Smashing Stigma:
A guide to medications for the LGBT2SQ population

HORMONE THERAPY FOR GENDER TRANSITION

Some transgender individuals undergo gender-affirming hormone treatment to address the incongruity between their assigned sex at birth and their sense of gender. Individuals assigned male at birth who transition to female may take estrogen and anti-androgen therapies. Individuals assigned female at birth who transition to male may take testosterone therapy. Not all transgender patients take hormone replacement therapy (HRT), and not all patients on HRT identify within the gender binary — non-binary trans individuals may also want to transition medically.

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FEMINIZING HORMONES

Feminizing hormones are hormone regimens used by trans women and other individuals with the goal of developing typically-female secondary sex characteristics and suppression or minimization of typically-male secondary sex characteristics. Effects will include breast development, redistribution of body and facial subcutaneous fat, reduction of muscle mass and body hair, skin changes, reduction in erectile function, changes in libido and emotional and social functioning, and reduction of testicular size.[i] The expected onset of most of these changes will occur over 3-12 months of hormone therapy with maximal effects occurring over 2-5 years.[i]

Anti-androgens

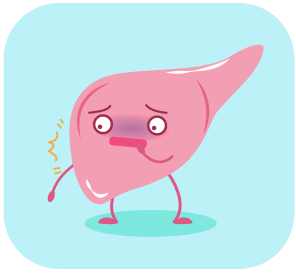
Anti-androgens may be used to suppress the effect of endogenous androgens and thereby reduce masculine characteristics. The required estrogen dose to produce a feminising effect is reduced by the addition of an anti-androgen in the drug therapy regimen.

SPIRONOLACTONE is a potassium-sparing diuretic that directly inhibits testosterone production and blocks androgen receptors at higher doses.

It is important to monitor blood pressure, potassium and creatinine in these patients.[iii]

Doses generally begin with 50-100 mg and may be increased up to a maximum 400-500 mg daily. The average dose is generally around 200-300 mg daily.[ii,iii]

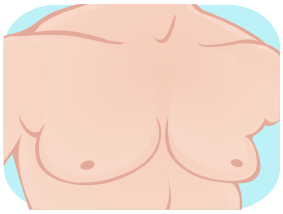
CYPROTERONE is a synthetic progestogen that demonstrates a strong anti-androgenic effect, typically resulting in faster suppression of testosterone than spironolactone.



The dose of cyproterone typically starts at 25-50 mg daily and may be increased to 100 mg daily.

High-dose extended use has been known to cause liver dysfunction, so its use should be avoided in people with hepatic disease.[i]

Although less commonly prescribed, **FINASTERIDE** is found in some guidelines and may be used for an anti-androgenic effect.



For some individuals, the use of spironolactone may induce irreversible gynecomastia.

For those who do not want visible breast development finasteride may be preferred over spironolactone. Typical dosing of finasteride for an anti-androgenic effect is 2.5-5 mg daily.

Another less-commonly prescribed anti-androgen is **LEUPROLIDE ACETATE**, given as 3.75–7.5 mg IM monthly.

The major source of endogenous androgens is the testes—this means that if a patient undergoes orchiectomy, anti-androgen doses can be significantly reduced or discontinued.[i,iii] In addition, if anti-androgen therapy is contraindicated or is causing intolerable side effects, orchiectomy can be considered as an alternative.[i,]

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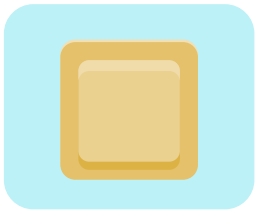
Estrogen

ESTRADIOL is the preferred estrogen as it closely resembles the hormone produced by the ovaries. Additionally, it is readily measurable in the blood and has a favourable side effect profile when compared to conjugated estrogens. Topical estrogen (patches and transdermal gel) bypass liver metabolism and are therefore thought to have a better safety profile both in terms of venous thromboembolism and metabolic effects, and are preferred in patients over 40 years old and/or with VTE risk factors.[i,ii,iv] Estrogen is also available in an injectable form, which bypasses liver metabolism and only requires injection weekly or every two weeks.[i]

ORAL ESTRADIOL is typically prescribed at doses higher than those seen in post-menopausal cisgender women. Additionally, patients may be encouraged to allow the oral tablets to dissolve sublingually in order to bypass liver metabolism as much as possible. The typical starting dose of estradiol is 2 mg daily, and this can be increased every 4-8 weeks to a maximum of 8 mg daily.[i,ii,iv,v]

ESTRADIOL PATCH treatment begins with 100 mcg/24 hours and may be titrated up to 400 mcg/24 hours.[ii] Patches are changed twice weekly.



ESTRADIOL GEL is a potential alternative for those individuals who experienced a skin reaction to the transdermal patch. Topical gel may not be a first choice for many patients given the large amount of gel required.

INTRAMUSCULAR (IM) ESTROGEN INJECTION may not be a first choice as IM administration results in larger fluctuations in blood levels as compared to oral or transdermal. Some patients prefer this option and have reported faster breast development.[i] Some clinicians will switch patients to IM estradiol for 3-6 months if there is minimal breast development or early plateau in the first two years of HRT, as a trial to boost breast development. [iii] **Estradiol valerate** dosing starts at 10-20 mg IM every 2 weeks and can increase to a maximum of 40 mg IM every 2 weeks.[i,v,vi]

Common adverse effects include fatigue and loss of libido[i]. Estrogen therapy should be continued post-orchiectomy to maintain bone strength, though dose requirements may be reduced, particularly in older patients.[i] For trans women over 50 years old who have been on estrogen for several years, a dose reduction to doses equivalent to those given in post-menopausal cis women can be considered.[i] Estrogen therapy may increase the risk of cardiovascular disease and hyperprolactinemia, and may worsen lipid abnormalities. Whether these patients are at increased risk of breast cancer is inconclusive; but they should undergo cancer screening based on organs present (breast, prostate) and if they otherwise meet criteria for screening.[iii,v] Liver enzymes, lipid profiles, glucose, testosterone and prolactin should be monitored at baseline and every 3-6 months thereafter.[i,v]

Progesterone

Some patients may be prescribed progesterone as anecdotal reports suggest breast development may be improved. Evidence is limited as there are no well-designed studies of its use in trans women. **MICRONIZED PROGESTERONE** doses range from 100-400 mg daily and **MEDROXYPROGESTERONE ACETATE** doses range from 5-30 mg daily. There is a combination patch of **NORETHINDRONE ACETATE** 140 or 250 mcg (progestin) and **ESTRADIOL** 50 mcg that is changed twice weekly and may be used by some patients.

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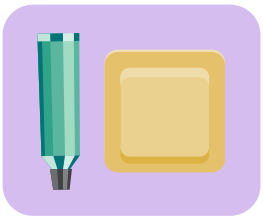
MASCULINIZING HORMONES

Masculinizing hormones are hormone regimens used by trans men and other individuals with the goal of developing typically-male secondary sex characteristics and suppression or minimization of typically-female secondary sex characteristics. Effects will include deepened voice, cessation of menses, clitoral growth, increased muscle mass, hair growth in androgen dependent areas including the face, fat redistribution, change in sweat and odor, and potentially frontal and temporal hairline recession and male pattern baldness.[i,v] The expected onset of most of these changes will occur over 3-12 months of hormone therapy with maximal effects occurring over 2-5 years.[i]

Testosterone

Testosterone is the cornerstone of masculinizing HRT. **TESTOSTERONE ENANTHATE** or **TESTOSTERONE CYPIONATE** injections are most commonly used. The starting dose is 50 mg every week or 100mg every 2 weeks, and can be adjusted to typical doses of 50-100 mg weekly or 100-200 mg every two weeks.[i] Both products can be given as either intramuscular or subcutaneous injections, with similar effect.[i,v,vi]



Transdermal testosterone may be used, though the onset of masculinizing effects is slower due to the longer time required to achieve physiological testosterone concentrations. **TESTOSTERONE TRANSDERMAL PATCH** doses range from 5-10 mg/24 hours.[i] **TESTOSTERONE TRANSDERMAL GEL** is less commonly used due to the impracticality of applying daily, the risk of washing off the dose by bathing/swimming and potential transfer to other individuals by physical contact. When used, the typical gel dose is 50-100 mg (one to two 5-gram pouch(es) or 4-8 pumps of gel) daily.[i]

Non-binary and genderqueer individuals may want a more androgynous effect, or a less typically-masculine appearance when beginning HRT. In these cases, lower starting doses can be used (20 mg IM/SC weekly), and/or therapy can be continued until desired physical changes occur and then discontinued.[v] However, it is important to note that there is no way to easily tailor specific results and configurations of sex characteristics, and the best approach is to start with low doses and increase slowly, titrating to effect.[v,vi]

Some common adverse effects of testosterone therapy are an increase or worsening of acne and fluctuations in energy and mood, particularly with IM therapy as the dosing method causes peaks and troughs.[i] As with feminizing hormones, testosterone can cause a worsening of lipid abnormalities. Liver enzymes, lipid profiles, blood pressure and glucose should be monitored at baseline, and then every 3-6 months thereafter. Bone mineral density should be considered, particularly for long-term testosterone users (5-10 years) and persons over 50 years of age. Additionally, screening for ovarian cancer, cervical cancer and breast cancer should be considered, depending on tissues and organs present.[iii, v]

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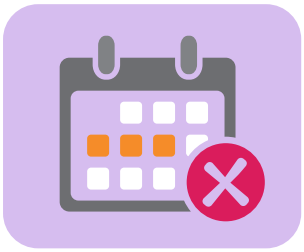
Progesterone

Progestins may be used to promote the cessation of menstruation and provide contraception. A dose of 150 mg **MEDROXYPROGESTERONE ACETATE** can be given by IM injection every three months to stop menses and continued until 3-6 months of testosterone therapy is completed. Alternatively, a **LEVONORGESTREL-RELEASING INTRAUTERINE DEVICE** may be used. These options are useful for patients for whom menses is particularly distressing, or early in the course of testosterone therapy if menstruation does not stop.[vi]



Ovulation can still occur despite treatment with effective doses of testosterone. Therefore, the above options can also be used as effective contraception that will not interfere with hormone therapy for trans and non-binary patients.[i, iii,]

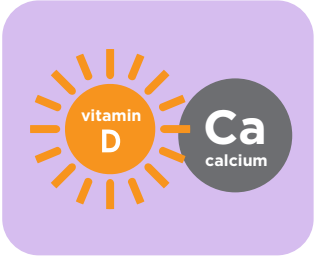
Finasteride

FINASTERIDE can be used for trans men who are experiencing hair loss, as a common side effect of testosterone therapy is male pattern hair loss or frontal/temporal recession.[v] The 1 mg dose is approved for the treatment of male pattern baldness and typically has minimal sexual side effects. As in cis men, the 5 mg dose of finasteride or the use of **DUTASTERIDE** (a more potent 5-alpha reductase inhibitor) can result in excessive testosterone blockade, causing sexual side effects and the regression of some virilisation.[v]

PUBERTY SUPPRESSION

Suppression of puberty is a reversible treatment that can pause or halt pubertal development in transgender and gender-nonconforming adolescents, prior to the development of irreversible pubertal changes associated with their assigned gender at birth. Puberty suppression is achieved by administering **LEUPROLIDE ACETATE**, a gonadotropin-releasing hormone analogue (GnRH). It is dosed by weight (range 7.5 mg to 15 mg) and is injected intramuscularly every four weeks. This reversible pause of puberty allows time for a young person to attain the cognitive ability or maturity to consent to gender-affirming hormone therapy.[vii]

Bone density is of concern for both genders undergoing puberty suppression, therefore calcium and vitamin D supplementation may be required. Bone density scans should be done every 6-12 months.[viii]



When gender-affirming treatment begins, the youth may be prescribed hormone therapy as indicated. If cross-gender hormone therapy and medical transition is not desired, discontinuation of GnRH analogues will result in continuation of puberty according to the assigned gender at birth.

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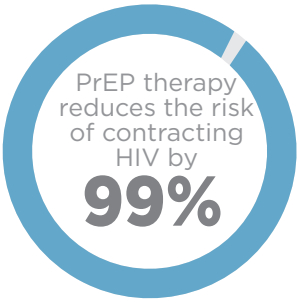
HIV PREVENTION THERAPIES

Anyone can acquire HIV; however, there are some populations where the risk of acquiring HIV[xiii] is greater than the general population. Men who have sex with men (MSM), transgender women (TGW), people who inject drugs (PWID) and indigenous populations all have higher risks of acquiring HIV. Anonymous HIV testing clinics can be found across Canada.[x] For more information on the treatment of HIV refer to the chapter on HIV infection on RxTx.[xi]

Pre-exposure prophylaxis (PrEP)



A combination tablet of **TENOFOVIR DISOPROXIL FUMARATE/ EMTRICITABINE (TDF/FTC)** 300/200 mg orally, can be taken daily to reduce the risk of acquiring HIV by up to 99%.[x] Typically, quarterly routine lab testing including creatinine, testing for HIV, sexually transmitted infections and viral hepatitis is performed.[x] Caution should be taken for any scripts that are prescribed for longer than 90 days. Currently TDF/FTC is the only indicated regimen in Canada. This medication may also be used as part of a post-exposure prophylaxis (PEP) regimen or HIV treatment.

Post-exposure prophylaxis (PEP)

Post-exposure prophylaxis (PEP) is an emergency HIV prevention regimen prescribed following a potential risk exposure. Patients need to begin the medication as soon as possible and within a maximum of 72 hours from potential exposure, as data shows a gradient of prevention benefit.[x] The first line regimens for PEP include one **TDF/FTC** tablet daily with **RALTEGRAVIR** 400 mg twice daily OR **DOLUTEGRAVIR** 50 mg daily OR **DARUNAVIR** 800 mg plus **RITONAVIR** 100 mg daily taken orally for 28 days.[x]

Undetectable=Untransmittable (U=U)

Undetectable=Untransmittable is an anti-stigmatizing phrase that resulted from the breakthrough results of the PARTNER I and II studies.[xii,xiii] A person living with HIV taking effective anti-retroviral therapy (ART) and whose viral load is suppressed to that point it can not be detected on testing **cannot** transmit the virus to a sexual partner.[xiii] This also applies to those whose viral load is supressed less than 200 viral copies mL. This requires persons living with HIV to be consistently adherent to their antiretroviral medication to remain undetectable.[x] It is recommended that viral load testing is done every 6 months for two readings, then annually for those with established good adherence to ART.[xii]

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