

Effects and Considerations of Testosterone

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.

Testosterone treatment results in certain changes to the body that some people find affirming, including lowering the pitch of the voice, increased facial and body hair, fat redistribution, and increased muscle mass. 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 some body features. A person's bone structure or height will not change. Breast/chest size will not decrease or go away. Monthly bleeding (periods) is likely to stop, but this is not guaranteed. Hormone therapy is not the only way to achieve your goals - please talk to your medical provider 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. Additionally, some individuals may find surgery (chest reconstruction) or other medications (progesterone to stop menses) most specific to their needs, while the effects of testosterone would not feel affirming. Knowing your options is an important and empowering aspect of this process. Please ask your providers for more information on testosterone or alternative options for affirmation if you have any questions now or in the future.

Your medical provider will help decide which formulation and dose of testosterone (injections, transdermal gels, implanted pellets, or oral medications) 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. Research on gender affirming hormone therapy provides us with 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 the effects of hormone therapy in all areas across the lifespan. This document outlines what we currently know about these medications. We will tell you about any new information or research we learn, especially as it affects your health and wellbeing.

Expected Physical and Emotional Effects of Testosterone Therapy

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

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

- Deepening of the pitch (sound) of your voice.
- Growth, thickening, and darkening of hair on the body.
- Growth of facial hair, including beard and mustache. The ability to grow facial hair is not unlike a cisgender male, some will have the ability to grow a thick beard and in a short time, whereas others may have scant growth or facial hair that takes years to come in.
- Possible hair loss at the temples and crown/top of the head (androgenic alopecia) with the possibility of complete baldness. This may be affected by family genetics and hair loss may resemble the hair patterns of cisgender men in your family. However, some note that hair loss is seen more commonly in those taking testosterone, regardless of family history.
- Growth in the size of the phallus/clitoris. Early on in growth, some may also experience increased sensitivity at the phallus/clitoris.

Some changes are **NOT PERMANENT**, meaning that if you stop taking testosterone, these changes may return to how your body looked or worked before treatment. This may take a few weeks to months or longer depending on the change:

- Stoppage of menstrual/monthly bleeding, usually within a few months.
- Changes in where fat is stored in the body; If you gain weight, the fat will tend to localize to the abdomen and mid-section, rather than the buttocks, hips, and thighs. You may lose more fat from chest/breasts, buttocks, and thighs if you lose weight.
- Increased muscle mass, particularly in the upper body.
- Some people feel more energy, more active, or more short-tempered and irritable. Some people experience improvement in their mental health, feeling better or calmer and more focused.
- Many people experience skin changes including acne on the face and back. For some, this may require medical treatment to manage. This may last from months to a few years, like in puberty.
- Most people experience a significant increase in their sex drive, or interest in sexual activity.
- Some people experience changes in who they are attracted to physically.

Possible Fertility Effects of Testosterone Therapy

- Possible loss of fertility; you may not be able to get pregnant after being on testosterone therapy for some time. However, most recent studies indicate that the age of the eggs is more of a predictor of fertility than any exposure to testosterone. Some people choose to harvest and bank eggs before starting testosterone. If you were to harvest and bank eggs or decide to get pregnant after starting testosterone, you would need to stop testosterone prior to either of these events and remain off for the duration of the harvesting or pregnancy.
- Testosterone is not reliable birth control. Even if periods (monthly bleeding) stop, you could get pregnant. If you are having genital sex with a partner who produces sperm, discuss using some form of birth control with your medical provider.
- If you get pregnant while taking testosterone, the high levels of testosterone in your system may cause harm to the developing fetus. Testosterone is considered teratogenic, meaning it is not safe to take during pregnancy.

Possible Side Effects and Considerations of Testosterone Therapy

- After being on testosterone for a number of months, some people may develop pelvic pain. Many experience this pain or cramping specifically associated with sexual arousal/orgasm, but for some there is no apparent reason. The level of pain varies in the people who experience this effect. For most people the pain resolves on its own after several months. For others, the pain may persist. The cause of this pain is unknown.
- The cervix and walls of the frontal canal may become drier and more fragile (thinner). This may cause irritation and discomfort. It also may make you more vulnerable to sexually transmitted infections and HIV if you have unprotected sex using the frontal canal/vaginal opening. Treatment with local, topical estrogen can help to restore moisture and elasticity to this skin.
- Testosterone will not protect against cervical, ovarian, uterine, or chest/breast cancer. Current research indicates there is no increased risk for these cancers above the risks already present for any individual with these organs who are not on testosterone. Family history and individual genetics can influence risk, as they do for anyone. Your provider can provide you with recommendations for routine cancer screening for your individualized needs.
- Possible elevation of cholesterol, increased blood pressure, and other changes to the body may increase risk of cardiovascular disease (heart attacks, strokes, and blockages in the arteries) when on testosterone therapy long-term. However, current research indicates that individuals taking gender affirming testosterone do not have increased rates of cardiovascular events than those seen in cisgender men. Family history may reveal specific genetic cardiovascular risks, which should be discussed with your provider.

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

- 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.
- Increased appetite is common and may result in weight gain. Metabolism may also be affected by testosterone.
- Increase in the hemoglobin and hematocrit (the percentage or concentration of red blood cells in blood). Testosterone itself drives the production of red blood cells, so it is common and expected for hemoglobin and hematocrit to increase into the normal cisgender male range. However, if these levels increase higher than cisgender male physiologic levels, it may cause problems with circulation, and theoretically could increase the risk of blood clots, strokes, and heart attacks. Elevated hematocrit levels due to testosterone are quite rare, and complications even rarer. Despite this, monitoring hematocrit level is recommended.
- Increased sweating.
- Possible impact on hormone-induced migraine headaches. Potential of worsening or triggering of migraines, though others may experience a reduction in hormonally induced migraine headaches due to suppression of estrogen cycling.
- Some people may feel their mental health and social comfort improves, and others may feel it worsens. While affirmation of gender is generally associated with improved mental health outcomes, the effect of testosterone therapy on specific mental health conditions may vary. There is no clear evidence that testosterone therapy is directly responsible for causing or making any mental health condition worse. If you have a history of mental health diagnoses, let your provider know so they can explore with you which supports and services may best meet your needs.
- Brain structures respond differently to testosterone and estrogen. Testosterone therapy may have long-term effects on the functioning or structure of the brain that we do not yet fully understand. Some limited research suggests a decrease in verbal fluency (talkativeness or using lots of words).
- Smoking cigarettes may increase some of the risks of taking testosterone therapy, specifically regarding adverse cardiovascular effects

Expectations, Rights, and Responsibilities

- Take testosterone only at the dosage and in the form prescribed.
- Taking testosterone in doses that are higher than recommended may increase risks from testosterone. There is no evidence that higher doses (leading to blood testosterone levels higher than the cisgender male physiologic range) will work better or faster. The body converts (aromatizes) testosterone into estrogen, and this may occur at increased rates if testosterone levels are higher than recommended, which may lead to undesired effects.
- Inform your medical provider if you do not feel – or no longer feel – that testosterone is affirming.
- You may choose to stop taking hormone therapy at any time or for any reason. Suddenly stopping testosterone 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 ovaries, 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 testosterone 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 testosterone usage, dosing, and formulations recommended.
- Inform your medical provider if you are taking or start taking any 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 bad side effects from the medication.
- Your provider may recommend decreasing your dose or, on rare occasions, stopping testosterone 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.
- Keep appointments for follow-up monitoring and other preventative health care needs, as recommended by your medical provider.
- Blood tests are recommended to monitor your health and hormone treatment. Your medical provider will discuss which tests are necessary and any recommendations for ongoing care and monitoring.
- Hormone therapy is not the only way to affirm your gender. Your medical provider and/or a behavioral health provider 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!