



Hormone treatment (masculine)

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Introduction

You have requested masculinising hormone treatment, in order to help treat your gender dysphoria and to make your body more congruent with your gender identity. We will be recommending that your GP prescribe you the male hormone testosterone. Testosterone will result in your body developing a more male physical appearance. It will also automatically decrease your body's production of the female hormone oestrogen, which will decrease your female physical appearance.

Although hormone treatment is very effective and causes noticeable changes, you may also wish to undergo other procedures to further masculinise some aspects of your body, such as mastectomy (removal of the breasts) and genital reconstruction surgery.

Hormone treatment is generally very safe, but there are some side effects that you should be aware of and that will be explained to you at the time of prescribing. However, the good news is that transgender men and transmasculine people treated with testosterone have the same life expectancy as the general population, telling us that this is a very safe treatment even if it is taken over many years.

Some of the changes in the body produced by testosterone are reversible if you stop treatment but many are permanent, including your voice breaking, hair loss from your head and increased facial hair. It is therefore important to be sure that hormone treatment is the right option for you before it is started.

If you ultimately decide to have your ovaries removed (which can happen both as a part of genital reconstruction surgery or separately from it) then this would mean that, even if you stopped testosterone, your body would produce very little oestrogen. Therefore testosterone treatment would need to be continued to prevent the complications of having no sex hormone production, such as osteoporosis (brittle bones) or early heart disease.

How Hormone Treatment Fits with other Aspects of your Transition

At the Tavistock and Portman NHS Foundation Trust (Charing Cross) clinic you will be assessed by 1 or 2 clinicians, and sometimes more, before hormone treatment is recommended. This is in order to make sure that hormone treatment is the best way to manage your gender incongruence.

We follow an internationally agreed guideline known as Triadic Therapy, which consists of three successive stages; firstly, social gender role change (living in a male or transmasculine role, and formerly called the Real Life Experience); secondly, hormone treatment; and finally, gender related surgery.

This means that we normally ask you to change social gender role before hormone treatment is started; indeed, studies have shown that it is social gender role change, and not hormone treatment, that has the biggest effect on reducing psychological distress and making a person feel better about themselves. Once hormone treatment is started, we then normally want you to become established on this before any surgical interventions. We follow these three stages because as you progress through them there are progressively more significant and irreversible physical changes, which may make it harder to revert to your gender assigned at birth.

It is also important to say that not everybody wants or needs to go through all three stages. Some people change social gender role without having hormone treatment, and some people who have hormone treatment choose not to have any gender related surgery. A minority of people will also have gender related surgery without hormone treatment.

Our Standard Hormone Regimen

Masculinisation is achieved by the administration of testosterone. This is most commonly given in the form of Sustanon© injections, which contain testosterone, usually at a dose of 250mg every 2-4 weeks.

Once the injection is given the testosterone level in your blood will rise for about one week, and then gradually fall until the next injection. The aim of treatment is to achieve testosterone levels in the high normal male range (25-30nmol/L) one week after the injection, when the testosterone level is at its highest, and to achieve testosterone levels in the low normal male range (8-12nmol/L) on the day of and just before the next injection, when the testosterone level is at its lowest. A blood test can be taken at each of these times (i.e. one just before the injection and one a week afterwards) to measure what are called the 'trough' and 'peak' testosterone levels. The first blood tests are normally taken at the time of the 4th injection.

If the trough testosterone level is too high or low then the length of time between Sustanon injections can be increased (if the trough testosterone level is too high) or decreased (if the trough testosterone level is too low). If the peak testosterone level is too high or low then the dose of Sustanon can be decreased (if the peak testosterone level is too high) or increased (if the peak testosterone level is too low).

Although Sustanon injections are the most common form of testosterone that we use, testosterone can also sometimes be given in other ways. These include daily testosterone gels, twice weekly testosterone patches, and a long acting injection called Nebido© which is given about every twelve weeks; we never initiate treatment with Nebido, but can sometimes switch you to this once you are well established on another form of testosterone. We do not use testosterone tablets anymore, as these can affect the liver.

With gels and patches we do not measure separate peak and trough testosterone levels. Instead, a blood test is taken at a specified time after the testosterone is applied (normally 4-6 hours after a gel and 48 hours after a patch), and the aim is to get the plasma testosterone level into the normal male range (10-28nmol/L). On the day you do your blood tests it is important to put the gel on your legs or body NOT on your arms

If testosterone is given at a high enough dose then this will normally stop the ovaries from producing oestrogen, and menstruation will stop fairly quickly. In the rare cases in which this does not happen, menstruation can be stopped by using progestins, such as norethisterone or medroxyprogesterone, or a GnRH analogue. If the ovaries are removed surgically these medications can be stopped.

Effects of Hormone Treatment

Once testosterone treatment starts you are likely to notice some masculinisation of your appearance quite quickly, but the full process of masculinisation takes between 2-5 years.

Stopping of Periods

This usually happens after 2-3 injections of Sustanon.

Facial and Body Hair

Testosterone treatment causes facial hair growth in the beard and moustache area. It also causes body hair growth in the chest, abdomen, lower back and inner thighs, with the pubic hair reshaping to a male pattern. If male pattern baldness runs in your family then over time you may also experience this.

Body Shape Changes

Testosterone treatment causes an increase in muscle and a decrease in fat. This results in increased upper body strength and a more masculine body shape, with a decrease in the hip to waist ratio. The facial features will coarsen, resulting in a masculine facial appearance.

Mood

You can expect to feel that you have more energy and an increased sex drive. You may also feel more aggressive, especially just after your injection is given. Psychologically, you are likely to feel more masculine and generally more settled in your new gender role.

Voice Changes

Testosterone promotes growth in the voice box and vocal cords, which results in the pitch of the voice deepening. The changes can take up to 3 years to complete. Occasionally speech and language therapy is still provided, to work on aspects of the voice other than pitch.

Sexual and Genital Effects

Your sex drive may increase. Your clitoris will grow, often to about 4-5cm. This usually starts by 3 to 4 months and is complete by one year. The growth is almost never enough to allow penetrative intercourse.

Fertility

Being on testosterone will decrease your fertility. If you would like the possibility of having biological children in the future, either with a partner or via a surrogate, then you will need to freeze some eggs before you start testosterone. Egg freezing is a relatively new procedure and is not a guarantee of future fertility, although the results are better for younger people.

After about 6 months of testosterone treatment your ovaries will start to resemble polycystic ovaries, although it is not known if this affects the way they work.

Importantly, despite the effects on fertility, you cannot rely on testosterone treatment as a contraceptive. If your partner is assigned male at birth then you will need to take appropriate contraceptive measures.

Negative Effects of Hormone Treatment

Testosterone treatment is safe and effective, but several side effects of this treatment have been described in the transmasculine population. The most important of these are thickening of the blood (polycythaemia) and a possible risk of endometrial cancer. Liver and cholesterol problems can also occur.

Thickening of the Blood (Polycythaemia)

Testosterone increases the production of red blood cells, which thickens the blood. If the blood becomes too thick then there is a small risk that you could have a stroke. To prevent this, the proportion of red blood cells in your blood will be monitored. If your blood does become too thick, usually all that is necessary is to decrease your testosterone dose or, if you having Sustanon injections, to switch to Nebido injections, a gel or a patch, as these seem to be less likely to thicken your blood.

We know that smoking also increases the risk of having a stroke; in people who smoke and have testosterone treatment this risk is increased even further. We therefore ask that you stop smoking before you are prescribed testosterone.

Liver Problems

Severe liver problems can be seen in people using anabolic steroids for bodybuilding. However, these anabolic steroids are different from the testosterone we use in routine testosterone replacement, and severe liver problems associated with this are rare. Mild changes in liver function are more common and occur in about 4-7% of transgender men and transmasculine people, but testosterone treatment rarely needs to be altered as a result.

Cholesterol Problems

There is a large difference in the blood lipids (fat and cholesterol) of cisgender males and cisgender females. This means that cisgender males are more likely to have heart disease than cisgender females. This has led to some concern that that testosterone treatment in transgender men and transmasculine people may make their blood lipids similar to those of cisgender men, and may in turn increase their risk of heart disease.

However, studies have shown that testosterone treatment only changes some blood lipids; it does cause a minor increase in triglycerides and a decrease in blood HDL (good cholesterol), but it causes no change in total cholesterol or LDL cholesterol (bad cholesterol). More importantly, the changes that occur do not seem to increase in the risk of heart disease, with the rate of heart attacks being about one third the expected rate in the cisgender male population.

Cancer Risks

Every month the ovaries produce oestrogen, which causes the lining of the womb to thicken, and then progesterone, which reverses this effect. If you take testosterone this will stop your ovaries producing oestrogen and progesterone; however, your body will still produce a small amount of oestrogen as there is a chemical in fat cells that converts testosterone to oestrogen. As there is no progesterone to reverse the effects of this oestrogen, it can sometimes cause the lining of the womb to become too thick; this is called endometrial hyperplasia. The concern is that in the longer term this could lead to womb cancer, also called endometrial cancer.

One study suggested that the risk of the lining of the womb thickening is about 15% after 2 years of testosterone treatment, although there is other evidence to suggest that the risk may not be this high. Furthermore, there has reassuringly only been one case of endometrial cancer reported in a transgender man on testosterone treatment, suggesting the risk of this is low. Nevertheless, we normally recommend hysterectomy after 2 years of treatment. If this has not happened, then monitoring of the womb thickness by ultrasound scan every 2 years is recommended.

There ovarian cancer risk appears to be very low; there have been only three cases reported following prolonged testosterone treatment. The breast cancer risk appears to be 10 times lower than for cisgender women, and about the same as for cisgender men. Nevertheless, transgender men and transmasculine people would still be advised to perform regular breast self-examination.

Although the risk of developing cancers that could be related to hormone treatment is low, we still recommend that you have cancer screening in line with national guidelines. For as long as you have a womb this includes the cervical cancer screening programme, which involves having a cervical smear every three years from the age of twenty-five.

Osteoporosis (Thin Bones)

Most of the studies in transgender men and transmasculine people show that testosterone treatment appears to maintain bone mineralisation.

Safety Monitoring

The safety monitoring for testosterone treatment is outlined in the table. This monitoring is designed to detect the major side effects of hormone treatment at an early stage, so that the treatment can be altered to prevent ongoing unwanted effects.

<p>Before starting hormone treatment</p>	<p>Bloods: LH FSH Testosterone Estradiol SHBG Prolactin LFTs Lipid profile Glucose Vitamin D FBC</p> <p>Other: Weight Blood Pressure</p>
<p>After initially starting hormone treatment - every 3-6 months</p> <p>After 2 years on a steady dose - every 12 months</p>	<p>Bloods: Testosterone LFTs Lipid profile FBC</p> <p>Other: Weight Blood Pressure</p>
<p>If needed</p>	<p>Cervical smear, if uterus (womb) is not removed (follow national guidelines)</p> <p>Endometrial (lining of the womb) ultrasound scan, if uterus is not removed (every 2 years)</p> <p>Mammogram, if breasts are not removed (follow national guidelines)</p> <p>DEXA bone scan, if >12 months without hormone treatment, family history of osteoporosis or a history of low impact fractures</p>

Long Term Safety

The treatments we use for transmen do not seem to alter life expectancy and are safe in the longer term.

Summary

Hormone treatment can be central to the management of gender dysphoria, and allows your body to become more congruent with your gender identity. The principal of treatment follows international guidelines.

For transgender men and transmasculine people the hormone regimen consists of testosterone, which can be given as an injection, a gel or a patch.

Testosterone is generally safe if properly prescribed and monitored, but there can be side effects. The most important side effects of testosterone treatment are thickening of the blood (polycythaemia) and thickening of the womb lining. Thickening of the blood can be treated by reducing the dose of testosterone or by changing the form of testosterone that is used. To prevent thickening of the womb lining it is usually recommended that you undergo a hysterectomy after 2 years of testosterone treatment. However, it may be possible to have an ultrasound scan every 2 years to screen for thickening of the womb lining instead. Other more minor side effects of testosterone treatment include increased blood fat levels and minor changes to liver function.

However, despite these side effects, transgender men and transmasculine people treated with testosterone have the same life expectancy as the general population, confirming that the treatment is safe. Testosterone treatment is also very successful, and good masculinisation is achieved in the majority of cases.