapy are available?

Oral testosterone (tablets): tablets are not appropriate for long-term testosterone replacement therapy. This is because with long-term use they can cause liver damage, liver tumours and cholesterol problems.

Testosterone injections: The injectable form of testosterone is not associated with the above-mentioned undesirable effects of tablets. It requires injection deep into the muscle between once a week and once a month. Delivering testosterone this way has a 100% success rate in achieving normal testosterone levels.

Testosterone pellets: These can provide testosterone for up to six months. However, these pellets require a surgical procedure for implantation. It is difficult to tailor the dosage to the individual's response.

Topical testosterone: These formulations allow testosterone absorption through the skin. Testosterone is presented in gels, creams or patches. This avoids an injection but means that testosterone has to be applied on a daily basis. There is a risk of local skin irritation. In some men it can be difficult to get testosterone levels high enough. However, the effects of raised testosterone wear off more quickly if the applications are stopped.

Certain precautions need to be taken when using gels and creams. They should be applied over clean, dry, healthy skin of the shoulders, arms or abdomen. You should avoid putting it anywhere near your breasts or genital area. They should be allowed to dry for three to five minutes before you dress. You should wash your hands thoroughly with soap and water after applying the gel or cream.

You should avoid bathing or showering for at least six hours. It is especially important to avoid potential contact of the gel with children or pregnant women.

Do I need any other tests before starting testosterone replacement therapy?

Yes. There is a small risk that testosterone treatment will unmask a prostate cancer. That is it may cause a prostate cancer that is already present to grow more quickly. It is therefore important that prostate cancer is excluded before testosterone therapy is started. This will involve an examination of the prostate by inserting a gloved finger into the anus.

A blood test will also be taken for PSA (prostate specific antigen). PSA is a chemical normally produced by the prostate that may be raised in men with prostate cancer.

If either the examination or the PSA are abnormal then you may be advised to have a prostate biopsy. This involves the insertion of a probe into the anus and removal of some samples of prostate tissue. These can be looked at under the microscope. If there is a diagnosis or suspicion of prostate cancer then testosterone therapy is contraindicated.

How will my testosterone therapy be monitored?

- You will be seen regularly initially by your consultant and then by your family doctor (GP) to monitor your response.
- Your prostate and breasts will be examined.
- You will have blood tests for testosterone, PSA, blood count and liver functions.

Are there any contraindications to testosterone replacement therapy?

Testosterone replacement is contraindicated in men with carcinoma of the breast or known or suspected carcinoma of the prostate.

It may cause rapid growth of these tumours. Hormone therapy is also inappropriate in men with severe benign prostatic enlargement i.e. men who are having troublesome urinary symptoms due to an enlarged prostate.

What complications can arise from testosterone therapy?

Lipid abnormalities

Testosterone replacement back to normal levels is known to reduce total cholesterol, low density lipoprotein (LDL), and high density lipoprotein (HDL) levels. The overall effect of these changes on the risk of heart and blood vessel problems is unclear.

Polycythemia and sleep apnoea

Polycythemia, an excess of red blood cells, has been associated with testosterone replacement therapy. This is less common with topical testosterone than with injections. Although the mechanism is unclear, testosterone replacement therapy may also cause or worsen obstructive sleep apnoea.

Obstructive sleep apnoea is a breathing disorder that occurs during sleep in some men.

Prostate changes

Theoretically the prostate may enlarge as a result of testosterone therapy. Studies have shown that there is little difference in the rate of growth when compared to men of a similar age not on testosterone treatment.

Prostate cancer

There appears to be little association between testosterone replacement therapy and the development of prostate cancer. The cause of prostate cancer is apparently multifactorial. Dietary, geographic, genetic, and other influences are all thought to play a role in the development of the disease.

Recent studies indicate that testosterone levels have no apparent relationship to the incidence of prostate cancer.

Azoospermia (absence of sperm from the semen)

The administration of testosterone as a means of male contraception is under study. In these men, azoospermia usually results within approximately 10 weeks of beginning therapy. Rebound of the sperm count to baseline levels occurs within six to 18 months of stopping treatment. After stopping treatment return to fertility has been demonstrated.

Testosterone therapy cannot be used as a method of contraception at this time.

Acne

Some men may experience problems with acne as a result of testosterone therapy.

Mood changes

Abnormal mood can be a problem caused by a lack of testosterone. However, testosterone therapy can sometimes have unwanted effects on mood. These may include an increase in aggression, agitation and mood swings.

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Following your discharge from hospital or attendance at your outpatient appointment you will receive a text asking if you would recommend our service to others. Please take the time to text back, you will not be charged for the text and can opt out at any point. Your co-operation is greatly appreciated.

Further Information

For general queries telephone the Urology Centre on

Tel: 0151 282 6799/6789

Text phone number: 18001 0151 282 6799/6789

For clinical questions specific to your case, telephone the secretary of your Urology Consultant
<http://www.baus.org.uk/>

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