

## Sexual Advice Association

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## Testosterone (and the 'andropause')

**Testosterone** is the male hormone which is responsible for a man's and (partially) a woman's sex drive. In men it is important for a man's well-being, as it maintains his reproductive tissues, stimulates sperm formation, stimulates and maintains his sexual drive and function, as well as increases his muscles, strengthens his bones and stimulates blood formation. All in all, it's a vital component of a man's make-up.

There are many names now for signs and symptoms of a low testosterone, especially one which requires replacement. These include:

- **Testosterone deficiency syndrome (TDS)** - which is probably the most simple and accurate.
- **The male menopause or the andropause** - not a good name as it's not a 'pause' of anything.
- **Androgen deficiency in the ageing male (ADAM)**.
- **Late onset hypogonadism (LOH)**.

### Causes of a low testosterone

**Advancing age** is a major factor. A man's testosterone gently falls from age 20 onwards and at 75 it can be half the level of a 20 year old. A too-low testosterone can cause many problems but many manage perfectly well without problems and remain well.

### Other causes

#### Physical

Apart from age, a man can have a low testosterone for a variety of reasons:

- (a) he can be **born with it** (Klinefelter's syndrome)
- (b) he can **acquire it**
  - by suffering a **loss of one or both testicles** (by trauma, especially warfare, and road accidents in young men)
  - **by having mumps** or glandular fever as a child or as a young adult, if the testicles were swollen and painful, followed by softening and decrease in size
  - **catching a sexual infection** (including HIV/AIDS)

- **by getting diabetes**, either type I at an early age, or type II
- **obesity** frequently by eating too much and becoming too fat (BMI >30)
- **alcohol abuse**
- **big surgical operations or other major trauma**
- **major heart problems especially a heart attack**
- **Damage to the head** in the past, when the pituitary gland (which controls hormone secretions in the body) may have been affected
- **opioid pain killers** in large intake as used in chronic pain in cancer or long term **steroids**
- **over exercise** in the gym or, surprisingly, by long distance cycling
- **an overactive thyroid**
- **long-term steroid treatment** can also cause a low testosterone

A low testosterone is now believed to be associated with an increase in heart attacks and stroke and can be responsible for failure of Viagra, Levitra or Cialis to work.

### **Psychological and stress causes**

- Failure – especially at work
- Unexpected retirement or not having prepared for it
- Threat of redundancy or actual loss of job
- Bereavement, or acute stress leading to divorce
- Major money worries
- Severe family worries, especially with the children
- A combination of these

### **Symptoms of a low testosterone in an adult man**

If it falls too low, a whole series of rather nebulous symptoms can occur.

1. There is reduced drive and energy, sexual and physical – he's just not interested in sex, and gets tired more easily, frequently tending to fall asleep on getting home after work rather than doing jobs round the house.
2. He has fewer spontaneous or early morning erections.
3. His ability to get an erection is worse than it was, and he may well have erectile dysfunction, much to his and his partner's distress.
4. Often, he has a poor response to treatment with the PDE5 inhibitors - Viagra, Cialis and Levitra - which don't work as well as expected.

5. There is a loss of muscle bulk, strength and endurance, so that he can't lift as heavy weights as he used to be able to do and he has increased fatigue.
6. There is marked decrease in enjoyment of life and he feels 'out of sorts'
7. He has poorer concentration and memory
8. There is increased upper and central body fat with a pot belly and a raised BMI (Body Mass Index) - the 'middle aged spread'
9. He may have profuse, drenching sweats particularly in bed, as well as a red face and hot flushes, very much like a menopausal woman's
10. His testes may get smaller and his breasts increase ("man boobs")
11. His mood changes, with depression and increased irritability - "a grumpy old man" – the family compares him to Victor Meldrew

They may not all be present – and some symptoms are more severe than others. No one is sure why this happens, so for a diagnosis of testosterone deficiency, the symptoms must be supported and confirmed by having blood tests. It is still not possible to predict who will have problems needing help, at what age and for how long.

### **Signs of a severe, long term fall in testosterone**

- Loss of body especially pubic and armpit hair
- Smaller testicles
- A low sperm count (important if trying to conceive children)
- There is a greater likelihood of fractures, because he gets thinning of the bone structure (osteoporosis)
- Sleep disturbance, especially having shorter and delayed periods of sleep
- Mild anaemia

### **How is the diagnosis confirmed?**

A careful history is essential, so your doctor needs to know all the facts you may complain about, including any trauma to your head you may have had in the past. A physical examination of pulse, urine and blood pressure, an assessment of body hair, musculature and genitalia and a prostate examination are mandatory.

The serum *testosterone* and the *sex hormone binding globulin* (SHBG) need to be measured (see below). A low testosterone should be confirmed on *two* occasions with separate early morning specimens of blood, as the level changes throughout the day. A base level *cholesterol* and *full blood count* including the *haematocrit*, are helpful.

Blood tests to find the *prostatic specific antigen* (PSA) level must also be done to check the state of the prostate. Although this is an unsatisfactory test, with only 30% of those with raised levels having a prostate cancer (it can be raised for up to 72 hours after ejaculation, or in those with a large prostate), it is the only one so far available and therefore **a raised PSA on two occasions must be treated with respect, requiring a transrectal ultrasound and possibly a biopsy.**

There is still widespread concern among some doctors that giving testosterone will *cause* a cancer of the prostate. There has never been proof to confirm this myth and the scare comes from a poor piece of research in 1939. Seedlings of a cancer *already established*, though, can be aggravated by the addition of testosterone.

A worldwide survey of doctors in 2007 found that two thirds of doctors who were asked associated testosterone replacement therapy with more risks than benefits. As a result 35% of hypogonadal patients needing replacement did not receive it.

Not every man has every symptom – one man's can be very different from the next man's. There is a great deal of argument going on at the moment about who to treat, which makes it confusing for the ordinary doctor to diagnose and manage the problem. On one extreme, there is the hormone specialist who said it is all a 'myth to excuse the lazy and unfit', and some doctors mistakenly feel that this is a lifestyle problem, which is unfair and unkind.

Other more informed specialists maintain that there is a large number of men in their 50s and 60s with some of the symptoms listed above, who are suffering quite severely - physically and mentally - as a result of a low testosterone. If this happens, especially to a man in full employment, his energy, quality of life and effectiveness in society all diminish when they could be easily reversed by testosterone replacement.

**Technical stuff.** *There may be difficulties in making the diagnosis. Some labs have different levels for a normal serum testosterone level from others, and this varies from 8 to 12 nani-mols/Litre for the lower level, up to 30 - 35 nani-mols/Litre for the top level. This means that a man with a testosterone level of 9 nmols/L whose blood is checked by a lab with a normal range of 11 - 35 nmols/L will be considered deficient, yet a different lab with a range of 8 – 30 nmols/L would regard him as normal. Results therefore need to be treated with caution, and particularly, a fat or obese man may have a normal testosterone but with a raised sex hormone binding globulin (SHBG), and therefore a lowered free testosterone, and so have a true hypogonadism (low active hormone).*

## Treatment of a low testosterone

There is a widespread worry among doctors that giving testosterone will **cause** a carcinoma of the prostate. There has never been a link found to verify this although an existing tumour may be aggravated by testosterone, at least initially, and regression takes place with androgen deprivation (which in the past was done by castration). Therefore, any man over 50 must have prostate cancer ruled out before he has testosterone replacement (TRT) and he should be monitored with a PSA after three months and thereafter annually.

## Available preparations

Although it has been in clinical use for over 60 years, testosterone has never been of much interest to pharmaceutical companies, because hypogonadal men have been a very small minority of the population and they do not suffer from an obvious life threatening disorder. It is only in recent years that a search for a male contraceptive has spurred interest in testosterone applications and consequent treatment of testosterone deficiency.

## Older preparations

**water soluble capsules**, oil-based **injections**, and **crystals** compressed into small cylinders for implantation under the skin.

The difficulty with the first two of these older preparations is that the serum levels of testosterone swing wildly, with a rapid rise to high levels followed by a fall to low levels, so there is a roller-coaster ride for the patient with relief of symptoms and then back down to recurrence, with unsatisfactory shifts of mood and performance. The capsules can do this in the space of hours, the oily injection over a period of two to three weeks,. None of these is therefore ideal, but hitherto these are all that have been available, with the implant being the least and the capsules being the most troublesome.

The **six monthly implant** was a great advance, but it needs a very minor operation each time under a local anaesthetic.

**Patches** have been withdrawn

## Newer preparations

**Buccal tablet** - This is a tablet which is stuck on the gum above an eye tooth. They have to stay for 12 hours and are then replaced. Some men find they have difficulty in retaining the pellet, but others find it very convenient

**Gels** - There are now gels (Testogel, Testim and Tostran, testosterone in an hydroalcoholic gel) available. When rubbed into the arms and chest after a morning shower, a physiological level can be reached very rapidly and

maintained if it is rubbed in daily. This seems to be an excellent and very acceptable form of treatment, with fewer side effects and greater compliance, because it is so easy to use.

**A long acting intramuscular injection** of testosterone undecanoate (Nebido) is also available now, needing only one injection about every three months and which does not have the same rollercoaster effect as the two or three weekly ones, undoubtedly aiding compliance. It is slightly more expensive than the other forms of treatment, but many men (and their doctors) find the convenience of not having to have a regular, frequent appointment with their doctor's clinic outweighs the cost. Both these applications will no doubt be the treatments of choice as replacement in testosterone deficiency. It is not yet available in the USA

## Conclusion

Androgen deficiency in the adult male (otherwise the 'andropause') exists. There is a large number of men who need testosterone replacement therapy (TRT) , but who do not get it, largely because the problem is not widely recognised. Also, there is still a cohort of doctors who feel that to treat an older (>50 yrs) patient with testosterone is wasting money on a lifestyle problem, not appreciating the enormous difference men feel when their testosterone is back at a normal level.

TRT needs careful monitoring and after screening for contraindications, it should only be considered when the testosterone levels are *lower than the normal limit for a younger man*, together with unequivocal signs and symptoms of androgen deficiency. TRT is a lifelong treatment so it is important to get the correct diagnosis at the start. Adverse effects are very uncommon.

Eberhard Nieschlag and Hermann Behre, two eminent German andrologists in Munster, with 30 years' research on testosterone replacement state: *'Just why substitution is withheld [by doctors] is not clear. However, the better the general effects of testosterone on well-being, mood, bone, muscles and blood are understood, the more testosterone replacement will be considered'*.

### **Advantages of testosterone replacement:**

1. Improved physical and mental wellbeing.
2. Patient feels alert, vigorous and in good spirits.
3. There is an improved sex drive and return of spontaneous early a.m. erections, increased ejaculations and sexual intercourse.
4. The HDL cholesterol rises and a corresponding fall in LDL in the majority of men.
5. Sexual fantasies and desire return.
6. Bone density increases with fewer fractures.
7. There seems to be an improvement in atherogenic effects with improvement in ischaemic ECG changes and vasodilator effects. More work is being done on this.

**Disadvantages of testosterone treatment:**

1. Aggravates existing (but only existing) carcinoma of the prostate.
2. Sperm production is suppressed to some extent. Fertility should be discussed in appropriate patients.
3. The haematocrit is increased, so men with polycythaemia should be treated with caution.
4. There may be some oedema and weight gain, which only causes real problems in patients with precarious heart problems.

**There is no proof that testosterone replacement:**

1. Causes carcinoma of the prostate.
2. Makes an enlarged prostate bigger.
3. Worsens sleep apnoea.
4. Worsens liver function.

**Further reading**

- *Testosterone* by Nieschlag and Behre Cambridge University Press 3rd Edn – a textbook full of useful information.
- *The Testosterone Revolution* by Malcolm Carruthers, London, Thorsons – a popular book, easy reading and worth dipping into.
- The website of the International Society for the Study of the Ageing Male is excellent ([www.issam.ch](http://www.issam.ch)).

**An invitation**

..... to enrol as a friend of The Sexual Advice Association. For a small annual subscription you will know that you are contributing to a charity that helps overcome the problems of male and female sexual dysfunction. If you are interested please telephone or write for an application form or complete our on-line registration form.

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