

Effects and Considerations of Estrogen and Spironolactone

The goal of this form is to provide the most up to date information about the expected effects of hormone therapy, including the desired effects and possible unwanted side effects. You should have the information you need to make decisions about your care. Please do not hesitate to ask questions and talk about any concerns you have at any time.

Estrogen treatment (estradiol, which is the bioidentical form of estrogen) results in certain changes to the body that some people find affirming, including softening of the skin, decreased muscle mass, changes in facial and body hair, fat redistribution, and breast growth. Some may also use an androgen blocker, a medication that can reduce or block the effects of testosterone and can sometimes enhance the effects of estrogen. Each person responds to hormones differently, and it is difficult to predict some aspects of how your body might change.

Hormone therapy will not change certain body features. Bone structure and height will not change, and the Adam's apple will not shrink. The pitch of the voice also will not change. Hormone therapy is not the only way to achieve your goals - we can always talk about other options that might be right for you. There are non-medical affirming shapewear, gear, or prosthetics that some may use to meet their goals and needs. Knowing your options is an important and empowering aspect of this process. Please ask your providers for more information on estrogen or alternative options for affirmation if you have any questions now or in the future.

You and your medical provider will review which formulation and dose of estrogen (oral tablets, injections, transdermal gels, patches) and/or androgen blocker may be best for you based on your gender affirmation goals, personal needs, and any medical or mental health conditions you might have. As part of this treatment, you agree to take the medications only as prescribed and to talk with your medical provider before making any changes to your medication, though you can stop at any time. You and your medical provider can work together to best support your goals for care always centering your needs, evidence-based recommendations, and safety.

Fenway has worked with trans and gender diverse people for many years. Our approach to gender affirming care is based on scientific evidence, national and international guidelines, and the feedback and experience we get from our own trans and gender diverse communities. Continuing research on gender affirming hormone therapy provides us with more information on the safety and effectiveness of these medications in helping you to achieve your goals. Despite the available research, there is still more to be known about hormone therapy across all aspects of the lifespan. This document outlines what we currently know about these medications. We will share any new information or research we learn, especially as it affects your health and wellbeing.

Expected Physical and Emotional Effects of Estrogen Therapy

The changes in your body may take several months to become noticeable and may take up to 3 to 5 years to progress fully.

Some changes are **PERMANENT** and will not go away, even if you decide to stop taking estrogen or take a smaller amount:

- Breast growth and development. Breast growth - and ultimate size - on estrogen therapy varies greatly. Taking estrogen often leads to breast growth and tenderness. Breast size tends to reach full potential after 1-2 years of continual estrogen therapy, and many people report breast size around an A or B cup. Breasts may look smaller on broader chests. If you stop taking estrogen your breasts may decrease in size, but will not go away completely.

Some changes are **NOT PERMANENT** and will likely return to the way your body looked or worked before treatment if you stop taking estrogen and/or an androgen blocker. This may take a few weeks to months or longer depending on the change:

- Loss of muscle mass and decreased strength, particularly in the upper body.
- Decreased metabolism and weight gain. If you gain weight, the fat will tend to localize, or redistribute, more typically in the buttocks, hips, and thighs.
- Skin may become softer, drier, and existing acne may decrease.
- Facial and body hair may get softer and thinner and grow more slowly, but will not go away
- Hair loss at the temples and crown/top of the head (androgenic alopecia) may slow down or stop, but hair will typically not regrow.
- Changes in mood or thinking may occur; some people may experience increased emotional reactions and others may feel more balanced or less emotional.
- Sex drive may decrease. This can range from a very slight change to a much more significant decrease.
- Decreased strength of erections or inability to get an erection. The ejaculate may become thinner and watery and there will be less of it. Over time, ejaculate may completely disappear.
- Testicles will get smaller, softer, and will produce less sperm.

Possible Fertility Effects of Estrogen Therapy and Decreased Testosterone

- Possible loss of fertility; the ability to get someone pregnant may decrease significantly or stop (infertility). The time this takes and whether infertility becomes permanent varies greatly from person to person. Fertility may or may not return after stopping estrogen (and anti-androgen if also taking). Return to fertility may depend on the length of time on estrogen and anti-androgen, but this amount of time is unknown and is not predictable. Some people choose to bank sperm before starting estrogen and/or anti-androgen.
- Estrogen therapy is not a method of birth control. There is no way to predict when or if a person will become infertile (unable to get someone pregnant) when taking estrogen. Other birth control methods will be necessary to prevent pregnancy if you are having any type of sex that could result in a pregnancy.

Possible Side Effects and Considerations of Estrogen Therapy

- Brain structures respond differently to testosterone and estrogen. Estrogen therapy may have long-term effects on the functioning or structure of the brain that we do not yet fully understand.
- Increased risk of developing blood clots. Risks are uncertain overall, but higher risks are associated with those individuals with a family or personal risk of blood clots, obesity, smokers, older individuals (over the age of 45), elevated blood estrogen levels (higher than physiologic ranges), and other underlying health conditions. Risks include developing blood clots in the legs or arms, in the lungs, or in the arteries, including the arteries of the brain. Blood clots in the lungs, heart, or brain could result in death. Research suggests lower risk of blood clots with the use of transdermal estrogen (patches or gel).
- Possible increased risk of stroke. This risk may be higher if you use tobacco products, are over age 45, or already have high blood pressure, high cholesterol, diabetes, or a family history of cardiovascular disease, and if you have low physical activity. Research has also shown that minority stress – chronic stress, anxiety, and marginalization – can have negative physical effects on an individual, specifically cardiovascular implications. This is not medication-induced, but rather secondary to social determinants of health, which may affect every individual differently.
- Possible nausea and vomiting, especially when first starting estrogen therapy.
- Possible increased risk of gallbladder disease and gallstones.
- Oral estrogen may lead to modest liver inflammation and/or contribute to existing liver damage.
- May cause or worsen headaches and migraines. Some migraine headaches have a clear hormonal element, and estrogen may increase the intensity or frequency of these migraines.
- May cause elevated levels of prolactin (a hormone made by the pituitary gland). It remains rare, but a few people taking estrogen for hormone therapy have developed prolactinomas, a benign tumor of the pituitary gland that can cause headaches and problems with vision as well as other hormone issues.

Possible Side Effects and Considerations of Estrogen Therapy (cont.)

- Some people may feel their mental health and social comfort improves, and others may feel it worsens. While affirmation of gender is associated generally with improved mental health outcomes, the effect of estrogen therapy on specific mental health conditions is unknown. There is no clear evidence that estrogen therapy is directly responsible for causing or making any mental health condition worse. If you have a history of mental health diagnoses, discuss these with the clinic staff to explore which supports and services may be best to meet your needs.
- The overall incidence of breast cancer in trans and gender diverse individuals on estradiol remains much lower than the incidence in cisgender women. However, breast cancer incidence in trans feminine individuals is higher than what is seen in cisgender men. Additional risk factors include family and genetic history of breast cancer, length of time on estrogen therapy, age when starting estrogen therapy, and possibly exposure to progesterone.
- If you are on estrogen and develop enough breast tissue, your provider will recommend breast cancer screening, in the form of a mammogram, following the same guidelines as those recommended for cisgender women.

Smoking, inhaling second-hand smoke, and use of tobacco products may greatly increase the risks of blood clots and cardiovascular disease when taking estrogen therapy.

Possible Side Effects and Considerations of Spironolactone (Androgen Blocker):

- Increased urine production and need to urinate (i.e., pee) more frequently, along with possible changes in kidney function.
- A drop in blood pressure and feeling lightheaded, especially when standing up from sitting or lying down.
- Increased thirst and/or dehydration.
- Increase in the potassium in the blood in your body; this can lead to muscle weakness, nerve problems, and dangerous heart arrhythmia (irregular heart rhythm).
- If used without additional hormone therapy, androgen blockers may cause hot flashes and low mood or energy.
- Long-term use of androgen blockers to fully block testosterone, without additional hormone therapy, may result in bone loss and is not recommended.

Expectations, Rights, and Responsibilities

- Take androgen blockers and/or estrogens only at the dosage and in the form prescribed. Taking medications in doses that are higher than recommended may increase any risks from these medications. There is no evidence that blood levels of estrogen higher than the normal physiological range will work better or faster.
- Inform your medical provider if you do not feel – or no longer feel – that estrogen is affirming.
- You may choose to stop taking hormone therapy at any time or for any reason. Suddenly stopping estrogen after you have been on it for a long time may not feel very good physically or emotionally. Additionally, if you have had surgery to remove your testes, you may be reliant on an outside source of sex hormones. You are encouraged to discuss decisions with your medical provider prior to making any changes in your medication.
- Discuss all medical and mental health history with your medical provider prior to starting androgen blocking and/or estrogen therapy. Additionally, if you develop any new conditions, please inform your provider. This will ensure that your provider considers all your underlying health history in decisions around medication usage, dosing, and formulations.
- Inform your medical provider if you are taking or plan to start taking other prescription drugs, dietary supplements, herbal or homeopathic drugs, street/recreational drugs, or alcohol. Being honest about what you are taking/using will help your medical provider prevent or reduce potentially harmful reactions or interactions.
- Inform your provider if you think you are having side effects from the medications.
- Your provider may recommend decreasing your dose or, on rare occasions, stopping estrogen and/or androgen blockers because of medical reasons and/or safety concerns. You can expect the medical provider to discuss all treatment decisions with you. Some people may also need to change, decrease, and/or stop hormone therapy as they age.
- If you want or need surgery in the future, surgeons may require that you stop taking estrogen for a few weeks before and after surgery. The surgeon will determine when this is necessary.
- Keep appointments for follow-up monitoring and other preventative health care needs, as recommended by your medical provider.
- Blood tests may be recommended to monitor your health and hormone treatment. Your medical provider will discuss with you what tests are necessary and any recommendations for ongoing care and monitoring.
- Hormone therapy is not the only way to affirm your gender. Your providers can talk with you about other options if you are interested.

Do you want to know more about the data and research we use to inform our care and support documents like this? Reach out to the Trans Health Program online at <https://fenwayhealth.org/transhealth> or ask your provider today!