

What You Need to Know About **Feminizing Hormone Therapy**

The use of hormone therapy for gender transition/gender affirmation is based on many years of experience treating trans people. Research on hormone therapy is providing us with more and more information on the safety and efficacy of hormone therapy, but at this time not all the long-term consequences and effects of hormone therapy are fully understood.

We usually use a combination of two medications for feminizing hormone therapy. The first is a testosterone blocker (or androgen blocker). The second is an estrogen.

Testosterone blockers are used to decrease the amount of testosterone and/or block its effects, especially on hair growth. Testosterone blockers also reduce some of the masculine (male) features of the body.

Estrogens are used to feminize the body. They can also decrease the amount and effect of testosterone. Your medical provider will determine the kind and form of estrogen (pills, patches, or shots) and the dose that is best for you. The decision is based on your personal needs and wishes while considering any medical or mental health conditions you might have.

Each person responds to hormone therapy differently, and it is difficult to predict how a specific person will respond.

Please take the medications only as prescribed and discuss your treatment with your doctor before making any changes.

What are the expected effects of feminizing hormone therapy?

The feminine changes in the body happen gradually. It may take several months for the changes to become noticeable, and usually takes up to 3 to 5 years to be complete. Some of these changes may have long-lasting effects. If you decide to stop or if you are unable to access hormone therapy most of the changes will reverse but some changes will only partially go away. Here are the changes you can expect:

- Breasts will grow and develop. Breast size and shape vary in all women; Breasts may look smaller if you have a broader chest.
- The testicles will get smaller and softer.
- The testicles will produce less sperm and your fertility may decrease, or you may become infertile (unable to get someone pregnant).
- Muscle mass may decrease, with decreased stamina and strength, particularly in the upper body.
- Fat will redistribute, as the fat in your body will tend to go to the buttocks, hips, and thighs, rather than the abdomen (belly) and mid-section, making the body look more feminine.
- Your skin will become softer and acne may decrease.
- Facial and body hair will get softer and lighter and, over time (several years), you may notice a progressive decrease in visible facial and body hair. However, for many women or transfeminine people, this is not rapid enough or sufficient, and they will choose to have other treatments (electrolysis or laser therapy) to remove unwanted hair.
- Male pattern baldness of the scalp may slow down or stop, and some hair might regrow.
- You may have a reduced sex drive; this may be temporary or maybe longer lasting.
- Spontaneous erections decrease or cease entirely.

- The strength of erections may decrease, or you may develop an inability to get an erection. The ejaculate will become thinner and watery and there will be less of it.
- Changes in mood or thinking may occur. You may find that you have an increased emotional reaction to things. **If you have significant mood swings or changes let your doctor know.**
- Some people find that their mental health improves after starting hormone therapy.

Hormone therapy will not change the bone structure of the face or body.

your Adam’s apple will not shrink and the pitch of your voice will not change. If necessary, other treatments are available to help with these things (such as voice therapy and “tracheal shave” or facial feminization surgery).

Onset and timing of feminizing effects of estradiol and androgens blockers

Effect	Time to onset	Time to maximum effect
Decreased spontaneous erections	1-6 months	
Breast growth	3-6 months	2-3 years
Decreased testicular volume	3-6 months	2-3 years
Fat redistribution	1-6 months	2-5 years
Softening of skin	1-6 months	
Decreased facial and body hair growth	6-12 months	3-5 years

What are the risks and possible side effects of estrogen therapy?

- Increased risk of developing blood clots:
 - Blood clots in the legs or arms (DVT) can cause pain and swelling and can travel to the lungs or brain. Blood clots that travel to the lungs (pulmonary embolus) can interfere with breathing and getting oxygen to the body. Blood clots that form in the arteries of the heart can cause heart attacks. Blood clots in the arteries of the brain can cause a stroke.

- Blood clots to the lungs, heart, or brain could result in death or significant disability.
- Blood clots may require long-term medication and may also require stopping or adjusting your hormones. The risk for blood clots has been shown to be higher with some forms of estrogen (pills that are swallowed or oral) than with other forms of estrogen (patches, POSSIBLY injections or pills under the tongue).
- Possible increased risk of having cardiovascular disease:
 - This risk may be higher if you smoke cigarettes, are over 45, or if you have high blood pressure, high cholesterol, diabetes, or a family history of cardiovascular disease.
- The additional risk of smoking:
 - Smoking may greatly increase the risks of taking hormone therapy, especially the risk of blood clots, stroke, and cardiovascular disease. If you smoke, you should try to cut back or quit.
- Loss of fertility (unable to spontaneously get someone pregnant):
 - Even after stopping hormone therapy, the ability to make healthy sperm may not come back or maybe less than it was before you started hormones. How long this takes to become permanent is difficult to predict. Some people choose to bank some of their sperm before starting hormone therapy. Because the effect on sperm is hard to predict, if you have penetrative (vaginal) sex with someone who could get pregnant (has a uterus and could ovulate), you or your partner should still use birth control (e.g. condoms).
- Possible increased risk of gallbladder disease and gallstones.
- Changes in blood tests for the liver:
 - Estrogen may contribute to liver damage from other causes.
- Possible new-onset or worsen headaches and migraines.
- Possible elevated levels of prolactin (a hormone made by the pituitary gland):

A few persons on estrogen for hormone therapy have developed prolactinomas, a non-cancerous tumor of the pituitary gland that can cause headaches, problems with vision, and other hormone problems.

- Possible worsening of depression or mood swings.
- Possible increase in the risk of breast cancer:
The risk is probably higher than in natal men but lower than in natal women. The risk probably is related to how long you take estrogen therapy.

What are the risks and possible side effects of androgen blockers?

There are several options for androgen (testosterone) blockers. Most commonly used are spironolactone or finasteride. The side effects differ depending on your medication.

Side effects of spironolactone (Aldactone)

- Increased urine production and needing to urinate more frequently.
- Possible changes in kidney function, but it does not cause kidney failure.
- A drop in blood pressure and feeling lightheaded, especially when moving from lying down to standing.
- Increased thirst.
- Increase in the potassium in the blood and your body. This can lead to muscle weakness, nerve problems, and dangerous heart arrhythmias (irregular heart rhythm).
- Decreased ability to have or maintain an erection.

Side effects of finasteride (Propecia or Proscar)

- Possible negative effects on sexual function, with decreased ability to have or maintain an erection. Negative effects on sexual function may be permanent.

- Changes in blood tests for the liver. Estrogen may contribute to liver damage from other causes.
- A drop in blood pressure and feeling lightheaded, especially when moving from lying down to standing.
- A possible small increase in the risk of prostate cancer.

What can I do to reduce risks and side effects?

- If you smoke, try to cut back or quit. Smoking may greatly increase the risks of hormone therapy, especially the risk of blood clots, stroke, and cardiovascular disease. If you have other risks for blood clots or cardiovascular disease, your provider may ask you to quit smoking before you start hormone therapy.
- Take estrogen only at the dosage and in the form that your medical provider prescribes. Taking estrogen in doses that are higher than recommended by your doctor will increase your risk of side effects and may not produce better feminizing effects.

What are my guidelines for successful hormone therapy?

- Tell all your healthcare providers that you are taking hormones. Most surgeons will ask you to stop taking hormones for a few weeks before and after any surgery to minimize the increased risk of blood clots that occurs with many operations.
- Inform your medical provider if you are taking or start taking any other prescription drugs, dietary supplements, herbal or homeopathic drugs, or street drugs or alcohol so that you can discuss possible interactions with and effects on your hormone treatment.
- Inform your medical provider of any new physical symptoms or any medical conditions that develop before or while you are taking hormone therapy. Discuss the evaluation of these conditions with your provider.

- Inform your provider if you think you are having bad side effects from the medications.
- Keep regular follow up appointments. This may include appointments for mammograms and prostate exams.
- Keep up with regular blood testing monitoring. Your provider will discuss with you what tests are necessary to monitor for potential harmful effects and to ensure that your hormone therapy is safe and effective. If you are taking estrogen injections, your monitoring blood tests will usually be done halfway between your injections (for example, if you inject your estrogen every Sunday, your blood tests will be drawn on a Wednesday or Thursday).
- Your provider may decrease the dose of estrogen or androgen blockers or stop prescribing hormone therapy because of medical reasons and/or safety concerns. You can expect that the medical provider will discuss the reasons for all treatment decisions with you.

You may choose to stop taking hormone therapy at any time or for any reason. We encourage you to discuss this decision with your medical provider.

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