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ISSM PATIENT INFORMATION SHEET ON TESTOSTERONE DEFICIENCY FOR MEN

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Testosterone Deficiency: a guide for men

What is Testosterone Deficiency?

Testosterone Deficiency (TD; sometimes called Androgen Deficiency) occurs when the testes do not produce enough testosterone. Much more rarely, the problem is that the body is unable to respond to testosterone. Around one in twenty men have TD.

What are the symptoms of Testosterone Deficiency?

Men with TD may get one or more of the following symptoms, although some men with low testosterone will have none:

- Sexual problems: reduced sexual desire; fewer night-time and morning erections; problems with erection, ejaculation and orgasm
- Tiredness; less energy; easy fatigue; falling asleep during the day; depression; sadness; poor concentration; irritability
- Change in body shape: reduced shoulder and arm muscle strength and mass; central obesity or “pot belly”; breast growth (gynecomastia)
- Reduced body and pubic hair growth, with hairs becoming thinner and less dense (beard growth is frequently unaffected by TD)
- Hot flushes/flashes; sweats

- Smaller or shrinking testes
- Fertility problems

What causes Testosterone Deficiency?

There are two main types of TD, which can sometimes co-exist:

TD due to problems with the testes (also called *primary hypogonadism*): this may be due to genetic conditions (e.g. Klinefelter’s Syndrome), testicular injury, previous problems with undescended testes; infection; chemotherapy and radiation therapy; surgery. This accounts for about 20% of men with TD and becomes more common as men get older.

TD due to problems with production of the hormones that stimulate the testes to produce testosterone (also called *secondary hypogonadism*): this may be due to disease, injury, irradiation, or developmental problems in the part of the brain called the hypothalamus and/or the pituitary gland, and to overproduction of another hormone called prolactin. This accounts for about 80% of men with TD and is more common in men who are obese, have diabetes, or have a range of chronic health problems, including chronic lung disease, inflammatory bowel disease, some cancers, and HIV. It can also be caused by some drugs, including morphine-like drugs and previous use of anabolic steroids. It affects men of all ages.

What effects might Testosterone Deficiency have on my future health?

TD may affect the function of many different body systems, and result in significant detriment in quality of life, including alterations in sexual function.

Men with TD are at increased risk of:

- Sexual problems
- Obesity; the Metabolic Syndrome; diabetes
- Cardiovascular disease
- Thinning of the bones (osteoporosis); fractures
- Depression

How do I find out if I have Testosterone Deficiency?

If you suspect that you might have TD, perhaps because you have some of the symptoms described above, or have a medical condition, or have had surgery or radiotherapy, or have used medications associated with TD, you should consult your Family Physician (GP) or other doctor for advice.

They should assess your symptoms and offer you a physical examination. *TD can only be diagnosed with a blood test*; it cannot be excluded by symptom assessment and examination alone. To begin with, you should have a blood sample drawn between 08:00AM and noon, to be analyzed at a laboratory to discover how much testosterone is in your blood (your *total testosterone*). If this is greater than 346ng/dL, or 12 nmol/l, it is unlikely that you have TD and further investigation is not usually necessary. If it is less than this, then you should have a second blood test to confirm the low level, and to identify the *type* and the likely *cause* of your TD. Depending upon these results, other investigations may also be necessary. If TD is confirmed, you should talk with your doctor about its treatment.

What treatments are available for Testosterone Deficiency?

Treatment without drugs: For overweight men, a program of diet and exercise for weight loss may increase their testosterone level but this is not effective with all causes of TD, and most men will not achieve and maintain their weight loss target. Treatment of other medical conditions, such as sleep apnea, and the discontinuation of some medications may also result in increased testosterone synthesis. These interventions should always be discussed with your doctor. *If testosterone levels are not restored to the normal range by treatment without drugs within a few months, treatment with drugs needs to be considered.*

Treatment with drugs: Before drug treatment of TD is commenced you will need to decide whether maintenance of your fertility (spermatogenesis) and the size of your testes is important to you.

*If maintenance of fertility and testicular size **are not** crucial issues for you, then your TD may be treated with testosterone (testosterone replacement therapy); testosterone is currently the only Food and Drug Administration (FDA)-approved treatment for TD. Testosterone is available as transdermal gels and patches, injections, implants, and buccal and oral tablets.*

The International Society for Sexual Medicine recommends transdermal gels and patches, and long-acting injections as the prescriptions of choice for most men. Your Family Physician may be willing to initiate and supervise this treatment for you. Treatment with testosterone is not always appropriate for men with some medical problems. **Treatment requires regular monitoring by a doctor, and will require regular blood tests and physical examinations.** Men of 40 years and over should have their prostate gland examined before treatment commences and regularly thereafter while they remain on treatment. Testosterone treatment is typically lifelong.

*If maintenance of fertility and testicular size **are** crucial issues for you, then your TD should not be treated with testosterone.* You should ask your Family Physician to refer you to a specialist physician or surgeon with expertise in the management of TD and fertility issues. They will be able to discuss other treatment options, which may include the use of other drugs that are not approved for TD treatment.

What are the side effects of treatment for Testosterone Deficiency?

Side effects are related to the increased testosterone level in your blood. They may include acne, male-pattern hair loss, breast growth (gynecomastia) and tenderness, new-onset sleep apnea, fluid retention, swelling of the feet and hands, and over-production of red blood cells (polycythemia). Fluctuation in mood and sex drive may occur if testosterone levels are too high.

There is no scientific evidence that treatment for TD causes prostate cancer. There is also greatly reduced concern amongst doctors that it causes rapid progression of an unsuspected and undiagnosed prostate cancer.

Having TD increases a man's risk of developing heart disease. Of note, in March 2015, the US FDA required testosterone manufacturers to add a warning to labels indicating that treatment with testosterone may increase cardiovascular risk. In contrast, the European Medicines Agency's Pharmacovigilance Risk Assessment Committee concluded that there was no consistent evidence that the use of testosterone in men with TD increased the risk of heart problems. This committee also considered that the benefits of testosterone outweighed its risks.

Can I correct Testosterone Deficiency using natural remedies?

There are many herbal products marketed, particularly on the Internet, as treatments that can act like testosterone and improve muscle strength and sex drive. However, there is no good quality of evidence that herbal products cause clinically relevant increases in testosterone and are effective in treating TD.



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