

Taking Estrogen for Gender Affirmation

Taking hormones for gender affirmation (also called “transition”) is a process backed by many years of research among transgender and gender-diverse people. Research on hormone therapy is constantly providing more data on the safety and effectiveness of taking hormones, but all the long-term effects of taking hormones are not fully understood yet.

This information is meant to help you look at the possible benefits and side effects of taking the hormone estrogen. From there, you can partner with your care team to decide if this therapy is right for you.

Your care team will help you find the ideal form of estrogen (such as shots, pills or patches) and dosage for you, based on your personal needs and wishes, as well as any health conditions you might have. Each person’s response to estrogen varies. That’s why what you take may be different from what other people take. Taking higher levels of estrogen may not lead to faster changes, but it could endanger your health. It’s important to take estrogen only as prescribed and to discuss your treatment with your doctor before making any changes.

Anti-androgens (also called testosterone blockers) are used to decrease the amount or reduce the effects of testosterone on your body. Not all people need or want to take anti-androgens. Your doctor can discuss whether you might need an anti-androgen and what your options are.

Progestogens (such as the medication progesterone) are another kind of hormonal medicine sometimes used together with estrogen. Some people may benefit from taking progestogens while others may experience negative effects. Your care team can discuss whether a progestogen may be helpful for you and when to consider this.

We look forward to partnering with you to achieve your desired goals.

The Expected Effects of Taking Estrogen

The expected changes to your body may take several months to become noticeable and usually take 3 to 5 years to be complete. Some changes are permanent, while others may be reversible if you stop taking estrogen. Remember that the amount of change you will experience is hard to predict. Please see **Table 1** for a summary and expected timeline of changes.

Changes that will not go away, even if you decide to stop taking estrogen, include:

- Breast growth and development; breast size and shape will be different for different people
- Testicles will get smaller and softer
- Testicles will create less sperm and this will likely affect your fertility (the ability to have biological children)
 - How long this takes, how much it happens and whether and when it becomes permanent varies from person to person. If it's important to you to have the ability to have biological children later in life, consider preserving sperm before you start taking hormones. You can also meet with a fertility specialist to better understand your options now and later in life. Your doctor can give you more information about these options.

Changes that will likely reverse if you stop taking estrogen include:

- Loss of muscle mass and decreased strength, especially in the upper body
- Unpredictable weight gain
 - On average people gain just a few pounds. If you gain weight, this fat will tend to go to your buttocks, hips and thighs, instead of your abdomen and mid-section.
- Skin will become softer and less oily; acne may decrease.
- Facial and body hair will get softer and lighter and grow more slowly.
 - For many people, this effect may not be enough, and other treatments such as electrolysis or laser hair removal may be necessary to remove unwanted hair.
- “Male pattern” baldness of the scalp may slow down or stop, but hair will usually not regrow.
- Reduced sex drive
- Decreased strength of erections or inability to get an erection
- Ejaculate will become thinner or watery and there may be less of it. Even if it seems like nothing comes out with orgasm, it is still possible that sperm are produced, and pregnancy prevention should be considered, depending on how you have sex.
- Changes in mood or thoughts may occur. You may find that you have more emotional reactions to things. Many people find that their mental health improves after starting hormone therapy. The effects of hormones on the brain are not fully understood, and you should let your care team know if you think your mental health is worsening.

The following are not affected by taking hormones. If you would like to change these areas, please let your doctor know:

- The pitch of your voice
- Bone structure, including your face and Adam's apple
 - It is possible that some people in their late teenage years may see some mild changes.

Possible Risks of Taking Estrogen

Having any of the following health conditions could make taking estrogen unsafe for you. Please let your doctor know if you have any of these health conditions:

- Blood clot or a history of blood clots, including deep venous thrombosis (DVT) or pulmonary embolism (PE)
- Estrogen-sensitive cancer (such as breast cancer)
- Cancer or other problem with your pituitary gland (such as prolactinoma)
- Severe, complicated migraines (such as migraines with neurological symptoms)

Risks of estrogen may include:

- **Loss of fertility**
- Increased risk of developing **blood clots**
 - Blood clots in the legs or arms can cause pain and swelling. Blood clots to the lungs can make it hard for you to breathe or get oxygen to your body. Blood clots 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 disability or death.
- Possible increased risk of **heart attack or stroke**
 - This risk is higher if you smoke cigarettes, are over 45 years old or if you have high blood pressure, high cholesterol, diabetes or a family history of heart disease.
- Possible changes to your **blood pressure and cholesterol**
 - How much these changes actually lead to heart disease or other complications is not known.
- Increased risk of **breast cancer**, because the estrogen stimulates breast growth
 - This risk is less than the risk of breast cancer for cisgender women.
- **Nausea and vomiting**, especially when you first start taking estrogen
- **Gallbladder disease and gallstones**
- **Painful erections** may occur. Your care team may be able to discuss ways to reduce your discomfort.
- Often people have improved **mood** when taking estrogen. However, in some people it may worsen depression or cause mood swings; please let your care team know if you have worsening mood or other mental health symptoms.

Smoking may greatly increase your risks when taking estrogen, especially the risk of blood clots and heart disease. If you smoke, try to cut back or quit. If you have other risks for blood clots or heart disease, your doctor may ask you to quit smoking before you start taking hormones. Your doctor can discuss ways to help you quit.

Because we are still learning about the long-term health of people who take estrogen for gender affirmation, you should work with your care team to reduce any risks and discuss the appropriate health screenings for you.

How to Take Estrogen

There are different ways that estrogen is prescribed. There are pros and cons for each of these methods. For gender affirmation, estradiol is the preferred and safest form of estrogen. Different ways to take estradiol include:

- **Injections:** These are usually given in the form of a shot, under the skin, once a week by you at home.
- **Tablets:** These are taken by mouth either daily or twice a day. Putting the tablet under your tongue to dissolve may be safer than swallowing them.
- **Patches:** These are applied to your skin and changed once or twice a week. Some people have rashes or skin reactions to the patch.
- **Gels:** These are applied to your skin daily.

We will work with you to find the type of estradiol treatment that is best for you.

Other Therapies

There are ways other than taking hormones to affirm your gender. These may be used along with or instead of hormones. Please let us know at any time if you would like more information about any of the following treatments:

- Voice therapy to change voice pitch or style
- Voice surgery to change voice pitch (generally not recommended until you've worked with a voice therapist first)
- Electrolysis or laser hair removal
- Surgery to increase breast size (generally not recommended until you've taken hormones for at least 1-2 years to see what breast development occurs)
- Surgery to change facial bone structure (generally not recommended until you've taken hormones for at least 1-2 years to see what change in facial appearance occurs)
- Surgery to reduce the size of the Adam's apple
- Surgery to change the appearance and function of the genitals (generally not recommended until you have taken hormones for at least 1-2 years to ensure you're comfortable taking hormones long-term and to see the effects of the hormones on the genitals)
- Surgery to remove the testicles (generally not recommended until you've taken hormones for at least 1 year to ensure you're comfortable continuing the hormones long-term)
- Other body-shaping procedures such as liposuction or plastic surgery

We want to help you achieve your gender-related goals in the safest way possible. In order to do this, we need to be well-informed about your health. Please tell your health care team if you notice any changes to your health at any time during treatment. We will do everything we can to continue your treatment if it can be done safely, which is almost always the case.

Table 1. | Expected Effects of Taking Estrogen

Effect	When the Effect Will Start†	How Long the Effect Lasts†
Breast growth*	3 - 6 months	2 - 3 years
Decreased testicular size*	3 - 6 months	2 - 3 years
Decreased sperm production*	Unknown	More than 3 years
Redistribution of fat to hips and thighs	3 - 6 months	2 - 3 years
Decrease in muscle mass and strength	3 - 6 months	1 - 2 years
Decreased sex drive	1 - 3 months	3 - 6 months
Decreased spontaneous erections	1 - 3 months	3 - 6 months
Decreased facial and body hair growth	6 - 12 months	More than 3 years
Scalp hair	No regrowth	
Voice changes	None	

Adapted from 2017 Endocrine Society Guidelines

* Permanent changes

† People on low-dose hormone therapy may expect slower or less pronounced changes