



It is estimated that 1.2% of Australians identify as transgender or gender diverse. This is when the sex they were assigned at birth does not match their own true sense of self. Some may identify as male or female, others feel they do not strictly fit into either a male or female category. This is commonly referred to as non-binary.

Over the last decade, there has been increased awareness of transgender health and a sharp increase in the number of people seeking medical assistance for gender transition.¹

Gender affirming hormone therapy

Gender affirming hormone therapy is used by people experiencing gender incongruence. It helps align physical characteristics with a person's deeply held sense of their own gender identity. It is associated with improvements in quality of life and psychological outcomes.^{2, 3}

It is important to note that hormone therapy is not the only way a person can express their gender identity and many transgender people do not opt for hormone therapy. Clothing, hair styles, chest binding, body language and gender affirming surgery are among many ways to express gender identity.

What is masculinising hormone therapy?

Masculinising hormone therapy typically refers to testosterone and is used by those who were presumed female sex at birth who are looking to masculinise. This commonly includes trans men and non-binary individuals.

What types of hormone therapies are used and are they PBS listed?

Masculinising hormone therapy options include gels and creams (taken daily) or injections (once every 2-12 weeks). A standard replacement (or lower) dose of testosterone will be given, and then adjusted to the person's needs.

Prescriptions for testosterone can initially be obtained from a treating doctor (initially by an endocrinologist, paediatrician, urologist or sexual health physician) and then ongoing by a GP. Different formulations of testosterone are PBS listed (making them cheaper to purchase). These can be obtained by using the approved indication 'androgen deficiency due to established testicular disorder' on the prescription. Additional medications may be used to block puberty in adolescents.

In some circumstances, progesterone can also be used to suppress menstruation. This can be given orally, by injection or using an intrauterine device.

What changes occur and how long do they take?

Before commencing hormone therapy, it is important to have a thorough understanding of the expected effects, the permanent nature of many effects, potential adverse effects and the timeframe in which these effects occur. These are summarised in Table 1.

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Table 1: Expected effects according to whether they are reversible or not reversible. Outlining the expected time till onset and to reach maximum effect.

Effect	Time to expected onset	Time to reach expected maximum effect
Potentially reversible effects		
Skin oiliness/ acne	1-6 months	1-2 years
Body fat redistribution	1-6 months	2-5 years
Scalp hair loss	6-12 months	Variable
Increased muscle mass/ strength	6-12 months	2-5 years
Cessation of menses	2-6 months	-
Vaginal atrophy	1-6 months	1-2 years
Potentially irreversible effects		
Facial/ body hair growth	6-12 months	4-5 years
Clitoral enlargement	1-6 months	1-2 years
Deepening of voice	6-12 months	1-2 years

Table adapted from Endocrine Society Clinical Practice Guidelines 2017⁴

What changes are unlikely to occur with masculinising hormone therapy?

- While breasts often decrease in volume, surgery is required for breast tissue to be removed entirely.
- If masculinising hormone therapy is commenced in adulthood there is no change to height, hand or feet size.

What effects are there on fertility?

Testosterone therapy used for gender transition may reduce fertility (chance of falling pregnant).

Most people stop having periods within six months of standard dose testosterone therapy.

It is unclear if these effects are permanent, as ovulation (periods) typically restarts after testosterone use is stopped.

Before starting testosterone therapy, your doctor will discuss with you the option to have eggs frozen (called oocyte cryopreservation). This is because the effect of testosterone on oocytes (eggs) is unclear. Testosterone is a teratogen, meaning it can cause harm to unborn babies. Contraception should be used if pregnancy is a possibility.

What are the risks associated with masculinising hormone therapy?

The long-term effects of testosterone used for gender transition are not fully understood.

There may be an increase in risk of heart (cardiovascular) problems. This is because testosterone therapy raises LDL cholesterol and triglyceride levels, and lowers HDL cholesterol. However, insulin resistance does not appear to be affected.

There are potential implications for bone health, however research so far is reassuring.

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Testosterone therapy is associated with polycythaemia (increased haemoglobin in the blood) and sleep apnoea (troubled breathing during sleep).

Some trans men on testosterone therapy develop pelvic pain, which is currently not fully understood.

The effects on the risk of breast, uterine and ovarian cancer is not fully understood.^{4, 5}

What monitoring does someone taking masculinising hormone therapy need?

Regular monitoring is recommended to ensure the goals of treatment are being met and to monitor for adverse effects. Regular review every 3 months during the first year and then 6-12 months thereafter is recommended. Monitoring the clinical progression, such as face and body hair growth, deepening of voice and change in body composition is important and therapy should be adjusted to achieve the targeted clinical response.⁵

Blood tests are used to check:

Total testosterone levels are within the reported male reference range. Some people may opt for lower levels, depending on their transition goals.

- Haemoglobin (oxygen carrying capacity)
- Haematocrit (percentage of red blood cells in the blood)
- Fasting lipids (level of fats in blood)
- Glucose (sugar) levels

Screening for cervical and breast cancer is recommended based on the organ.

Bone health screening is only recommended if additional risk factors are present, such as stopping hormone use after having both ovaries removed surgically.

Genital examinations are not considered routine.⁴

About the author

This information has been prepared by Dr Ingrid Bretherton, a consultant endocrinologist at Austin Health and Western Health and who works in private practice. She has an interest in all aspects of general endocrinology and diabetes and has a special interest in transgender medicine. Dr Bretherton is also a medical researcher at The University of Melbourne (Department of Medicine, Austin Health).

References

1. Dhejne C, Lichtenstein P, Boman M, et al. Long-term follow-up of transsexual persons undergoing sex reassignment surgery: cohort study in Sweden. *PLoS one* 2011; 6: e16885. 2011/03/03. DOI: 10.1371/journal.pone.0016885.
2. Irwig MS. Testosterone therapy for transgender men. *Lancet Diabetes Endocrinol* 2017; 5: 301-311. 2016/04/17. DOI: 10.1016/S2213-8587(16)00036-X.
3. Tangpricha V and den Heijer M. Oestrogen and anti-androgen therapy for transgender women. *Lancet Diabetes Endocrinol* 2017; 5: 291-300. 2016/12/06. DOI: 10.1016/S2213-8587(16)30319-9.
4. Hembree WC, Cohen-Kettenis PT, Gooren L, et al. Endocrine Treatment of Gender-Dysphoric/Gender-Incongruent Persons: An Endocrine Society Clinical Practice Guideline. *J Clin Endocrinol Metab* 2017; 102: 3869-3903. 2017/09/26. DOI: 10.1210/jc.2017-01658.
5. Cheung AS, Wynne K, Erasmus J, et al. Position statement on the hormonal management of adult transgender and gender diverse individuals. *Med J Aust* 2019; 211: 127-133. 2019/07/05. DOI: 10.5694/mja2.50259.



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