Text extracted from TransHub.org.au with additional notes from TransHealthSA.com

HORMONES - MASCULINISING

Hormonal gender affirmation is an important part of many trans and gender diverse people's lives. Masculinising hormones are typically used by trans people who were presumed female at birth (PFAB), including men and non-binary people.

Masculinising hormones are testosterones. The physical and psychological effects testosterone has on the body depend on the type of testosterone prescribed as well as personal factors including your age, body, hormonal history, any existing contraindications, and what you want to take. Generally though, using testosterone is a very effective way of masculinising your body.

TransHub uses the terms masculinising and feminising hormones to describe the effects that hormonal affirmation has on bodies, but not to describe the genders of the people using them. You can be a man who uses masculinising hormones, you can also be non-binary and use masculinising hormones as well, there is no one correct form of hormonal therapy. Being on testosterone isn't the thing that makes you, you. Who you are is always valid.

Types of masculinising hormones

Testosterone (sometimes just known as 'T') is not generally used in combination with estrogen hormone blockers.

Testosterone is a sex hormone (steroid hormone) that influences fat cells, bones, some muscles, skin, and hair. Testosterone can also affect mood, energy levels, and sex drive.

Some people will take a full dose of testosterone, and others a low dose, or somewhere between the two. Some will prefer a longer cycle between injections or applications, others will find a shorter cycle fits best. Talk with your doctor about the outcomes you want, and you can work with them to find the dose that feels right for you.

If you're on a particular dose and it doesn't feel like it's working or feeling right, you can ask to change it up or try something new - no one is in your body but you.

Testosterone is usually taken in one of the following forms:

Injections - an intramuscular injection administered regularly, either by a medical practitioner, or by you or a friend who has been shown how to do injections.

This could be either Reandron (3 monthly), Primoteston (fortnightly), or Sustanon. Some forms of testosterone injection are covered on the PBS.

Gels and creams - a cream or gel that is applied to the skin daily as directed. Some testosterone gels and creams are covered on the PBS.

Implants - testosterone pellets that are inserted into the body and can last for several months. Implants are not covered on the PBS and can only be manufactured by a compounding chemist.

Other hormonal health concerns

Topical estrogen - sometimes taken for atrophy of the vagina/front hole. Being on testosterone can decrease the natural lubrication of the vagina/front hole, which can make that part of the body uncomfortable not only during sex, but everyday activities and other important things like cervical screens and sexual health testing.

A topical estrogen applied directly can help solve this problem, without estrogen finding its way into the rest of the body. Using a topical estrogen has no effect on masculinising.

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Progesterone - sometimes taken to assist in stopping menstruation. A small amount of progesterone in combination with testosterone can help make sure you don't get a period.

Effects on primary and secondary physical characteristics

Body shape and size

Depending on when masculinising hormones are started, they can promote a shift in the size of muscles and bones in the body, including but not limited to an increase in hand or shoe size, or growing slightly taller. The effectiveness of masculinising hormones can decrease with age.

Fat distribution

Masculinising hormones will redistribute fat around the body. This includes but is not limited to shifting fat away from the hips, arse, and thighs to the stomach/abdomen.

Genitals

People on masculinising hormones may notice several changes to their genitals, including what is often called 'lower growth' of the clitoral shaft, the temporary or long term cessation of menstruation, and external or internal dryness or atrophy. These may be wanted or unwanted, and in the case of dryness or atrophy, potentially uncomfortable - if so, it's important to talk to your doctor as treatment is available for dryness.

Skin

Masculinising hormones stimulate the skin's oil glands, which can result in the skin being more oily as a result, and feeling a bit rougher than before. This can also result in an increase in acne or pimples, on the face and the body. If this becomes a problem or a frustration for you, you can talk with your doctor about how to help. Anti-bacterial body and face wash, used daily, can be helpful, as can a cleanse, tone and moisturising routine.

You may also find your body odour and sweat patterns change.

Hair

Masculinising hormones will stimulate hair growth on the face (eg. moustache and beard) and the body (eg. chest, arms, legs, stomach, arse, and back). This might also cause existing hair to darken or thicken. There's the possibility of an increase in male-pattern baldness, or hair loss at the temples and the top of the head (a bald spot) over time, and if this causes distress you can talk to your doctor about treatment options.

Sex drive

Many people report an increase in sex drive on masculinising hormones, whether a slight increase or a dramatic uptick. If unwanted, this can be shifted by adjusting testosterone levels with your doctor.

Voice

One of the common (and often wanted) effects of testosterone therapy is that it can lower your voice, especially with longer-term use. This change is permanent.

Researchers have found that testosterone is an effective way of lowering the voice, with a significant vocal decrease by 6-9 months after initiating testosterone therapy(1). This research also found that most participants were satisfied with their voices after 12 months.

Some people experience vocal fatigue, difficulties with projection, singing, or other voice-related concerns. Vocal training in conjunction with masculinising hormone therapy is a great option to treat this.

Text extracted from TransHub.org.au with additional notes from TransHealthSA.com

Mood and mental health

There is no evidence that testosterone contributes to worse mental health outcomes. Many people find their mood, mental health and energy levels improve dramatically when starting gender affirming hormones.

You may find your emotional landscape shifting as you begin testosterone though. People often report finding it difficult to cry or express themselves in ways they've been used to. This will settle with time but if it feels hard or not okay, talking about it with peers or a professional can be really helpful, as can making sure you're getting plenty of sleep, eating well, moving your body, and staying hydrated.

Menstruation

Use of masculinising hormones over time can stop menstruation (periods) from occurring, or greatly reduce their regularity.

Fertility

Testosterone therapy alone does not necessarily result in infertility, and the cessation of testosterone therapy can cause ovulation to reoccur.

Testosterone is also not always an effective form of contraception, and so other forms of contraception should be discussed with partners and/or doctors if you are having sex which carries a pregnancy risk.

Hormone levels

Regular blood tests will likely be requested by your doctor to check your levels and how they are changing over time. Your doctor will give you forms to do this. You can also have your hormones checked as part of a regular blood test for other health reasons. Usually, levels will be monitored 6 monthly, and then annually once your T levels and cycle have settled.

Prescribing guidelines 2 recommend "targeting trough total testosterone levels in the lower end of the male reference interval (10-15 nmol/L)". Trough means the lowest level of testosterone in the body, usually just before an injection or re-application.

These guidelines have been endorsed by AusPATH, the Endocrine Society of Australia (ESA) and the Royal Australasian College of Physicians (RACP).

1 Effects of testosterone on the transgender male voice - M. S. Irwig, K. Childs and A. B. Hancock

2 Position statement on the hormonal management of adult TGD individuals - Ada S Cheung, Katie Wynne, Jaco Erasmus, Sally Murray and Jeffrey D Zajac

Text extracted from TransHub.org.au with additional notes from TransHealthSA.com

INFORMED CONSENT

This page provides guidance on the Informed Consent Model (also known as 'Affirmation Enablement') to help you support your trans patients if they seek to medically affirm their gender using this model. The informed consent model offers a framework and protocol that supports GPs to commence and manage gender affirming hormonal treatment.

Informed consent involves a GP providing adequate and accurate information to enable a person to make an informed decision regarding potential medical treatment to affirm their gender. For an intervention such as gender affirming hormone treatment, the individual must understand the short and long term risks and benefits of the intervention, and how this may affect any existing medical or mental health care needs.

"For trans people, informed consent represents autonomy and a departure from stigma, allowing patients to make their own choices about their bodies. The individual nature of this model allows care providers and patients to tailor it to individual needs" (Ruben Hopwood, Transgender Health Program Coordinator, Fenway Health in Boston).

The model has been around for a long time, and was formalised at the Callen Lorde Community Health Centre in New York. They write in their Protocols for the Provision of Hormone Therapy that hormonal affirmation is "a cooperative effort between patient and provider. We strive to establish relationships with patients in which they are the primary decision makers about their care, and we serve as their partners in promoting health."

Thorne Harbour Health's Equinox Gender Diverse Health Centre in Victoria also developed the excellent Protocols for the Initiation of Hormone Therapy for Trans and Gender Diverse Patients, and are endorsed by AusPATH.

They write that "Implementing an 'Informed Consent' model of care would reduce waiting times at public mental health services. It would improve access to initiation of [hormones] for trans people, particularly those living in rural and remote areas. It may reduce the use of self medicating (buying hormones online) with the associated medical risks."

Informed consent recognises the trans person as the experts of their own needs and experience, while respecting that medical professional(s) are able to utilise their expertise to enable effective and safe treatment. Together, they can optimise the health and wellbeing of the person requiring access to gender affirming treatment in a timely manner.

All doctors have the opportunity to be a gender affirming doctor. Gender affirming medicine is a part of general medical care within the primary health care system. **Any GP is able to prescribe gender affirming hormonal therapy for most people aged 18 and above, without requiring further consultation from a mental health professional or endocrinologist.** Young people who are under 18 can access gender affirming medicine, more on that below.

In South Australia, a person aged 16-18 can access hormonal care using the informed consent model. However, parental/guardian consent in required. If in instance of there being 2 parents responsible for the care of the person and one not agreeing, an application must be made to SACAT to receive consent. It is recommended that a mental health assessment be undertaken to assist in this process (can be done by a competent and qualified psychiatrist, psychologist, social worker, or occupational therapist. All persons under the age of 16 should be referred to the Women's and Children's Hospital Gender Clinic.

How do I offer gender affirming care using the Informed Consent Model?

In the Informed Consent Model, the focus is on obtaining informed consent as the threshold for the initiation of hormone therapy in a multidisciplinary, harm-reduction environment. Less emphasis is placed on the provision of mental health care until the patient requests it, unless significant mental health concerns are identified that would need to be addressed before hormone prescription.

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Text extracted from TransHub.org.au with additional notes from TransHealthSA.com

The process may look like:

- A consultation with your patient (aged 18+) across 2-3 appointments. This will include assessing physical health, family history, and previous hormonal or gender affirmation experience.
- Discussion about how they want to affirm their gender medically, and associated goals.
- Discussion of risks factors.
- Assessment of patient's capacity to make an informed decision and consent to treatment, ensuring that they are making a decision of their own free will.
- Assessment of patient's medical history to check for contraindications:
- Absolute contraindication - current pregnancy
- Consider relative contraindications to testosterone or estrogen such as polycythaemia, thrombosis, liver disease or cardiac failure
- There is insufficient data regarding the long term effects of hormonal therapy on cardiovascular outcomes(1) and well controlled cardiovascular conditions are not considered contraindications
- Identify any history of migraines, liver disease, seizures, breast tissue lumps and irregular bleeding, and decide whether these warrant further investigation prior to commencing hormone therapy.
- Consider current medications, allergies, alcohol or tobacco use, and what your patient's support networks are like at home and at work.
- Discuss fertility goals and reproductive health needs. Provide information on fertility preservation process (many HealthPathways include fertility preservation referral pathways)
- Assess preventative health needs - last cervical screen, STI test, contraception methods, bowel cancer screen etc.
- Conduct blood tests to establish base line levels of FBC, E/LFT, fasting glucose/lipids, estrogen and testosterone, as well as blood pressure and weight.
- Provide patient with informed consent paperwork, that show the patient has been provided with, and understands all the necessary information, and consents to the process
- A sexual history is not required, but can be undertaken in an affirming manner if also providing sexual health care or screening
- A genital exam is not required and is not recommended in any guidelines(2).

1 Cheung A, Wynne K, Erasmus J, Murray S, Zajac J. (2019). Position statement on the hormonal management of adult transgender and gender diverse individuals. Medical Journal of Australia. 211.

2 Ibid.

Text extracted from TransHub.org.au with additional notes from TransHealthSA.com

CRITERIA FOR INITIATION OF HORMONES 18+

The criteria for initiating (starting) hormones will differ depending upon your patient's age, and several other health factors.

WPATH criteria for commencement of gender affirming hormone therapy (aged 18+) are as follows:

- Persistent, well-documented gender incongruence (sometimes referred to as gender dysphoria);
- Capacity to make a fully informed decision and to consent for treatment;
- Age of majority in a given country;
- If significant medical or mental health concerns are present, they must be reasonably well-controlled.

How do I prescribe testosterone under Medicare and the PBS?

Any testosterone product can be written on a private prescription, however this will mean the patient is paying a higher cost for their medication regardless of Medicare/concession eligibility. Under the Pharmaceutical Benefits Scheme, prescribing of most testosterone products requires an "Authority" to be eligible for the reduced pricing.

"Extracted from the PBS Website:

- Clinical criteria:
  Patient must have an established pituitary or testicular disorder.
- Treatment criteria:
  Must be treated by a specialist general paediatrician, specialist paediatric endocrinologist, specialist urologist, specialist endocrinologist or a Fellow of the Australasian Chapter of Sexual Health Medicine; **or** in consultation with one of these specialists (includes phone, email or teleconsult); **or** have an appointment to be assessed by one of these specialists.
- The name of the specialist must be included in the authority application."

Leading Endocrinologists and authority prescribers in SA in this area include Dr Ana McCarthy, Dr Anthony (Tony) Roberts and Dr Lachlan Angus. Dr Danae Kent is also a leading Sexual Health Physician and authority prescriber.

The Australian *Position Statement on the Hormonal Management of Adult Transgender and Gender Diverse Individuals* [1], published in the Medical Journal of Australia on 5 August 2019, states that "for people requiring masculinising hormone therapy, we use the authority indication "androgen deficiency due to an established testicular disorder".

For a GP to initiate hormone therapy under PBS guidelines, they can write a referral to a specialist (see names above) and once that referral has been received and an appt booked to see that practitioner, the criteria has been met. Or they can contact a specialist, document having discussed care of the patient and agreement to commence treatment, and then the GP can then call the PBS Authority Line and cite:

- Clinical Criteria: Androgen deficiency cause by Testicular Disorder
- Assessment made and referred to, or discussed with: (insert name of specialist)
- Cite initiation of Gender Affirming Hormone Protocol using informed consent and care will be reviewed by specialist.

It is common that a Specialist will review the patient but will generally be managed by the GP with specialist input as needed in a Shared Care Model.

Primoteston is only available on private prescription so can be written by a GP or nurse practitioner with no authority required using Informed Consent.

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Text extracted from TransHub.org.au with additional notes from TransHealthSA.com

MASCULINISING HORMONES – Dosages and Effects

Hormonal gender affirmation is an important part of many trans and gender diverse people's lives. Masculinising hormones are typically used by trans people who were presumed female at birth (PFAB), including men and non-binary people.

Masculinising hormones are testosterones. The physical and psychological effects testosterone has on the body depend on the type of testosterone prescribed as well as personal factors including age, body, hormonal history, any existing contraindications, and what a patient wants to take. Generally though, using testosterone is a very effective way of masculinising.

Testosterone

Testosterone is the primary masculinising hormone used by trans men and non-binary people (PFAB). Sometimes just known as 'T', it is not generally used in combination with estrogen hormone blockers.

The Australian *Position Statement on the Hormonal Management of Adult Transgender and Gender Diverse Individuals* [1], published in the Medical Journal of Australia on 5 August 2019, states that "for people requiring masculinising hormone therapy, we use the authority indication "androgen deficiency due to an established testicular disorder".

This acknowledges that prescribing gender affirming hormones does not need to be based on a patient's identity, but rather their physiology, which is accurate since bodies presumed female at birth don't naturally produce enough testosterone on their own. Patient's do not need to be registered with Medicare as male in order to access PBS-listed testosterone. A Registered Medical Practitioner or Registered Psychologist can also assist their patients to update Medicare records.

Testosterone regimens

Regimens that are recommended in the *Australian Position Statement* [1] are marked with the symbol ª:

Gender Affirming Testosterone Regimens (full dose hormone therapy)

Formulation	Dose	Route	Cycle
Testosterone undecanoateª	1000 mg	Intramuscular injection	10-12-weekly (first two doses 6 weeks apart)
Testosterone enanthate	250 mg	Intramuscular injection	2-3 weekly
Testosterone esters	250 mg	Intramuscular injection	2-3 weekly
Testosterone 2% gel	23/mg actuation	Transdermal	Daily
Testosterone 1% gel sachetª	50 mg/5 g	Transdermal	One sachet daily

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Testosterone 5mg gel patch	5mg/24 hour patch	Transdermal	One patch daily - may cause skin irritation
Testosterone 1% gel pump packª	12.5 mg/actuation	Transdermal	4 x actuations daily
Testosterone 5% creamª	2 mL	Transdermal	Daily

The Australian *Position Statement* [1] also states that "treatment should be adjusted based on clinical response". This acknowledges that the clinical management of gender affirming hormones should be individualised, and requires partnership between a treating physician and the patient.

This means prescribing testosterone based on how a patient responds to treatment and alongside risk factors, rather than based solely on specifically targeted levels.

Notwithstanding this, the *Position Statement* does recommend targeting trough total testosterone levels in the lower end of the male reference interval (10-15 nmol/L)

It is recommended that levels are monitored at baseline, every 3-4 months for the first year, including prior to the application of testosterone to assess trough total testosterone, and then annually once your patient's testosterone levels are adequate and stable. This includes a full blood count, renal and liver function, blood pressure and lipids, and blood glucose for patients with risk factors.

The *Position Statement* has been endorsed by AusPATH, the Endocrine Society of Australia (ESA) and the Royal Australasian College of Physicians (RACP).

Effects and changes

Typical changes from Testosterone (varies from person to person)

Average timeline	Effect of testosterone
1–3 months after starting testosterone	• decreased oestrogen in the body • increased sex drive • vaginal dryness • lower growth (clitoris) - typically 1–3 cm • increased growth, coarseness, and thickness of hairs on arms, legs, chest, back, & abdomen • oilier skin and increased acne • increased muscle mass and upper body strength • redistribution of body fat to the waist, less around the hips
1–6 months after starting testosterone	• menstrual periods stop

3–6 months after starting testosterone	• voice starts to crack and drop within first 3–6 months, but can take a year to finish changing
1 year or more after starting testosterone	• gradual growth of facial hair (usually 1–4 years) • possible male-pattern balding

Lower doses and temporary use

For some trans people, being on a lower dose of testosterone, or using testosterone occasionally or temporarily is central to how they want to hormonally affirm their gender.

It is difficult to try and implement one masculinising change and not another, as once a hormonal threshold is reached, a range of secondary sex characteristics will begin to change.

Consultation with a specialist Endocrinologist or Sexual Health Physician may be helpful. Leading Endocrinologists and authority prescribers in SA in this area include Dr Ana McCarthy, Dr Anthony (Tony) Roberts and Dr Lachlan Angus. Dr Danae Kent is a leading Sexual Health Physician and authority prescriber.

The use of hormonal suppression without gender affirming hormonal therapy can lead to adverse health effects, and so is to be undertaken carefully, and with regular oversight.

Testosterone treatment:

In testosterone-driven puberty, even the low testosterone levels of stage 3 puberty below 30 ng/dl or 4.5 nmol/l are likely to result in clitoral enlargement and breaking of the voice, although perhaps not full deepening of pitch until a later stage 4 of puberty when the testosterone level reaches around 200 ng/dl or 7 nmol/l. If facial hair or masculine body shape is desired, then complete masculinisation is necessary. The adult testosterone levels of Tanner stage 5 puberty, within the range 300-700 ng/dl or 10 to 24 nmol/l, need to be reached before these physical changes occur. (A Guide To Transgender Health, Heath R, Wynne K [2])

1 Cheung AS, Wynne K, Erasmus J, Murray S, Zajac JD. (2019). Position statement on the hormonal management of adult transgender and gender diverse individuals. The Medical Journal of Australia. 211, 127–133.

2 Heath R, Wynne K. (2019). A Guide To Transgender Health. Santa Barbara: Praeger.

Text extracted from TransHub.org.au with additional notes from TransHealthSA.com

Risks associated with hormone therapy.

Bolded items are clinically significant:

Risk Level	
Likely increased risk	***Polycythemia*** *Weight gain* *Acne* *Androgenic alopecia (balding)* *Sleep apnea*
Likely increased risk with presence of additional risk factors[B]	
Possible increased risk	*Elevated liver enzymes* ***Hyperlipidemia***
Possible increased risk with presence of additional risk factors[B]	***Destabilisation of certain psychiatric disorders***[C] ***Cardivascular disease*** ***Hypertension*** ***Type 2 diabetes***
No increased risk or inconclusive	*Loss of bone density* ***Breast cancer*** ***Cervical cancer*** ***Ovarian cancer*** ***Uterine cancer***

Table source: WPATH Standards of Care V7

[A] *Risk is greater with oral estrogen administration than with transdermal estrogen administration*

[B] *Additional risk factors include age*

[C] *Includes bipolar, schizoaffective, and other disorders that may include manic or psychotic symptoms. This adverse event appears to be associated with higher doses or supraphysiologic blood levels of testosterone.*

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