



PATIENT RESOURCES

Transgender Health Treatments

March 09, 2022

Decisions about medical care for transgender and gender non-binary people seeking gender-affirming medications and surgeries should be a collaborative decision among you, your mental health professional and a trained endocrinologist or experienced medical provider. Talk honestly with your healthcare providers about what is best for you.

Feminizing Hormone Therapy

Feminizing hormone therapy includes medications that will reduce the level of testosterone while providing enough **estrogen** (or estradiol) to allow feminizing changes to occur. It is important to let your provider know if you take any other prescribed medications or over-the-counter supplements as these may interfere with feminizing medications. Estradiol serves two roles in feminizing treatment:

- › Estradiol is powerful at reducing your testosterone levels.
- › Estradiol is a hormone that promotes feminine physical changes.

› Estradiol

Estradiol can be given in many ways, most commonly, oral, transdermal, or injectable. Your provider should review the pros and cons of each of these. It is important to review your medical history with your provider particularly if you have a history of cancer (including breast or prostate), heart disease, stroke, blood clots, liver disease or smoking, because your risks associated with hormone therapy may be increased if you have any of these.

The most concerning risk related to estradiol therapy is increased risk of blood clots. The risk is minimized by using transdermal patches and bioidentical estradiol and by avoiding all smoking.

Other possible concerns sometimes related to estradiol therapy include:

- › Change in cholesterol profile (higher triglycerides)
- › High blood pressure

- › Possibly heart disease/stroke, particularly if you are older than age 50 years
- › Breast cancer (same as cisgender population)
- › Gall bladder stones

Because the risk of blood clots with estrogens seems related to total dose, most feminizing treatment includes other testosterone lowering or blocking medicines in addition to estradiol. In the United States, the most common medication against testosterone is spironolactone. Spironolactone pills may block the effects of testosterone and also reduce the levels in the blood. With the fall in testosterone level, you may notice breast tenderness. The most other common side effects include increased urination, dizziness, risk of high potassium and possibly lower blood pressure. Your provider will monitor your potassium levels. If these side effects are too significant, speak to your health care provider about alternatives.

AN ENDOCRINE SOCIETY PRIORITY MESSAGE

WHAT DOES ESTROGEN DO?
Estrogen is a group of hormones that play an important role in the normal and reproductive development of women. Not all estrogens are the same, but they all have similar effects.

WHY IS ESTROGEN IMPORTANT?
Estrogen helps bring about the physical changes that turn a girl into a woman. The time of life is called puberty. These changes include:

- Growth of the breasts
- Growth of pubic and underarm hair
- Start of menstrual cycles
- Helps control the menstrual cycle and important for child bearing
- In women and men, estrogen helps control:
 - sexual desire
 - sexual function
 - sexual health
 - bone health
 - skin health

THE THREE TYPES OF ESTROGEN

- ESTRADIOL**
The most common type in women of childbearing age.
- ESTRONE**
The main estrogen produced during pregnancy.
- ESTRONE**
The only estrogen your body makes after menopause.

HOW DOES ESTROGEN WORK?
The ovaries, which produce a woman's eggs, are the main source of estrogen from your body. Fat tissue and your adrenal glands, located at the top of each kidney, make small amounts of the hormone.

Visit endocrine.org/menopausemap for more information.
Office: 3642 Avenue 19th Street, Silver Spring, MD, 20910

ENDOCRINE SOCIETY

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► **Physical Changes and Fertility**

Physical changes may take some time to occur. Below we have provided a general expected timeline. It is important to know that everyone is different. Your height, voice and Adam's apple will not change with hormone therapy.

In 1 to 3 months:

- › Decrease in sexual desire and function (including **erections**)
- › Baldness slows and may reverse slightly

In 3 to 6 months:

- › Softer skin
- › Decrease in testicular size
- › Breast development and tenderness (permanent effect)
- › Change in body fat distribution- moving more to the hips and buttocks area

In 6 to 12 months:

- › Hair may become softer and finer

Feminizing hormones will decrease sperm production; however it is still possible to get your partner pregnant if you engage in vaginal sex. You may need to use additional birth control measures. If you wish to have children in the future, consider **banking sperm** before starting hormone therapy.

Your provider will recommend that you regularly come for follow up care after these hormones have started. Follow up visits may include physical examinations, measurement of hormone levels and sometime other testing

depending on your age and medical problems. Other tests may include a bone density, mammogram, prostate assessment, sexually transmitted infection (STI) screen and follow up of blood sugar and cholesterol. If you are older than 50 years of age, your doctor may want to evaluate your risk of heart disease a little more carefully.

Masculinizing Hormone Therapy

Masculinizing hormone therapy includes medications that will increase **testosterone** levels in your body to cause masculinizing changes to occur. It is important to let your provider know if you take any other prescribed medications or over-the-counter supplements as these may interfere with masculinizing medications.

▸ Testosterone

Testosterone can be given in many ways. The most common include injections (shots), gel and patches. It is important to let your provider know your entire medical history such as heart disease and cancers if any.

The primary risk related to testosterone therapy is elevation of red blood cell count. Other possible concerns sometimes related to testosterone therapy include:

- Change to cholesterol profile (for example, lower HDL cholesterol)
- Sleep apnea

- › Acne
- › Vaginal tissue thinning or irritation
- › Soreness at the injection site

AN ENDOCRINE SOCIETY PATIENT RESOURCE

THE TRUTH ABOUT TESTOSTERONE TREATMENTS

You've seen the ads. You've heard the hype. But testosterone supplements aren't the anti-aging cure-all that they're marketed as. The use of doctor-prescribed testosterone replacement therapy, however, is safe and can be effective for men who are diagnosed with consistently abnormal low testosterone production and symptoms that are associated with this type of androgen deficiency.

TESTOSTERONE FACTS FOR MEN

- Low testosterone comes with age. • Testosterone decreases by 1% each year after age 30, though don't worry too much, when in adulthood age.
- Testosterone may be disrupted by diabetes, obesity, prostate gland, or stress.
- Testosterone changes from hour to hour—highest in the am, lowest at night.
- Testosterone levels can be lower due to test, such as stress, poor nutrition, exercise, and with certain medications.
- Normal testosterone levels are between 300–1,000 ng/dL, depending on age and lab used.
- Testosterone must be measured more than once for accurate assessment.

TESTOSTERONE THERAPY IS ONLY RECOMMENDED FOR HYPOGONADISM PATIENTS

Leading testosterone is NOT approved by the US Food and Drug Administration (FDA) to help improve your strength, athletic performance, physical appearance, or to treat or prevent prostate cancer. Using testosterone for these purposes may be harmful to your health.

ABLE HYPOGONADISM — A COMBINATION OF LOW TESTOSTERONE LEVELS AND THE PRESENCE OF ANY OF THESE SYMPTOMS:

- Drop in sex drive (libido)
- Erectile dysfunction (ED)—difficulty to get or keep an erection and loss of spontaneous erections
- Lowered sperm count and reduced fertility (ability to have children)
- Breast enlargement or tenderness
- Reduced energy
- Increased irritability, hostility to caregivers, and depressed mood
- Hot flashes (when testosterone levels are very low)

YOU SHOULD NOT RECEIVE TESTOSTERONE THERAPY IF YOU HAVE:

- Blood clots
- Prostate or breast cancer (or suspicion)
- Elevated prostate-specific antigen (PSA) levels
- Enlarged prostate causing difficulty with urination
- Heart attack or stroke within the last six months
- High number of red blood cells
- Planning to have children
- Unresolved sleep apnea (obstructive breathing during sleep)

Visit endocrine.org for more information.
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 Developed for patients based on Testosterone Therapy in Men with Hypogonadism, an Endocrine Society Clinical Practice Guideline.

ENDOCRINE SOCIETY

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► Physical Changes and Fertility

Below we have provided a list of common physical changes. Changes may be noticeable in 1 to 6 months and will continue throughout life. It is important to know that everyone is different. Things that will not change include height or breast size.

In 1 to 6 months:

- › Balding (depending on your age and family pattern)
- › Deeper voice (permanent effect)
- › Acne
- › Increased and coarser facial and body hair (semi-permanent effect)
- › Change in the distribution of your body fat- to the belly area

- › Enlargement of the clitoris (permanent effect)
- › Menstrual cycle stops
- › Increased muscle mass and strength

If you might want children in your future, talk to your provider about **fertility options** before starting hormone therapy. Even though your periods may stop when you take masculinizing hormone therapy, you should still use birth control if you engage in vaginal sex.

Your provider will recommend that you regularly come for follow up care after these hormones have started. Follow up visits may include physical examinations, measurement of hormone levels and sometime other testing depending on your age and medical problems. Other tests may include a bone density, mammogram, pelvic exam and/or pap smear, sexually transmitted infection (STI) screen and follow up of blood sugar and cholesterol.

Gender-Affirming Surgery

Gender-affirming surgeries can be performed to better align the bodies of transgender and gender non-binary people with their gender identities. Not all gender diverse people need or want gender-affirming surgeries.

› Criteria for Surgery

Facial feminization surgery, chest surgery, and breast augmentation require 1 letter of support from a mental health provider competent in transgender health who determines that the patient meets the World Professional Association of Transgender Health (WPATH) Standards of Care criteria for surgeries. Genital surgery requires referrals and letters of support from two mental health providers competent in transgender health who determine that the patient meets the WPATH criteria.

Some insurance companies do not cover all recommended services, even though they are medically necessary. You should determine what coverage is provided by health insurance with your surgical provider.

► **Masculinizing Surgical Procedures**

Chest-wall contouring/Male Mastectomy (“top surgery”): This procedure removes most of the breast tissue; however, breast cancer surveillance still needs to continue when indicated.

Hysterectomy: This involves the removal of the uterus

Bilateral Salpingo-oophorectomy: This involves the removal of both fallopian tubes and ovaries.

Metoidioplasty: This procedure lengthens the hormonally enlarged clitoris. Can also include formation of a scrotum and closure of the vaginal canal. Urethral diversion may enable standing with urination. Penetrative sex may not be possible.

Phalloplasty: This is a surgical procedure to construct a penis. A penile prosthesis is needed for sexual intercourse.

► **Feminizing Surgical Procedures**

Breast Augmentation (“top surgery”): This procedure increases breast size with fat grafting or implants.

Orchiectomy: This procedural involves the removal of one or both testicles, and can be done in conjunction with other surgeries, such as vaginoplasty.

Vaginoplasty: This procedure creates a vaginal vault, and the vaginal lining may be created from penile skin or part of bowel. An orchiectomy is performed, the labia majora (vaginal lips) are created using scrotal skin, and the clitoris is created from a portion of the penis. The prostate is left in place.

Facial Feminization Surgery: This is when masculine facial structures are changed into a more feminine appearance. Examples include hairline advancement, brow lift, forehead contouring, rhinoplasty (nose surgery), and chin and jaw modification.

Tracheal Shave: This procedure reduces the size of the “Adam’s apple.”

► **Potential Complications**

Potential complications include:

- › Bleeding
- › Infection
- › Wound healing concerns
- › Fistulas
- › Persistent pain or loss of sensation
- › Loss of sexual pleasure and functioning
- › Blood clots
- › Urinary concerns (e.g., incontinence)
- › Pelvic floor dysfunction

› **Questions For Your Healthcare Provider**

- › What treatment options will help to align my body with my gender identity?
- › How will I know when it's time for gender-affirming medication or surgery?
- › What are the side-effects of gender-affirming hormone therapies?
- › What are the potential complications of gender-affirming surgeries?