



The binary terms “male,” “female,” “masculine,” “feminine,” “masculinizing” and “feminizing” do not accurately reflect the diversity of people’s bodies or identities. To describe how hormones work, it is helpful to know how testosterone works in non-intersex, nontrans men’s bodies, and how estrogen and progesterone works in non-intersex, nontrans women’s bodies. We keep these binary terms in quotes to emphasize that they do not fit everyone’s identity and they are imperfect concepts.

A Guide to Masculinizing Hormones

Hormone therapy is an option that can help transgender and gender-diverse people feel more comfortable in their bodies. Like other medical treatments, there are benefits and risks. Knowing what to expect will help us partner to maximize the benefits and minimize the risks

What are hormones?

Hormones are chemical messengers that tell the body how to function, when to grow, when to divide and when to die. They regulate many functions, including growth, sex drive, hunger, thirst, digestion, metabolism, fat burning and storage, blood sugar, cholesterol levels and reproduction.

What are sex hormones?

Sex hormones regulate the development of sex characteristics — including the sex organs that develop before we are born (genitals, ovaries/testicles, etc.). Sex hormones also affect the secondary sex characteristics that typically develop at puberty (facial and body hair, bone growth, breast growth, voice changes, etc.). There are 3 categories of sex hormones in the body:

- **Androgens:** testosterone, dehydroepiandrosterone (DHEA), dihydrotestosterone (DHT)
- **Estrogens:** estradiol, estriol, estrone
- **Progestin:** progesterone

Generally, “males” tend to have higher androgen levels, and “females” tend to have higher levels of estrogens and progestogens.

What is hormone therapy?

Hormone therapy is taking medicine to change the levels of sex hormones in your body. Changing these levels will affect your hair growth, voice pitch, fat distribution, muscle mass and other features that are associated with sex and gender. Feminizing hormone therapy can help make the body look and feel less “masculine” and more “feminine” — making your body more closely match your identity.

What medicines are involved?

Testosterone (sometimes called “T”) is the main hormone responsible for promoting “male” physical traits and is usually used for hormonal “masculinization.” Testosterone works on tissues in your body (such as stimulating growth of your clitoris) and by suppressing estrogen production. If your menstrual periods do not stop within 3 months of taking testosterone, there are treatments that can be used to stop your period. There are medications that can help stop your period, prior to ever taking testosterone.

How do you take it?

Testosterone can be taken in different ways:

- Injection. This is how Testosterone is given in our Gender Health Clinic and is the most common way to administer T.
- Skin patch, cream or gel (transdermal application). This is not as common for our patients.

What is a typical dose?

Testosterone therapy varies greatly. Deciding what to take depends on:

- Your health (each type of testosterone has different risks and side effects)
- Insurance
- How your body reacts when you start taking testosterone (every person is different)

We will assist you in navigating your insurance coverage and other resources that may be helpful to you; as well information on our financial aid program

The right dose or type of testosterone for you may be different than for others. It is a good idea to talk about the different options with your Gender Health Clinic team. If you have any concerns about being able to take the testosterone, or about the side effects, costs or health risks, let us know.. If you have questions about the reasons for your dose, talk with us. Every person is different in terms of how their body absorbs, processes and responds to sex hormones. Some people have more changes than others. Taking more testosterone than the dose you were prescribed — or taking another kind of steroid as well as testosterone (sometimes called “stacking”) — can greatly increase your health risks. To maintain the full effects of testosterone, you will need to stay on testosterone or another form of medicine for the rest of your life (unless you choose to go off of it).

Benefits and risks

What changes can I expect?

Masculinizing hormone therapy has important physical and psychological benefits. Bringing the mind and body closer together eases gender dysphoria and can help you feel better about your body. For some people, this psychological change happens as soon as they start taking hormones. For others, it happens a bit later as physical changes progress. There is no way of knowing how your body will respond before you start hormones. You cannot pick the changes you want. Each person changes differently. How quickly changes appear for you depend on:

- Your age
- The number of hormone receptors in your body
- How sensitive your body is to testosterone

Average Timeline

Effect

After 1 to 3 months	<ul style="list-style-type: none"> • Increase sex drive • Vaginal dryness and clitoris growth • Increased growth, coarseness and thickness of hairs on arms, legs, chest, back, and abdomen • Oilier skin and increased acne • Increased muscle mass and upper body strength • Redistribution of body fat
After 1 to 6 months	<ul style="list-style-type: none"> • Menstrual periods stop
After 3 to 6 months	<ul style="list-style-type: none"> • Voice starts to change (deeper, crackling, etc)
Gradual changes (maximum changes after 1 to 2 years)	<ul style="list-style-type: none"> • Gradual facial hair growth • Possible “male” pattern balding

Are the changes permanent?

Most of the changes you will notice from the testosterone are not fully reversible, even if you stop taking testosterone.

- **Permanent** (not reversible): deeper voice, hair growth. “Male”-pattern baldness may or may not happen, based on your family history.
- **May or may not reverse**: clitoral growth, body and facial hair will decrease but usually does not completely disappear, the ability to get pregnant
- **Reversible**: menstrual periods will return and changes to fat, muscle and skin will reverse

Fertility

The long-term effects of testosterone on fertility are not fully understood. The ability to get pregnant **may not come back** even if you stop taking testosterone. Although testosterone can permanently affect your fertility, there may still be a chance you could get pregnant even after starting

What are the risks?

The long-term safety of testosterone is not fully understood. Most of the studies on hormone therapy involve non-trans men taking testosterone at different doses. There may be long-term risks that are not yet known.

Heart disease, stroke and diabetes

Testosterone can increase the risk of heart disease, stroke and diabetes. Testosterone tends to:

- Decrease good cholesterol (HDL) and may increase bad cholesterol (LDL)
- Increase fat deposits around internal organs and in the upper abdomen
- Increase blood pressure
- Decrease your body’s sensitivity to insulin
- Cause weight gain (although most of the weight gain is from muscle)

- Increase the amount of red blood cells and hemoglobin (a red protein responsible for transporting oxygen in the blood) you have in your body

The increase in the amount of red blood cells and hemoglobin is usually only to an average “male” range (which does not pose health risks). Occasionally, a higher increase can happen and cause very serious, life-threatening problems, like stroke and heart attack. You will have regular blood tests to check red blood cell and hemoglobin levels.

The risks are greater for people who smoke, are overweight or have a family history of heart disease. Your risk of heart disease, stroke and diabetes can be reduced by creating a care plan that is specific to you. A care plan includes regular blood tests and optimizing contributing factors. These include not smoking, exercising and eating well.

Headaches and migraines

Some people get headaches and migraines after starting testosterone. If you are getting more frequent headaches or migraines or the pain is unusually bad, talk to your primary healthcare provider.

Cancer

It is not known if testosterone increases the risks of breast cancer, ovarian cancer or uterine cancer. These types of cancer are all sensitive to estrogen, called estrogen-dependent cancer. There is evidence that some testosterone is converted to estrogen. You are at higher risk of estrogen-dependent cancer if you have a family history of these types of cancer, are age 50 or older or are overweight. Talk with us about screening tests available for these types of cancer.

Mental health

There are often positive emotional changes from reduced gender dysphoria. However, testosterone can cause increased irritability, frustration and anger. There are reports of testosterone destabilizing people with bipolar disorder, schizoaffective disorder and schizophrenia. Taking testosterone via skin patch or cream/gel (transdermal application) can be helpful if the mood swings are linked to the highs and lows of an injection cycle.

Social repercussions

Some people experience violence, harassment and discrimination, while others have lost support of loved ones. If you are worried about how others might react to the changes that come with hormone therapy, counseling can be useful.

How do I get the most benefit and minimize risks?

You can help make hormone therapy as effective and safe as possible. Here are steps you can take:

- **Be informed.** Understanding how hormones work, what to expect, and possible side effects and risks will give you the tools to oversee your health and make informed decisions. Do your own research and ask questions.
- **If you smoke, stop or cut down.** Any smoking greatly increases the risks of hormone therapy. If you are a smoker, your estrogen level may be kept low. If you need help to quit smoking, we can help you develop a plan or direct you to resources. If you are not quite ready to quit, consider cutting down. Every little bit helps.
- **Deal with problems early on.** If caught early enough, most of the problems that can result from hormone therapy can be dealt with in a creative way that does not involve stopping hormone therapy. Waiting to talk with your provider can make the problem worse.

- **Do not change medicine on your own.** Check with your healthcare provider if you want to start, stop or change the dose of any of your medicines. Taking medicine more often or at a higher dose than prescribed increases health risks and can slow down the changes you want. If you want to change your medicine, talk with your provider first.
- **Take a holistic approach to your health.** Health involves more than just hormone levels, and taking hormones is only one way for you to improve your quality of life. Building a circle of care that includes health professionals, friends, partners and other people who care about you will help you to deal with problems as they come up. This support will help you build the identity you want to be seen by the world.
- **Know where to go for help.** The Mary Bridge Gender Health Clinic can help you find information on health and transition issues. We can also help you connect with support groups and community resources.

What will not change?

Body Image

Many people experience an increase in self-esteem and confidence as their body changes with hormones. You might find that there are also unrealistic societal standards after hormone therapy. It can be hard to separate gender dysphoria from body image problems. Professional and peer counseling can help you sort through your expectations about your appearance and work toward self-acceptance.

Mental health

Many people experience positive emotional changes from hormone therapy, including decreased gender dysphoria. Hormone therapy might help you to become more accepting of yourself, but life can still present emotional and social challenges. Biological factors, stresses of transphobia and unresolved personal issues can also affect your mental health. It is important to continue to access counseling, medication and other supports as needed for your mental health.

Your community

Some people hope that they will find greater acceptance after they make physical changes. Seek support from people and communities who accept and respect you as your body, gender identity and expression evolve. It can be helpful to connect with other transgender people, while remembering that no one will exactly mirror your own experience, identity and beliefs. It can be common to feel lonely and alone after starting hormone therapy. Having a support network to turn to can help.

Your body Shape

Hormone therapy will not remove all “female” or “feminine” aspects of your body. Hormone therapy will not change some physical characteristics, and some are only slightly changed.

Your speech patterns

Although testosterone typically makes your voice pitch drop to deeper levels, it does not change intonation and other speech patterns that are associated with gender socialization. Some people find that speech therapy can help. Speech therapy can also be useful if your pitch does not drop as much as you wanted.

Breast tissue

Testosterone may slightly change the shape of your chest by increasing muscle mass and decreasing fat. However, it does not make breast tissue go away. Some people have “top surgery,” a surgery to remove breast tissue and reshape their chest.

Bone structure

Once your bones have stopped growing after puberty, testosterone cannot change the size or shapes of your bones. There are no treatments you can take to increase your height or the size of your hands and feet.

Pregnancy and sexually transmitted infections

Although testosterone can permanently affect your fertility, there may still be a chance you could get pregnant even after starting hormone therapy. **Depending on how you have sex, you may need to use birth control.** Testosterone is toxic to an unborn baby and you cannot take testosterone while pregnant. Testosterone does not decrease the risk of HIV and sexually transmitted infections. Depending on how you have sex, you may need to use condoms, gloves or other latex barriers. Testosterone tends to make the vagina dryer and the cervix more fragile, so if you have vaginal sex you should add extra lubricant to avoid breaking latex or tearing your vaginal lining.

What to expect

How often do I need to come in for appointments?

You need regular physical exams and lab tests to monitor your overall health while you are on hormone therapy. Follow our doctor’s recommendations for follow up visits and any recommendations the doctor may have. Attending your appointments ensure your body is safe and helps you stay up to date on your hormones and prescriptions. When you are 18 years old, you will transition to a medical provider who can continue your treatments as an adult. Our Social Worker will help this transition and provide you resources of gender-affirming doctors.

What will happen at appointments?

At every appointment, we will:

- Ask questions about your overall health
- Ask questions about your mood and overall mental health
- Check for early warning signs of health problems that can be caused by testosterone or made worse by testosterone (i.e heart disease, diabetes, etc)
- Recommend blood tests
- Recommend other tests (such as bone scans, heart stress function tests)
- Our Social Worker will check-in with you to say hello, touch base, and provide any additional support you may need and/or want.



Mary Bridge Children's Gender Health Clinic follow the World Professional Association for Transgender Healthcare. Although, the information in this handout are based on evidence-based practice, each patient needs are unique. Before you act or rely this information, talk with our doctor, other medical care professionals, and conduct your own research in addition to this handout.