

West London Mental Health

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**NHS**

# Information About Hormonal Treatment for Trans men©

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## **Introduction**

As part of treatment of gender dysphoria we will be prescribing you hormonal treatment (testosterone). The aim of this treatment is to allow your body to develop the physical features of a cis gendered male by using testosterone. Because the dose of testosterone confuses the control of the ovaries at the same time you will decrease the production of your female hormone oestradiol. The hormonal treatment is very effective, you can expect the changes in your body to be noticeable but it will be necessary undergo surgical procedures to change certain features of your body (e.g. mastectomy (removal of the breasts) to get complete masculinisation.

Although a very safe treatment there are some side effects with the testosterone (male hormone) that you should be aware of and these will be explained. The good news is that transgendered 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.

The changes in the body produced by hormone treatment are somewhat reversible if you stop treatment but some physical changes are permanent such as hair loss from the head and increased facial beard and so it is important to be sure that hormone treatment is the right option for you before it is started.

At the West London Mental Health NHS Trust (Charing Cross) clinic you will be seen and assessed by 1 or 2 clinicians before hormonal treatment is recommended to make sure that hormonal treatment is the best way to manage your gender incongruence. We also ask that you change gender role before hormonal therapy is started in all but the most exceptional of cases, so that in cases where a person chooses to remain in their female gender role there are no permanent changes in their body that may need an operation to correct and they have not been exposed to the effects of hormone treatment.

## **Initiation of Hormone Therapy**

The way that we organise hormone treatment is based on internationally agreed guidelines. This is known as Triadic Therapy, which consists of three critical elements; social gender role change (live in a male role) formerly called Real Life Experience; hormonal therapy of the desired gender and finally gender related surgery. We follow this strategy to protect you as you advance through a sequence of treatment that has progressively more irreversible effects on your body with more and more significant physical alterations should you choose to revert to your assigned birth gender.

It is important for you to realise that hormone treatment is a part of the holistic treatment plan and not the end point. For the vast majority of transgendered people social gender role change and establishing themselves in their experienced social gender role is their goal and studies show that it is this and not hormone treatment that has the biggest effect on reducing psychological distress and making a person feel better about themselves.

## **The aim of Hormone Treatment**

The aim of treatment is to suppress the production of the sex hormones of your assigned female gender (oestradiol) and to give the hormones of the experienced male gender (testosterone) in order to produce the secondary sexual characteristics (way the body looks) of your experienced male gender. Following genital surgery (which involves removal of the ovaries), hormone treatment needs to be continued to prevent the complications of not having sex hormone production such as osteoporosis (brittle bones) or early heart disease.

## **Our Standard Regimen**

Masculinisation of a transman is achieved by the administration of testosterone. This is given in the form of Sustanon injections 2-4 weekly. At this dose testosterone stops the ovary working. Menstruation (periods) normally stop within 1 or 2 injections of testosterone but the process of masculinisation is slow and takes between 2 and 5 years to complete properly.

Doses of 250mg 2-4 weekly are usually enough to stop menstruation and the aim of therapy is to achieve testosterone levels in the high normal male range (25-30nmol/l) 1 week after the injection and to have a trough level at the bottom of the normal male range (8-12nmol/l) on the day the injection is due before the injection is administered. Ongoing monitoring should be performed following 3 injections. The peak value is adjusted by changing the dose given with each injection and the trough level is controlled by changing the length of time between the injections.

Non injectable preparations are monitored by plasma testosterone level. The level should be measured between 4 and 6 hours after the administration and the aim is to get the plasma testosterone level into the normal male range (10-28nmol/l).

Oral testosterone undecanoate (Restandol©) cannot be monitored using blood testosterone levels as it is converted directly to a different form of testosterone called dihydrotestosterone. Blood testosterone levels are undetectable if measured. Treatment is monitored by measuring plasma dihydrotestosterone levels 4 hours after a dose, which should be in the normal male range of 1-3nmol/l. This medication has problems with affecting the function of the liver so is not used in the UK any more.

	<b>Transmen</b>		
<b>Initial Visit</b>	LH FSH Testosterone Oestradiol SHBG Prolactin Dihydrotestosterone	Weight Blood Pressure Lipid profile Glucose Vitamin D	<b>Every 12 Months</b> Lipid Profile <b>After 2 years on</b> FBC (polycythaemia) <b>Steady dose</b> Testosterone levels LFTs Blood Pressure Weight
<b>Every 3-6 Months</b>	Lipid Profile FBC (polycythaemia) Testosterone levels LFTs Blood Pressure Weight		
<b>If Needed (Follow national Guidelines)</b>	Cervical smear (If uterus is kept) Endometrial US (every 2y) DEXA Scan (Gaps of >12 in hormone therapy, family history of osteoporosis. Low impact fracture) Mammograms (if breasts are not removed)		

## **Beneficial Effects of Testosterone**

### ***Stopping of Periods***

Transmen often state that having periods are the most distressing part of not being treated. It is usual for your periods to stop within 2-3 injections of Sustanon as the function of your ovaries is suppressed by the high levels testosterone.

### ***Facial Effects***

Testosterone treatment results in the development of facial hair growth in the beard area and a coarsening of the facial features resulting in a masculine facial appearance. You will find there is an increase in your body hair and a change of the sexual hair to a masculine pattern with hair growth on the face, chest, abdomen, lower back and inner thighs. If male pattern baldness is a characteristic of the male members of your family you may find that you experience a loss of head hair in a male pattern.

### ***Body Shape Changes***

Testosterone therapy results in an increase in lean body mass and upper body strength at the same time there is a decrease in body fat resulting in a more masculine body shape with increased muscle definition and a decrease in hip to waist ratio. You will notice an increase in your upper body strength. There is an increase in body hair development with increased hair on chest legs, sacrum (bottom of the back) and belly with the pubic hair taking a male pattern.

### ***Genital Changes***

You will notice an increase in the size of your clitoris it may reach 4-5 cm in length however this growth is almost never of a degree that will allow penetrative intercourse. This usually starts by 3 to 4 months and is complete by one year. After about 6 months of treatment the ovaries change so that they look the same as polycystic ovaries but it is not known if these changes affect the way the ovary works

### ***Fertility***

Being on testosterone will decrease your fertility. You will have your fertility plans discussed and if necessary, options for preserving your fertility such as ova storage may be suggested to you before you start on testosterone treatment.

### ***Mood***

You can expect to feel that you have more energy and an increased sex drive (libido). Some people also have an increase in their levels of aggression, especially just after their injection is given. Psychologically, patients feel more masculine and generally more settled in their new gender role once testosterone therapy has started.

### ***Voice Changes***

Testosterone promotes growth in the voice box and vocal cords which results in the pitch of the voice deepening. The changes in voice can take up to 3 years to complete. Tonal changes, related to resonance may still need to be tackled with the help of a specialist speech and language therapist.

### ***Side Effects***

#### ***Thickening of the blood (Polycythaemia)***

Testosterone increases the production of red blood cells. This can thicken the blood and lead to an increased chance of having a stroke if the blood gets too thick. The risk is very small and to prevent this, the levels of haemoglobin in your blood will be monitored.

If it occurs usually all that is necessary is to decrease the dose you are having or alternatively using a type of testosterone that is not injected, such as a gel or long acting injections the increase in blood thickness appears to be less common with these types of testosterone.

### ***Liver Problems***

There have been reports of severe problem with the liver seen in people using testosterone for body building. These anabolic steroids are no longer used in routine testosterone replacement and so liver trouble associated with testosterone use is now rare. Monitoring of the liver function by a blood test in patients on testosterone replacement is recommended. Mild changes in liver function are seen in about 4-7% of transgender men but these are usually so mild that the treatment can be continued.

### ***Cholesterol Problems***

There is a large difference in the plasma lipid parameters (fat and cholesterol) between cis gendered males and cis gendered females. This means that cis gendered males are more likely to have heart disease than cis gendered females. People have worried that testosterone therapy in transmen may make the cholesterol pattern resemble that of a cis gendered male. However, studies show no change in total cholesterol or LDL cholesterol; there was a minor increase in pure fat (triglyceride) and a decrease in blood HDL (good cholesterol) levels. The good news is that the rate of heart attacks (myocardial infarction) in transmen is about one third the expected rate in the general cis gendered male population. This means that changes in cholesterol levels don't seem to turn into an increase in the risk of heart disease.

### ***Cancer Risks***

There is an enzyme in the body that can change testosterone to oestradiol and vice versa. Testosterone can be converted (aromatised) to the oestrogen *oestradiol* in fat cells in the body. Oestrogen causes the lining of the womb to thicken but normally has its effects reversed every month by progesterone and following this a period occurs. If the lining of the womb gets too

thick there is a chance it could become a problem. One study suggested that the risk of this thickening happening is about 15% in transmen after 2 years of treatment. Monitoring of the endometrial thickness by ultrasound scanning 2 yearly is recommended. We also normally recommend hysterectomy after 2 years of treatment to prevent any risk of problems in the womb occurring.

Reassuringly there has only been one case of endometrial cancer reported in a transgender man on testosterone therapy, suggesting this risk is low. Moreover most of the studies looking at the womb of transmen, taken out at hysterectomy, show the lining of the womb became thin and underdeveloped, not thick.

Ovarian cancer risk appears to be very low; there have been only three cases reported following testosterone therapy for a prolonged period.

Breast cancer risk appears to be very low in transgender men. The risk appears to be the same as in cis gendered male population which is 10 times lower than in the cis gendered female population.

Although the risk of developing cancers that could be related to hormone treatment is low, we recommend that transmen have cancer screening in line with national guidelines.

In the UK, cervical cancer screen programmes commence from age 25 with three yearly cervical smears. For breast cancer transgender men should be counselled that breast tissue still remains on their chest wall and they should perform regular breast self-examination.

### **Osteoporosis (Thin Bones)**

Most of the studies in transgender men show that testosterone therapy appears to maintain bone mineralisation.

## **Hormone Types**

The most commonly used hormone preparations are the short acting testosterone ester injections. Sustanon© is the only preparation that is licensed for use in the field of transgender medicine in the UK (Datapharm, 2014). Newer preparations such as topical gels or the longer acting injection testosterone undecanoate (Nebido©) are also effective. Testosterone at these doses is sufficient in the vast majority of cases to suppress ovarian activity, but if menstruation does not cease, progestins such as norethisterone or medroxyprogesterone can be used. More recently GnRH analogues have been used to suppress ovarian function until oophorectomy (removal of the ovaries) is carried out.

## **Summary**

Hormonal treatment is essential in the treatment of gender nonconforming people. It can produce permanent changes in the way your body looks and so it should only be given when your clinician feels it is the best treatment for you. Rushing into hormone treatment does not improve the result of masculinisation and indeed can make the treatment less effective.

Hormone treatment is safe but there are side effects, especially the risk of thickening of the blood, increased cholesterol and liver test abnormalities and these must be minimised by stopping smoking and maintaining a normal body weight.

In transmen testosterone is given as an injection 2-4 weekly and results in masculinisation over 2-4 years. Male sexual characteristics such as beard growth, deepened voice and increased musculature are pronounced. Clitoral growth does occur but is not usually adequate for penetration during sexual activity. Menstruation usually stops rapidly following testosterone administration as the doses used effectively suppress ovarian function. The aim of treatment is to get the testosterone levels into the normal male range.

The major side effects of testosterone treatment are thickening of the blood and thickening of the womb lining due to the conversion of testosterone to oestradiol. Thickening of the blood can be treated with dose reduction or changing the type of testosterone used. Thickening of the womb lining can be screened for with serial ultrasound scanning but it is usually recommended that the patient undergo hysterectomy after 2 years of testosterone treatment to prevent this happening. Other more minor side effects of treatment include increased blood fat levels and minor changes in liver function tests.

Hormone treatment in people with gender dysphoria does not alter their life span confirming that these treatments are safe as well as effective. They also do not increase the incidence of any conditions that one might predict would be more common in hormonally treated patients such as breast cancer.