

Adult estradiol hormone therapy at Swedish Health Services

Overview

Estradiol hormone therapy is offered to patients whose gender identity does not match their sex assigned at birth. Gender affirming medical therapies, which may or may not include estrogen, androgen-blocking options, or newer estrogen-like medications, help to achieve physical, sexual and/or emotional changes to align with one's gender identity. These options may help to provide you with estrogen hormones or to suppress the production of your body's endogenous sex hormone production. The decision to start one of these options is up to you. It's your clinician's job to inform you of all available options keeping in mind your medical history and medications you currently take for other conditions.

Benefits

The benefits of estradiol hormonal therapy are many and what is described below is just a handful, which may or may not apply to all our gender diverse patients. First and foremost, estradiol hormone therapy helps to align your body, sexuality, and emotional health with your gender identity. The changes with estradiol therapy may be reversible or irreversible. The difficulty with our current state of gender affirming estradiol therapy is we can't target specific goals as estrogen affects many systems at the same time, although there are some emerging therapies which allow us to tailor medication regimens to some specific goals. This is why it's important to maintain communication with your clinician regarding your goals.

Effects of estradiol hormone therapy

Estradiol hormone therapy may result in the following:

Reversible

- Thinning and/or slowing of body hair growth
- Changes in fat distribution (may go towards the hips, buttocks and thighs)
- Scalp hair loss may slow down or stop but won't grow back
- Changes in muscle mass and strength
- Softer and less oily skin but may develop acne

Irreversible

- Chest/breast tissue growth although we are unable to predict size/shape

Fertility/sexual changes/effects (may or may not be permanent)

- Changes/loss in fertility although still may be able to get someone pregnant
- Decreased sex organ size (gonads and tissue)
- Sexual dysfunction
- Decreased libido or sex drive

Please note it may take months to see an effect and it will take years to see the full effect of hormonal therapy. Your response to estradiol hormone therapy primarily depends on your genetics and the age when you start hormone therapy.

Dr. Maddie Deutsch, the medical director for UCSF Transgender Care and an associate professor of clinical family & community medicine at the University of California – San Francisco, has a [great description](#) on what to expect during hormone therapy.

Risks, potential complications, and contraindications (reasons why some options are too dangerous)

Estradiol hormone therapy may have the following risks which may be higher in people with certain medical conditions. The overall increase in risks is small but is higher depending on your overall health history. These include, but are not limited to:

Estrogen or estrogen-like medications

- Blood clots in the legs and/or lungs
- Stroke
- Liver inflammation and/or damage
- Blood pressure changes (usually higher)
- Gallstones and other gallbladder problems
- Migraines and/or headaches
- Development of something called a prolactinoma which is usually a non-cancerous tumor on the pituitary gland which may cause vision changes, headaches and lactation
- Weight gain
- Changes in cholesterol levels
- Theoretical increased risk of breast/chest tissue cancer with unknown/likely reduced risk of prostate cancer
- Development of heart disease and/or diabetes depending on other risk factors

- Changes/loss in fertility
- Nipple discharge
- Mood changes and/or increased access and ability to identify feelings or emotions
- Decreased libido or sex drive

Testosterone-blocking medications (if applicable)

- Changes in kidney function and/or potassium levels which may be dangerous
- Lowered blood pressure
- Nipple discharge
- Increased urination and/or constipation
- Fatigue and mood changes
- Changes/loss in fertility
- Liver inflammation and/or damage
- Decreased libido or sex drive

Progesterone

- Weight gain
- Mood changes
- Changes in libido or sex drive
- Blood clots in the legs and/or lungs

There are certain health conditions which will warrant closer monitoring and your clinician may recommend certain formulations/dosing. These conditions may include:

- Diabetes
- Heart disease (history of heart attacks, stent placement, bypass surgeries)
- Personal or family history of blood clots
- Migraines particularly with auras or other neurologic symptoms

- Kidney disease
- Liver disease
- Tobacco use
- Hormone sensitive tumors

Hormone therapy options

There are three main classes of hormonal therapy options for those who seek feminizing hormone therapy.

Estrogen

Estrogen, often in the form of 17 beta-estradiol, is the primary option for those seeking hormone therapy. Oftentimes, estradiol alone is enough for many patients to achieve the effects sought out including suppression of testosterone production. Estrogen comes in the following forms:

- **Pills:** although traditionally swallowed, its use in gender affirming hormone therapy is to dissolve it under the tongue. This can help lower the risks associated with swallowing the pills and may be given daily or twice a day depending on the dosage. The benefits to the pills include easy portability, cost, and effectiveness.
- **Patches:** these may be more expensive and may require prior authorizations. Patches are nice in they may be replaced weekly or twice a week. The patches are often the safest formulation for those with conditions which may increase the risks of side effects such as blood clots, diabetes, or heart disease. The most common issues with patches include the development of rashes, cost, and the patches falling off.
- **Injection:** most clinicians will advise injecting just under the skin in the adipose/fatty tissue but injecting into the muscle is acceptable, as well. It's usually in the middle of the road with cost and injections often occurring once every week or once every 2 weeks. We may recommend this if we're having trouble suppressing your testosterone production.

Please keep in mind these are some general principles and will depend on your preference.

Androgen/testosterone blockers

There are some options to help suppress your testosterone production if estrogen alone isn't enough. Please also keep in mind the selection and use of certain medications may be affected by the other medications/supplements you may be taking and any medical conditions present.

- **Spironolactone:** this is the most common medication used which helps to block the action of testosterone and lower testosterone production. Side effects include increased urination, lower blood pressure, constipation, elevated potassium, changes in kidney function and mood changes.
- **Finasteride or dutasteride:** these medications block the conversion of testosterone to the more active form which affects the skin, hair, and prostate. These may be used for those who can't tolerate other medications, in combination with some medications, and

to help decrease/slow down preexisting hair loss. It's not a great medication to use as the first choice.

- **Gonadotropin-releasing hormone agonists:** these medications are commonly used in adolescents for pubertal blockade. These may be used if someone has major side effects with other androgen blockers. These medications work by constantly stimulating the part of the brain to stop your gonads from making testosterone. However, these can be costly, and are not often covered by insurance.
- **Bicalutamide:** this is a medication which blocks the action of testosterone. It's difficult to monitor the effect as testosterone levels will increase as the body sees it as not responding to this hormone. There are some concerns regarding the effect it may have on liver health and function. It may be used in select individuals and will require some initial blood work to ensure you can tolerate this medication.

Progesterone

Progesterone is a hormone commonly used in other countries to help with testosterone blocking although it's not as effective as the ones described above. There aren't a lot of data supporting the use of progesterone although some feel it can help with mood, sexual function/drive, and breast/chest tissue development. However, progesterone, especially the injectable form, may result in lowered mood, depression and weight gain. In some formulations, blood clots may also be a risk especially for those with other chronic conditions.

Healthcare maintenance

Your clinician will work with you to identify the screenings we may offer you based upon you as a complete person and your medical history. These include but are not limited to the following:

- **Breast/chest tissue cancer screening:** recommendations vary but most will recommend screening for those who have breasts/chest tissue for at least 5 years and reach the age of 40 vs 50
- **Abdominal aortic aneurysm screening:** recommendations are based upon sex assigned at birth and those who have any history of tobacco use
- **Cholesterol medication use:** recommendations are also based upon sex assigned at birth for those age 40 to 75. Clinicians may also consider how long you've been on hormone therapy and your age.
- **Osteoporosis screening:** all patients on hormone therapy should get screened when they turn 65 years of age but we may offer screening earlier depending on hormone status and/or if they had their gonads removed
- **Prostate cancer screening:** estrogen usually decreases the risk of developing prostate cancer. Prostate cancer screening is a decision often made after a thorough discussion with your clinician and results may be difficult to interpret.

There will be other healthcare maintenance items discussed at other visits so please be sure to discuss these with your clinician at your annual exams.

Please also review the general overview of adult gender affirming health care for more information.