



# **TRANS BODIES, TRANS SELVES**

**A RESOURCE FOR THE TRANSGENDER COMMUNITY**

**EDITED BY LAURA ERICKSON-SCHROTH**  
**INTRODUCTION BY JENNIFER FINNEY BOYLAN**

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**Laura Erickson-Schroth**

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# MEDICAL TRANSITION

Maddie Deutsch

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**MANY OF US SEEK OUT HORMONE THERAPY** to help our bodies feminize or masculinize. Hormone therapy (sometimes called cross-sex hormone therapy or hormone replacement therapy) involves taking medications that will cause our bodies to develop secondary sex characteristics, such as hair growth or breast development. Understanding our bodies and how hormones will affect us is an important step in having a safe and healthy transition. Some of us may not choose to take hormones. In the end, what is most important to know is that taking hormones can be done in a safe and healthy way, when we work with a trained medical provider and understand all of the ways hormones will change us, including the possible risks.

## HOW HORMONES WORK

Hormones are chemical messengers that deliver instructions to various tissues and organs in the body. Many hormonal functions have nothing to do with sex or gender. Hormones are produced in glands all over the body, including the thyroid (metabolism), parathyroid (bones), pineal gland (secretes melatonin, which controls sleep/wake “circadian rhythms”), adrenal gland (secretes cortisol and other stress-related hormones), and pancreas (insulin for sugar control). There are many other glands and hormones, some of whose function is still unknown, and probably many that have yet to be discovered.

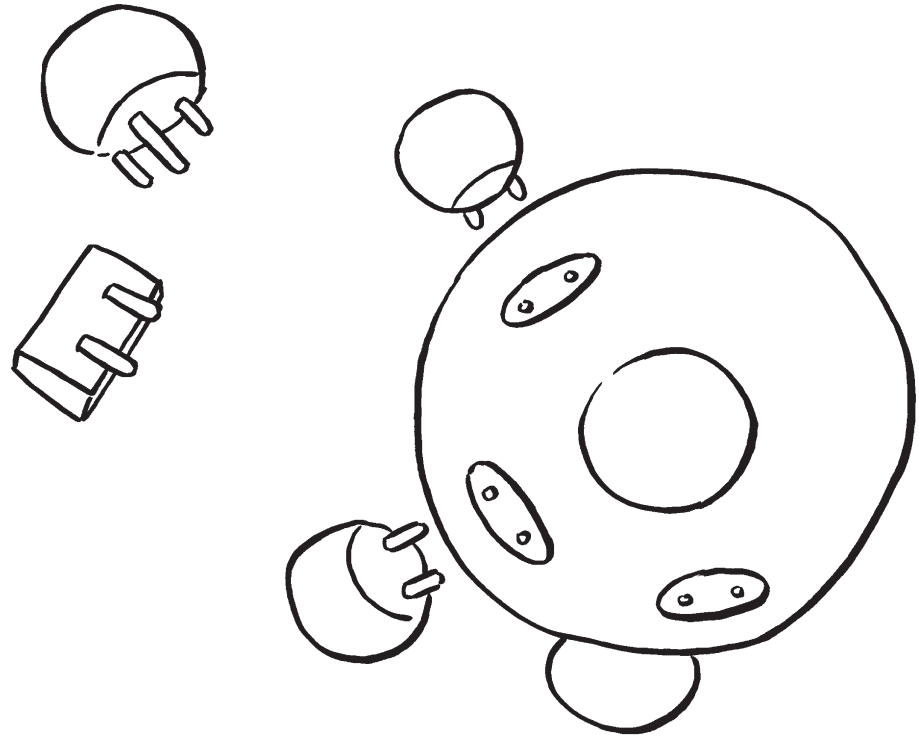
Hormones work through a system of receptors. A receptor is an area on the outside of a cell (or sometimes in its center or “nucleus”) that is specially designed to “fit” one specific hormone. We can think of hormones as keys and receptors as locks. If, for example, an estrogen molecule tries to attach to a testosterone receptor, nothing will happen. When an estrogen molecule finds an estrogen receptor, it is able to deliver its message to the cell. This message might be to tell breast tissue to grow, skin to become softer, or a brain cell to “feel” a certain way. Hormones are floating around in our bodies in a complex soup of messages that all work in balance and opposition to each other and make us who we are.

Hormones are controlled through feedback. The pituitary gland is the master gland of the body, in the brain just behind the eyes and the nose. The pituitary sends messages out to the gonads (testicles and ovaries), telling them when and how much estrogen or testosterone to make. When the levels of estrogen or testosterone reach a certain point, the pituitary receives feedback about how successful it has been, and shuts off its messages to the gonads, so that hormone levels gradually fall until they get low enough to trigger the pituitary to turn on again.

The hormones we typically take as trans people—estrogen, testosterone, and progestogens—are considered sex hormones because they affect our sexual and reproductive drives and capacity. All people, male, female, or otherwise, have all of the sex hormones swimming in their bloodstream. It is the amounts of each of these hormones in relationship to one another that give us the physical characteristics we have. Sex hormones have multiple functions, not all of which are related to sex or gender.

Although estrogen is traditionally thought of as the “female hormone,” all males have a certain amount of estrogen. The normal range of estrogen levels for cisgender males has a small amount of overlap with the normal range of levels for cisgender females. Everyone, including males, needs estrogen. Estrogen is very important for bone health, and males who have problems with their estrogen receptor develop osteoporosis at a young age.

Testosterone is also present in everyone. Cisgender men typically have higher levels than cisgender women, but cisgender women produce testosterone, too, and it helps them with building muscle and maintaining sex drive.



Hormones and hormone receptors (kd diamond).

### Hormone Protocols for Prescribers

- Endocrine Society Guidelines for Endocrine Treatment of Transsexual Persons
- Tom Waddell Health Center Protocols for Hormonal Reassignment of Gender
- TransLine Medical Consultation Service Transgender Lab and Medication Protocol
- UCSF Center of Excellence for Transgender Health Primary Care Protocol
- Vancouver Coastal Health Guidelines for Endocrine Therapy for Transgender Adults
- World Professional Association for Transgender Health (WPATH) Standards of Care

Hormones do not exist in a vacuum; they interact with each other. If you develop uncomfortable symptoms while on hormone therapy, it is important for both you and your provider to keep an open mind about possible causes, including other hormone systems, such as the thyroid, which may have been set off balance when starting hormone therapy.

### BASICS OF HORMONE THERAPY

To explain the effects of hormones, we will categorize them into masculinizing or feminizing. The intention is not to further perpetuate the gender binary or create rigid gender divides. The truth is that there are two ends of the spectrum, and we will choose a certain hormone regimen depending on which direction we want to move.

In general, there has been little (if any) research comparing one regimen to another, or testing the safety or effectiveness of any particular regimen. Current recommendations are based on a combination of expert opinions as well as information based on other ways that hormones are used, such as in menopause, contraception, and testosterone deficiency.

Many people are eager for hormonal changes to take place rapidly. It is important to remember that how much and how fast our bodies change depends on many factors, including genetics, the age we are when we start taking hormones, and our overall state of health. How fast and how much our bodies change is more influenced by these things than by how high of a dose we are taking. Consider the effects of hormone therapy as a second puberty. Puberty normally takes several years for the full effects to be seen. Taking higher doses of hormones will not necessarily bring about faster changes, but it could endanger our health. Because everyone is different, one person's medicines or dosages may vary widely from that of their friends, or what is in books or online.

We can maximize our health and minimize risks and side effects while on hormones by doing a few important things. Eating a healthy and balanced diet with plenty of vegetables and whole grains, and avoiding processed and junk foods, including foods with added sweeteners, provides our bodies with the building blocks they need. In addition to



eating well, our bodies benefit from engaging in frequent exercise (even brisk walking) several times a week and cutting down or quitting smoking. We have been through a lot to get our bodies where we want them to be. Why not do our best to keep them healthy so we can enjoy them for a long time?

#### GENDERQUEER IDENTITY AND HORMONES

Some of us identify as genderqueer. This may mean different things to different people. Some of us want to start on hormones and only take them for a little while, to develop just a little bit of the secondary sex characteristics that will result. It is important to remember that we cannot pick or choose which parts of our body will be affected by hormones. For example, if we wanted to have some facial hair development, but not have any change in the pitch of our voice, and we try to do this by taking just a little bit of testosterone, there is no guarantee that just a little bit of testosterone will not change the pitch of our voice. Despite this, many of us do choose to start hormones at lower doses, and then stop once we like the effect they have on our bodies. There are some medical providers who tell us that we have to fit into the gender binary, and unless we want to be a “full” man or a “full” woman, they will not prescribe hormones for us. This is changing, and a growing number of professionals have begun to be open to prescribing lower doses. We will want to understand exactly what the effects of lower doses might be, though. Talking with our medical providers openly and honestly about what we are looking for is very important.

#### WHY TO SEE A PROVIDER FOR HORMONES

Why should we see a medical provider for hormones? After all, for some of us, hormones are readily available without a prescription from overseas mail-order companies or from street sellers or friends. Why should a trans person decide to access a provider with the associated cost, inconvenience, and possible trauma of going to a medical office?

#### Monitoring of Hormones and Potential Risks

Hormone therapy can be dangerous if not administered properly. Anything we put into our body can have a possible risk. Many of us have heard of the really scary things that are associated with hormone therapy, such as blood clots in the leg or lung in trans women or high hemoglobin (thick blood) causing a stroke in trans men. Even though they are somewhat rare, these risks can be life threatening, and these risks are not the whole story—they are only the tip of the iceberg.

More commonly, a transgender person on hormone therapy will have less serious but still significant side effects that are often overlooked when thinking about risks, because everyone tends to focus on blood clots or thick blood. More common and equally concerning risks that your medical provider should talk with you about include high blood pressure, high cholesterol, weight changes, diabetes, and possible increases in the risk for certain types of cancer as well as benign (noncancerous) tumors.

*“I reverted to internet research and got estrogen from another country. While I exercise, watch what I eat, do not smoke and live a healthy lifestyle, it was discovered during a routine physical that I had had a silent heart attack. That was a huge awakening. I got off the do-it-yourself meds and put myself in the hands of a trusted physician. That was the best move I ever made. All systems are now ‘go’ and my state of mind is the best ever.”*

The Web site for *GLMA: Health Professionals Advancing LGBT Equality* provides a list of health care providers all over the country.

#### Ensuring We Are Taking the Proper Amounts

Like anyone seeking any kind of changes to one’s body, we may be drawn to treatments that promise to deliver amazing results, such as high doses of hormones or free silicone injections. In many cases, these treatments are dangerous and can be life threatening. Many of us want to maximally feminize or masculinize our bodies and are willing to do this at almost any cost. However, the cost can be steep.

Harm reduction models of treatment are more frequently used with clients who are already using hormones, regardless of the source of those hormones. For example, if a client is seeking medical care and has been taking street hormones for a period of time, the provider who follows a harm reduction model is not likely to prevent the trans person from continued access to hormones. The provider recognizes that it may be in the best interest of the client to continue taking hormones, and that in reality, having access to hormones from a provider may be safer than the use of street hormones.

—lore m. dickey, PhD

One important myth to dispel is that taking higher than prescribed doses of hormones will increase the speed of physical transition. This has not been shown to be true. Instead, taking more than normal prescription doses adds nothing to the speed of transition and causes unwanted side effects.

Taking high doses of hormones has a number of risks. Estrogen in high doses can cause blood clots, anxiety, migraines, weight gain, constipation and bloating, and immune system disorders ranging from severe allergies to autoimmune conditions such as lupus or rheumatoid arthritis, where the body's defenses attack itself. There are injectable street hormones that contain a month's worth of estrogen and progesterone. Some of us inject this as often as every day and suffer from migraines, muscle aches, nervousness, and insomnia. There are myths that all estrogen leaves the body after ejaculation or orgasm, but this is not true.

Testosterone in high doses increases the risk of developing dangerously high cholesterol levels or dangerously thick blood (also known as a high hemoglobin or hematocrit). Either of these conditions can lead to strokes, heart attacks, and kidney or eye damage. In addition, testosterone in excess is converted to estrogen in the body, which may cause menstrual cramping or a return of periods.

We work so hard to become the people we are and to have our bodies match our identities. At the same time, many of us abuse those same bodies and put those bodies at risk.

## INFORMED CONSENT

*Laura A. Jacobs, LCSW, is a psychotherapist, activist, and presenter in the New York City area focusing on LGBTQ and sexual/gender minority communities, on the board of directors for Callen-Lorde, and is completing and pursuing publication of her own book, *Many Paths: The Choice of Gender*.*

Informed Consent is about empowerment. The prior Standards of Care, as established by the World Professional Association for Transgender Health (WPATH), required we adhere to a very specific definition of trans identity: an individual was expected to assert that they had always identified as the "other" gender, to be willing to live as the "other" gender before commencing medical interventions, to present in ways that were conventional for the "other" gender, and to be heterosexual as the "other" gender to receive medical care.

Informed Consent arose to combat these authoritarian forces. Developed first at the Tom Waddell health clinic in San Francisco, and spreading in the early 2000s to LGBTQ Health Centers like Callen-Lorde in New York City, Fenway Health in Boston, and the Mazzoni Center in Philadelphia, Informed Consent is a model of care that redefines the relationship of provider and client as one of equals where the individual becomes a partner in determining the course of their own treatment, aware of the benefits and risks.

The development of Informed Consent represents a major piece of trans activism. The effectiveness of this movement is made clear when we see that many of the basic principles of Informed Consent have been incorporated into the most recent version of the WPATH Standards of Care.

## PAYING FOR HORMONES

The cost of obtaining hormones includes both the cost of seeing a health care provider and also the cost of the hormones themselves. Affording hormones can be very difficult for those of us who barely get by.

*"When I first started using hormone replacement therapy, they did not pay for my prescriptions or for the blood work related to them. I was paying entirely out of pocket, and cut down on my food expenses by dumpster diving and stealing food in order to afford transition-related expenses."*

Depending on whether we have insurance and what kind of insurance we have, the amount we are personally required to pay may be very high or very low. Some insurance plans do not cover prescriptions of any kind, whether they are for hormones or other medications. Some companies will pay for hormones knowing that we are transgender and that the hormones are being prescribed for that reason. Other companies specifically exclude any



Trans Healthcare Now (San Francisco Pride March, June 24, 2012). Photo by Liz Highleyman.

kind of transgender care but will pay for hormone prescriptions if the hormones could be used for other purposes than transitioning.

For those of us who have insurance that covers hormones, we often still have to pay part of the cost ourselves. This is called the copay. There may also be a deductible, which is an amount of money that we have to pay ourselves in that particular year before the insurance company will start paying any portion of our prescriptions.

*“I have medical insurance, but transition is out of pocket and covering treatment has been a challenge financially, but I’ll make it.”*

*“I have medical insurance through my place of employment. So far, at least, my gender-related care has been treated like any other medical condition by my insurance company. I pay deductibles and a copay, and they cover quite a bit of the rest of it. I am just barely able to afford my part of all this.”*

*“I have insurance but it has not covered most transition-related expenses. It explicitly covers gender reassignment surgery, so it was forced to pay for my top surgery but other expenses like doctors’ visits, hormones, and blood work are more of a gray area and my insurance is allowed to reject claims at their discretion. So far I have had trouble getting them to cover visits to the psychiatrist to be cleared for surgery, hormones, needles, and blood work.”*

Hormones can vary significantly in cost depending on where we buy them. With a prescription from a health care provider, we may go to a local pharmacy, discount pharmacy, or compounding pharmacy, or send the prescription away to a mail-order pharmacy. Some insurance companies even have their own mail-order pharmacies.

*“Currently I pay \$10 per month for all three of my medications using a discounted mail-order pharmacy that has a partnership with my insurance company. If I were to purchase these medications at another pharmacy, it would cost about \$30 per month.”*

In many cases, large pharmacy and big-box warehouse-type chains offer deep discounts on generic medications. However, transgender people sometimes take higher doses of

certain medications than the standard dose used in cisgender people for other issues, and the pharmacy may only offer the reduced rate for the standard dose.

Compounding pharmacies make their own medicines in house. Many compounding pharmacies offer products similar to commercial pharmaceuticals at a lower cost. Because compounding pharmacies make their own blends, they are not standardized from one pharmacy to another. A dose of 1 mg at one pharmacy may be equivalent to 2 mg at another pharmacy. Be sure both you and your provider are informed about compounding pharmacies and their products before filling your prescriptions with them.

Some of us attempt to save costs by obtaining our prescriptions from overseas, Canadian, or Mexican pharmacies. In some cases, there may be significant savings. In other cases, the savings are minimal and not worth the hassle of waiting months at times for our medicines to clear customs. Laws may govern how much or what kind of medicine can be imported. Some of these pharmacies are in countries where a prescription is not needed for medicines like hormones.

*“Insurance doesn’t cover my meds. So even though I have legitimate prescriptions, I buy my meds overseas (online) from the same sources that are frequently used by trans women and men lacking prescriptions.”*

*“Having private insurance disqualified me from both the sliding-scale discount and from Medicaid. During that time, it was cheaper for me to order my hormones from the Internet rather than pay full price at the clinic. I paid roughly \$50-75 per month for estradiol, spironolactone, and medroxyprogesterone (Provera) combined.”*

The US government is cracking down on prescription medicines ordered from abroad without a prescription. For this reason, many people still obtain written prescriptions from a provider, even if using an international pharmacy. A written prescription makes sure we order the correct prescription, helps the medicine clear customs more easily, and protects us if we are ever asked to provide a prescription for any medication we take that is a controlled substance, such as testosterone. If you do choose to order from an international pharmacy, be sure to do your homework. Ask around and learn about what pharmacies other transgender people have used. Do your best to be sure you are getting medicine that is not mislabeled, expired, tainted, or falsified.

## MEDICAID AND TRANS BODIES

*Pooja Gehi and Gabriel Arkles are affiliated with the Sylvia Rivera Law Project.*

As the wealth divide between rich and poor grows, trans people are especially likely to be poor because of the discrimination they experience. Because they are less likely to be able to get health insurance through a job, school, spouse, or partner, and because they often can’t afford to buy health insurance on their own, many trans people don’t have any health insurance. When they do have health insurance, it’s often Medicaid.

One big problem for a lot of trans people who get Medicaid is that they usually can’t get gender-affirming health care covered. Some state Medicaid programs have rules that specifically exclude this care from coverage, even though federal law forbids discrimination. Other Medicaid programs don’t have rules like that, but administrators still deny gender-affirming care. Sometimes trans people get wrongly denied Medicaid or programs put the wrong name and gender on trans people’s Medicaid cards. The media doesn’t help. It seems like any time there is a rumor that a trans person got Medicaid to pay for any sort of gender-affirming care, some news story runs decrying tax payer money going to “sex changes.”

People across the nation are doing amazing work to fight back against discrimination that trans people face when trying to access Medicaid and the health care they need. For example, in New York City a group called the Welfare Warriors—made up of transgender Medicaid recipients and members of the Audre Lorde Project, The Sylvia Rivera Law Project, Housing Works, and Queers for Economic Justice—negotiated with the New York City welfare department to create a new nondiscrimination policy. A lot of different groups of people have problems with getting access to health care they need through Medicaid. If groups dedicated to reproductive justice, immigrant justice, economic justice, disability justice, and trans justice all work together, we can make a lot more change.



## GETTING HORMONES FROM A REPUTABLE SOURCE

Hormones that are not received and packaged by a pharmacy are not regulated, so they can contain substances other than what someone says they contain. However, some of us seek out alternative sources for our hormones, over concerns about cost or privacy.

Ordering hormones over the Internet can be problematic. These hormones may be counterfeit, expired, or may contain other medications or substances. They may be delayed for months at customs or even be confiscated. Availability may fluctuate, so that a hormone which was available 3 months ago is now out of stock, requiring frequent changes of regimens or dosing, which can cause unpleasant side effects.

Getting hormones off the street can offer the same dangers, and in many public clinics, the cost of seeing the provider, obtaining labs, and purchasing the hormones from the pharmacy is less than the local cost of street or black-market hormones. Not only is it safer to use provider-prescribed hormones, it can often be cheaper.

Getting hormones from a reputable source can also come with other benefits. A prescription for hormones means that we have a written, official document that explains why we are carrying medicine or needles. Should we require medical care for an unrelated condition, such as a car accident, heart attack, or psychiatric visit, having a prescription for our hormones will help legitimize our treatment in the eyes of other providers. Many providers will also write a care (also known as “carry”) letter for us. This can be used in numerous situations, including if we have to deal with law enforcement or are arrested.

### SAMPLE CARE/CARRY LETTER

Month and Day, Year

To Whom It May Concern,

John Doe (formerly known as Jane Doe), D.O.B. 3/5/1970 is a patient with whom I have a provider–patient relationship and who is under my care. I am a Licensed Physician in the state of \_\_\_\_\_, License #X12345, DEA# ZZ1234567.

Mr. Doe is a female-to-male transsexual and has undergone all medically necessary treatments for transition from female to male; his transition is complete. (*Note to letter writer: Transgender identities and the transition process are poorly understood by many people. It is best to not confuse them and simply always state that the transition is complete.*) He should be referred to using his preferred name of Joe and male pronouns such as He and Him. He should be allowed access to male facilities such as bathrooms, changing rooms, and airport screening. His documents, such as driver’s license and US passport, should be amended to the male gender.

The process of changing one’s sex both medically and legally is complex and may sometimes take up to several years to complete fully. Because of this, Mr. Doe may currently have some identity documents that do not reflect his gender identity or name. Thank you in advance for giving Mr. Doe assistance and understanding. Please feel free to contact me directly should you have any questions or concerns. Sworn as correct under penalty of perjury on Month and Day, Year in City, State.

Sincerely,

Name of Doctor, M.D./D.O.

123 X St, City, State, Zip Code

Phone number

## TRANSMASCULINE HORMONE THERAPY

The primary aim of transmasculine hormone therapy is to add testosterone (T) to the body. No blocking of estrogen is needed because testosterone causes changes that override many of estrogen’s mechanisms. There are numerous temporary and more permanent changes that occur with testosterone. These include changes in strength and body fat distribution, as well as alterations in libido and sexual functioning. Some may be desired and some may not be.

### Testosterone Regimens

Testosterone comes in several forms. Most transgender men use an injectable form to start. Some choose to begin on a lower dose and increase slowly, while others choose to begin at a regular dose. Both approaches have their pros and cons. Testosterone levels tend

For those of us who do end up obtaining hormones outside of the care of a medication provider, there are ways we can protect ourselves from further risks. Never share hormones with anyone else or use anyone else’s hormones, especially injectable hormones. Diseases such as HIV and hepatitis can be spread this way (even if clean needles are used) if the hormone in the vial has not been properly stored or prepared.

## TRANS POLITICAL LEADERS: SARAH BROWN

Jamie Roberts and Anneliese Singh

Sarah Brown was elected in 2010 as a Councillor for the Cambridge (United Kingdom) City Council. Her international prominence began when a media report came out about patients of Dr. Richard Curtis, a private physician well known and admired by the trans community. The report claimed there were patients accusing Dr. Curtis of misdiagnosing them and administering medical procedures that they later regretted. The trans community noticed that the report was written by David Batty, a journalist with the *Guardian* who had leveled the same accusations against Dr. Russell Reid, also well regarded by the trans community, 5 years earlier. Brown, frustrated by the media focus on a very small number of people who regretted their gender transition, leveraged her platform as a trans office holder in Cambridge to seize the moment to reframe the debate to shed light on how trans stories are portrayed. She created the Twitter hashtag #TransDocFail, which the trans community in the UK used to demonstrate why they seek medical care outside the National Health System, to find sympathetic doctors, and to vent frustration over mistreatment suffered at the hands of health providers in the national system. Thousands of trans people across the UK have shared their stories.



Sarah Brown, Liberal Democrat councillor and LGBT rights campaigner.

to be most even over time when injections are given weekly, but some of us use injections every two weeks or even every month.

*“I use testosterone enanthate (Primoteston) 250. With the pharmacy I get it from now it costs me \$31 for a 9 week supply. . . Though I get the needles, sharps containers, and medicated swabs for free from a needle exchange. The syringes come with needles to use but they’re too big so I change them to a 21g needle.”*

There are different techniques for injection, and we should always talk explicitly with our health care provider about the one that is recommended for our medication. Intramuscular (IM) injection is giving a shot into the muscle. Subcutaneous (SQ) injection is done directly under the skin.

In addition to injections, there are also transdermal forms of testosterone, including patches, gels, and creams. These methods can be beneficial in those of us who do not like needles. They may also provide a more even amount of testosterone in our blood over time. In some men, these forms cause changes to progress at a slower pace. Be sure to keep these medications away from children and also away from any adults who do not wish to masculinize their appearance.

*“Testosterone patches and gels are much more expensive, and with insurance coverage were costing me \$30 a month, five years ago. I used them only for a short time due to the increased expense.”*

*“Right now I am using testosterone cream but I am about to switch to injections. I have a huge phobia of needles, but once my health insurance ends next month, the cream will be prohibitively expensive. I need to learn to self-inject, but I am so nervous.”*

*“I prefer the injections to the cream for a few reasons. I don’t have to remember to take my medications every day on the injectable and there is less mess with injectable. Plus I have seen changes faster on the injectable.”*

Regardless of the type of testosterone we are taking, adding more will not make changes progress more quickly, but it could cause serious health complications. There is no such thing as a full, half, or quarter dose. Each person has their own dosing needs and care should be taken to avoid making comparisons to the doses our friends are taking. Excess testosterone can be converted to estrogen, which may increase our risks of unwanted side effects and possibly even cancer. High doses can make us feel anxious or agitated, and they can cause our cholesterol or blood count to get too high.

The best way to monitor a testosterone dose to make sure it is correct is to take note of the changes it causes and any side effects. Health care providers may not follow testosterone levels, but instead they use what clients tell them about how they are doing to make changes to prescriptions. This is because the goal of treatment with testosterone is not to have a certain testosterone level, but to look and feel differently. Cisgender men have testosterone levels that vary significantly from person to person. Testosterone levels often cost more than other labs because they are not considered routine. There are a few instances in which a health provider may check a testosterone level. For example, if someone is taking a regular dose of testosterone, but not seeing any changes to their body, the provider may want to see whether testosterone blood levels are within a normal male range. They may also want to check a testosterone level if someone is having unpleasant symptoms or ongoing vaginal bleeding.

### **Physical Changes on Testosterone**

Physical changes with testosterone can be exciting for many of us. For most of us, there will be some that are welcome and some that are less welcome. Some of the effects of hormone therapy are reversible if we decide to stop taking testosterone, but there are a number of changes that are more permanent. The degree to which they can be reversed depends on how long we have been taking testosterone. Clitoral growth, facial hair growth, voice changes, and male-pattern baldness are not reversible.

The first noticeable change with testosterone is usually that the skin becomes thicker and oilier. The pores become larger and there is more oil production. We may develop acne. The amount of acne depends on a number of factors, and some people are more prone to acne than others—some of us had acne during our first puberty and others of us did not. In some cases the acne caused by testosterone can be bothersome or severe, but it can usually be managed with good skin care practices and common acne treatments. We may also notice that the odors of our sweat and urine change and we may sweat more overall. Some of us notice that when we touch things they seem to feel somewhat different, and we may perceive pain and temperature differently.

*“I’ve got increased muscle mass, and my skin is a lot more oily. Also, I’m a lot hungrier.”*

*“I take weekly T shots. They’ve shifted my body fat, my voice changed (thankfully), and I got facial and chest hair!”*

*“My voice has lowered and changed tone. I cannot make it high anymore. I’ve grown hair in places I expected (i.e., face) and places I didn’t expect (i.e., knees). I vary between having a lot of acne and not so much.”*

The chest does not typically change a lot during transition, though there is sometimes some breast pain or a slight decrease in size. There is no evidence that starting testosterone therapy before having chest reconstructive surgery changes the outcome of surgery.

On testosterone, our body weight begins to distribute differently. Fat diminishes somewhat around the hips and thighs. Our arms and legs develop more muscle definition, and a slightly rougher appearance, as the fat just beneath the skin becomes a bit thinner. Some of us also gain fat around our abdomen, the beginnings of the development of a “gut.” Some trans men on testosterone notice minor changes in shoe size or height. This is not due to bony changes but to changes in the ligaments and muscles of our feet and spinal column.

There are some facial changes on testosterone. Our eyes and face will begin to develop a more angular appearance as facial fat decreases and shifts. It is not likely that our underlying bone structure will change, though some people in their late teens or early twenties may see some subtle bone changes. It may take two or more years to see the final result of facial changes on testosterone.

Whether we gain or lose weight on testosterone depends on a number of factors. Muscle mass will increase, as will strength, but weight is also affected by diet, exercise,

and genetics. Some of us may find that our appetite increases. Some trans men will need more calories and protein—especially those who are vegan or vegetarian.

*“I gained a lot of weight then lost a lot. Now I’m thinner than I was before. My muscles and veins are more prominent. My butt is flatter.”*

*“Since I am a triathlete, I have noticed that my running is much faster as are my cycling and swimming times.”*

*“I have more muscle mass now, and my muscles have been stiff lately, I think because they’re growing.”*

Testosterone causes a thickening of the vocal cords, which will result in a deeper voice. Not all trans men will experience a full deepening of their voice with testosterone, and some men may find that practicing various vocal techniques or working with a speech therapist helps to develop a voice that feels more comfortable and fitting. Voice changes may begin within just a few weeks of starting testosterone, first with a scratchy sensation in the throat or feeling like you are hoarse. Next, your voice may break a bit as it finds its new tone and quality. Voice deepening on testosterone is a permanent change, and thus it is something to consider when deciding to take testosterone.

On testosterone, the hair on our bodies, including our chest, back, and arms, will increase in thickness, become darker, and will grow at a faster rate. We can probably expect to develop a pattern of body hair similar to other men in our family, but everyone is different. It can take five or more years to see the final results for hair growth.

*“I have been taking testosterone for exactly 646 days now. My voice has dropped considerably. Facial hair has come in to a considerable extent. My hairline has changed to a more typical male pattern. I have begun growing some chest hair and I have a formidable happy trail. My whole body’s features have altered slightly as fat distribution has changed and I have become stronger and somewhat more muscular.”*

*“When I began taking T, my voice dropped an octave (over time), and it was great. I’ve also developed more muscles, have less ‘softness’ and less ‘flab’ in general, and I am actually an inch taller, and I wear a lot larger shoes than I used to. I had to throw out all my old shoes, in fact, even though most of them were men’s already. I’ve also developed a male hairline, and jaw line, and my facial features in general have become more square and masculine, which is great. I’m a lot hairier all over, in fact.”*

Regarding the hair on our heads, most trans men notice some degree of frontal scalp balding, especially in the area of the temples. Depending on our age and family history, we may develop thinning hair, male pattern baldness, or even complete hair loss. If we are older when we start testosterone, we are more likely to begin balding right away when we start testosterone. Beards vary from person to person. Some people develop a thick beard quite rapidly and others take several years, while some never develop a full and thick beard. This is a result of genetics and the age at which we start testosterone therapy.

*“I inject ‘T’ every week and have for about 8 years now. Even after all this time I am still experiencing changes. My facial features have changed. I have some facial hair, but that is because of my genetics. I am half bald (able to do the comb-over if I let it grow out). I have hair under my arms and on my legs but not a lot on my arms, again genetics. My muscles have changed shape and I went through what I called growing pains through those changes.”*

*“I have taken T for over 6 years. I can grow a full beard, my voice is lower, I have a more male body shape, and I am losing my hair.”*





Dane and Erin in the nursery (Arthur Robin Williams MD, [www.MyRightSelf.org](http://www.MyRightSelf.org)).

### **Emotional Changes on Testosterone**

Puberty is a roller coaster of emotions and the second puberty we experience during our transition is no exception. We may find that we have access to a narrower range of emotions or feelings; have different interests, tastes, or pastimes; or behave differently in relationships with people.

Some people describe feeling more amped up or angry on testosterone. While this may be a reality for some of us, many of us say that we feel calmer. Popular media tells us that testosterone is a “male” hormone and should therefore make us more stereotypically male, often meaning more aggressive. In the same way, we are taught that estrogen, as a “female” hormone, causes us to be more emotional. However, some trans men say that they have more connection to their feelings after starting testosterone. Emotions are extremely complicated and depend on all sorts of factors—including how comfortable we feel as ourselves.

*“The only emotional change I’ve noticed is that things like Hallmark commercials evoke a strong emotional response immediately. I tear up a bit, or feel like I’m going to. This happens over weird things, too. I’ve described it as tearing up over ‘the slightest hint of conviction.’ I was a little like that before testosterone, but it’s increased a lot.”*

*“I am happier. I used to have a feeling of walking through molasses which is associated with depression; that feeling is gone and I have more energy and confidence.”*

*“My mental changes have come drastically in such a short time. I already feel much more confident, and much more in tune with my body, like a missing piece has finally been put back in its place.”*

For some of us, hormones have a strong effect on our emotions and how we relate to others. Psychotherapy is not for everyone, but most of us have the potential to benefit from counseling that helps us to explore our new thoughts and feelings.

### **Sexual and Reproductive Changes on Testosterone**

Many trans men report that one of the earliest effects of testosterone is a significant increase in sex drive (also known as libido). Some say that sexual arousal can come unexpectedly and more frequently. Sometimes our sexual preferences broaden to include people we may not have been attracted to before. Some of us use erotic images (pornography) more than we did before. This is all healthy—as long as it feels healthy to us.

It is important to take time to give ourselves sexual pleasure, whether through masturbation or through sex or mutual masturbation with a partner. It can be helpful to talk openly with our partners about changes in our libido or attractions. If we find that we are sexually aroused several times a day but our partners are not interested in sex this frequently, discussing the effects that testosterone has on libido may help everyone feel reassured. We may need to take time for private masturbation. Our partners can also benefit, too. If our sexual attractions expand, we may be interested in trying something our partners have wanted that we were not interested in before. The most important thing is open communication.

If libido changes are concerning or uncomfortable, there are things we can do to address them. Talking to our health care provider is a good first step. The provider may recommend changing how we take testosterone and how much we take. Taking a lower dose overall may help. For trans men injecting testosterone, taking a smaller dose at more frequent intervals can decrease fluctuations in testosterone levels, thereby evening out sex drive. In addition, there are some medicines that decrease sexual arousal (as a side effect), and it may be possible to take a low dose of one of these medicines to temper libido.

As we begin taking testosterone, our clitoris/phallus enlarges. The increase in size is different for different men, but research has shown that those of us who start hormones at a younger age have more growth (Gooren et al., 2008). However, the differences in growth between trans men who start testosterone earlier and later are small. For many of us it is exciting to see phallic growth. However, it can be a new sensation to have something protruding that rubs against our clothes and becomes large and erect. For some of us, this takes getting used to.

*“My clitoris has enlarged quite a bit, my voice has become scratchy and unstable. I now have a visible adam’s apple protruding from my throat. I am more easily aroused, and I have very bad acne on my face and back.”*

*“Over the past eight weeks, my voice has started to change and my dick has started to grow, along with my inner labia.”*

#### **NONSURGICAL TECHNIQUES USED TO ENLARGE THE PHALLUS**

*Nick Gorton, MD*

Testosterone increases the size of the clitoris/phallus. Some of us look for other ways to continue to increase our phallus size. There are no research studies that suggest ways to accomplish this. Two commonly used methods are the application of testosterone creams and the use of genital pumps. If properly done, there is little risk and there *may* be a small benefit.

In the United States the only available cream is testosterone. In other countries, cream containing dihydrotestosterone (DHT), a stronger hormone than testosterone, is available. Research in cisgender men with genetic conditions that result in an unusually small penis suggests that topical treatments can be somewhat effective. However, this does not mean that the same is true in transgender men. It is important to remember that testosterone (or DHT) applied to the phallus is absorbed into the body, so any topical dose needs to be calculated into the total dose of testosterone. In addition, DHT is the hormone most responsible for male pattern baldness. In fact, a popular medicine to treat baldness—finasteride (Propecia)—works by decreasing the amount of DHT in the body. Just as medicines like finasteride could theoretically decrease the amount of DHT in the phallic area and decrease enlargement, DHT absorbed from the phallus could theoretically increase the chance of baldness.

Some surgeons recommend their patients use pumping techniques. Some trans men report that they have an increase in the size of their phallus after pumping for some time. There is no evidence as to whether this method is effective. It is important to follow the suggestions of the surgeon about frequency and duration of pumping. If any pain or numbness is experienced, pumping should be stopped and not resumed until advised it is safe by a health care provider.

Many trans men develop heavier genital hair after starting hormones. Testosterone affects all the hair on our bodies, not just the hair on our heads. We may also develop hair on our buttocks and lower abdomen that meets the top of the pubic hair. For many of us this is welcome, but if it is not welcome for you, hair removal (both temporary and permanent) is possible.

Some trans men have increased or decreased vaginal fluid production. Increased fluid production is usually associated with increased libido. Dryness can happen because estrogen levels may fall when starting testosterone. Vaginal dryness and itching often occur in postmenopausal cisgender women and can occur in some transgender men as well. If this happens, using over-the-counter lubrication can help. If dryness or itching persists, our health care providers will have information about additional treatments available.

Testosterone typically causes menstruation to stop within two or three cycles. A few trans men report that starting testosterone stops menstruation immediately. Some of us have persistent occasional bleeding or may not stop menstruating at all. Stopping menstruation is important to some of us, but not to all. Even after bleeding stops for over a year, it can sometimes recur. If we stop taking testosterone (or miss a dose or take a lower dose), bleeding can occur. Even after starting testosterone it is a good idea to have supplies like tampons or pads at home in case of irregular bleeding.

*“I’ve taken testosterone for three years. The changes I have seen and felt included a dramatic reduction in menstrual bleeding. I have had three episodes of peeing pink for a week in three years, versus bleeding heavily for about two weeks per month.”*

*“I inject testosterone enanthate once a week. The cost is \$10-15 a month. Changes so far include a higher libido, growth of clitoris, more muscle mass, more appetite, increased strength, coarser skin, more and coarser facial hair, weight gain (mostly in the belly area), and end of my menstrual cycle.”*

If you have trouble getting bleeding to stop once on testosterone, talk to a health care provider. This may be due to low levels of testosterone or occasionally may happen even with typical male levels. If levels are low and it is appropriate to increase your dose, your provider may do so. Another possible way to stop bleeding is by adding a dose of a progestogen either by taking a daily pill or by using progestogen-containing birth control methods like injected medroxyprogesterone (Depo-Provera) or etonogestrel implant (Nexplanon). Medications like these have the added benefit of good contraception for those of us who choose to have receptive vaginal sex, though they do not protect against sexually transmitted infections (STIs). Another option is a progestogen-containing intrauterine device (IUD), which is also effective for contraception.

If you experience unusual bleeding despite taking your usual dose of testosterone, see a provider right away to evaluate for the presence of precancerous or cancerous changes in the uterus.

Pelvic pain is a common problem in those of us assigned female at birth. Trans men can have pelvic pain before, during, or after initiation of hormone therapy. Some report that pelvic pain improves after starting testosterone. However, a frequent complaint is a cramping pelvic pain that occurs during or after orgasm. This can be mild to severe, and it can happen occasionally or frequently. This may be similar to the postorgasmic pain that some cisgender women experience during and after menopause, and it may be related to decreased estrogen levels from taking testosterone. Trans men who have this pain frequently may need to see their health care provider about this, although for most this is an

TransLine ([www.project-health.org/transline](http://www.project-health.org/transline)) is a free national online transgender medical consultation service that offers health care providers up-to-date clinical information on trans health and individualized case consultation across a broad range of clinical issues.

occasional or mild problem. Some people take an anti-inflammatory medicine (such as ibuprofen or naproxen) one to two hours before sex.

Taking testosterone greatly reduces our ability to become pregnant, but it does not completely eliminate the possibility. Transgender men can become pregnant while on testosterone, so for those of us who remain sexually active and have penile-vaginal sex, we should always use a method of birth control to prevent unwanted pregnancy. If you suspect you may have become pregnant, discontinue testosterone treatment and see your provider as soon as possible, as testosterone can endanger the fetus.

Depending on how long we have been on testosterone therapy, it may become difficult for our ovaries to release eggs, and we may need to use fertility drugs or expensive techniques such as in vitro fertilization to become pregnant. It is also possible for testosterone therapy to cause us to completely lose the ability to become pregnant.

### **Risks and Side Effects of Taking Testosterone**

Some of the physical, emotional, and sexual changes brought on by testosterone may be unwanted for some of us. What is considered a side effect depends on the person. In addition to the predictable changes, there are also some medical risks that come with taking testosterone. Testosterone can affect our red blood cells, cholesterol, liver, and possibly increase our risk for certain types of cancer.

Testosterone increases the production of red blood cells, which is measured as hemoglobin or hematocrit. Cisgender men generally have higher hemoglobin levels on labs than cisgender women do because testosterone affects hormones that stimulate the bone marrow to produce our blood cells, and also because cisgender men do not menstruate. When we start taking testosterone, there is usually an increase in hemoglobin/hematocrit, putting us in the normal male range. It is important that medical providers know that once we start taking testosterone, all of our labs should be compared to normal male levels. Hemoglobin is an important lab to monitor because of the risk that taking testosterone could increase the hemoglobin level too much, causing our blood to become too thick, and leading to strokes or heart attacks. This can be a problem if we are taking a dose that is too high. It can also be related to the frequency of doses. Those of us taking testosterone every two to four weeks instead of every week will have more peaks in our testosterone levels, which can cause more red blood cells to be made.

Cholesterol is another lab value that can change on testosterone. Like high hemoglobin, high cholesterol can be a “silent killer,” as it causes few symptoms, and by the time we develop serious conditions such as coronary artery disease (narrowing of the arteries in the heart), heart attack, or stroke, the damage has already been done. Testosterone frequently raises our “bad” (LDL) cholesterol and lowers our “good” (HDL) cholesterol. A provider will be able to monitor cholesterol with a simple blood test obtained after an eight-hour fast. This test is generally done in the morning before breakfast. In addition to making sure we are on the correct dosage of hormones, a provider will be able to help us control our cholesterol, either through diet, exercise, supplements, or medication if needed.

*“Right from the beginning my doctor diagnosed me with high cholesterol and started prescribing meds to keep that down.”*

In addition to hemoglobin and cholesterol levels, our providers will also run periodic tests of our kidney and liver function, as well as a diabetes screening test. All steroid hormones, including testosterone, can affect our liver because that is where our body breaks them down. Testosterone can also cause shifts in our body weight and fat distribution, and it can sometimes affect our likelihood of developing diabetes.

As a result of testosterone treatment, our overall health risk profile can change. Our risk of heart disease, diabetes, high blood pressure, and high cholesterol may go up, though these risks may still be less than a cisgender man’s risks. However, there are no data to suggest that trans men live any shorter lives than cis women.

The risk of certain types of cancer may be increased by taking testosterone, although we know very little about the risk at this point. Uterine, cervical, ovarian, and breast cancer are all possible in those of us who still have these organs, whether we take testosterone or not.

Endometrial (uterine) cancer typically develops after a thickening of the uterine walls called endometrial hyperplasia. The lining of the uterus grows very thick, and ultimately so thick that some of it begins to slough off and there is spotting or what may seem like a period. This highlights the importance of talking to a provider if you develop any spotting or bleeding after a time without any menstruation. While there is often another explanation, such as changing testosterone dose, the provider may want to order an ultrasound of the uterus, a biopsy of the uterus, or both. A biopsy of the uterus is similar to a Pap smear, using a speculum. During the procedure, the provider will pass a small tube that looks like a coffee-stir straw through the cervix and into the uterus to extract some uterine tissue. The procedure can cause some cramping or a little bleeding. For an ultrasound, a probe may be inserted into the vagina to allow the provider to get a detailed look at the uterus. While both of these procedures are unpleasant, and may dredge up a flurry of emotions relating to our gendered organs and anatomy, they can be lifesavers. Endometrial cancer has been linked to increased levels of estrogen. Because testosterone is converted to estrogen by the ovaries and by fat cells, excess testosterone will be converted to estrogen. This makes it theoretically possible that testosterone increases our risk of endometrial cancer. However, very little research exists on the risks of endometrial cancer in those of us taking testosterone.

It is unclear whether testosterone treatment causes an increased risk of ovarian cancer. Ovarian cancer is a vicious illness and most cases of ovarian cancer, whether is transgender or cisgender people, are discovered after it is too late to be treated. There is no simple blood or imaging test to screen for this condition. A periodic pelvic exam, where the provider uses a gloved hand to examine the vagina, uterus, and ovaries, may be useful to help detect this condition. There are not sufficient data to make inferences about whether trans men taking testosterone have increased, decreased, or similar levels of risk to cisgender women. At present the only way to screen for ovarian cancer is by taking a detailed family history to learn about any breast or ovarian cancer history in the family.

Our risk of cervical cancer relates to our past and current sexual practices because it is caused by the sexually transmitted infection human papilloma virus (HPV). There are many ways to be exposed to HPV, and we can still acquire it even if we have never had penile-vaginal sex. There is no known link between taking testosterone and developing cervical cancer, but testosterone does have a tendency to cause decreased lubrication and vaginal wall thinning, which could potentially lead to more breaks in the tissue, allowing HPV to be transmitted more easily. Pap smears are used to screen for cervical cancer and for precancerous conditions caused by HPV.

Some experts recommend a full hysterectomy and bilateral salpingo-oophorectomy—which would include removal of the uterus (hysterectomy), ovaries (oophorectomy), and fallopian tubes (salpingectomy)—5–10 years after beginning testosterone treatment to minimize the risk of cancer and eliminate the need for screening. This is not a general recommendation at this time. For those of us who have our ovaries removed, it is important to remain on at least a low dose of hormones until we are 50, and perhaps older, to prevent a weakening of the bones, otherwise known as osteoporosis.

Testosterone treatment does not seem to significantly increase the risk of breast cancer, but there are not enough data to be certain. Recent research shows that testosterone does not seem to change the risk of breast cancer from where it was for us before testosterone. In other words, if before starting testosterone we had a 16% lifetime risk of developing breast cancer based on our overall risk factors, taking testosterone will not increase (but also might not lower) our risk. It is important to receive periodic mammograms or other screening procedures as recommended by a provider. After chest reconstruction surgery, there is still a small amount of breast tissue left behind. It may be difficult to screen this small amount of tissue for breast cancer, but it should be attempted.



## TRANSITION-RELATED HEALTH CONCERNS FOR PEOPLE OF COLOR

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Some important transition-related medical issues predominantly affect people of color. Estrogen, and to a lesser extent progesterone, can cause uneven skin pigmentation, or melasma, mainly on the cheeks and the forehead. This skin condition predominantly occurs in people with darker skin tones, and it may affect up to 20% of those who initiate hormones. Sunblock (SPF 30) can be used daily for prevention when starting hormones. Treatment for this condition includes prescription skin creams to reduce the pigmentation.

Acne is a common issue affecting transgender men who start testosterone. In people of color, especially those of African descent, acne may result in darkened spots, called postinflammatory hyperpigmentation. These spots may resolve on their own, but they may require prescription-strength creams to lighten the areas. Many acne medications, such as benzoyl peroxide, are available without a prescription, or you can request a prescription-strength treatment from your medical provider.

Pseudofolliculitis barbae, or razor bumps, can affect trans men on testosterone. The condition mainly affects African Americans and those with naturally curly hair. After shaving, the hair curls and re-enters the skin, causing bumps. If the condition continues, it can result in hyperpigmentation (dark spots), infection, and keloids (scarring). Prevention techniques include allowing facial hair to grow, using single-blade (avoid double- or triple-blade) razors, and shaving along the grain, as well as early treatment of infection.

People of color may be more prone to keloids, or abnormal growth of scar tissue, after undergoing surgery. Keloids predominantly affect African Americans, but they can affect anyone with darker skin tones. Keloid formation after top surgery is especially concerning for trans men. For those with a history of scar formation, the surgeon may opt to reduce the risk of keloids by injecting steroids or using silicone elastomer sheeting. Once keloids have occurred, treatment may involve steroid injections, surgical revision of the scar, and topical treatments.

## TRANSFEMININE HORMONE THERAPY

The primary focus of transfeminine hormone therapy is to reduce the testosterone levels into the female range using a testosterone blocker, while providing a relatively low dose of estrogen to bring estrogen levels into the female range. Changes that occur on these medications can be temporary or permanent. One important permanent change to be aware of is that our ability to have biological children after taking transfeminine hormones can potentially be taken away. Other changes include decrease in strength and shifting in body fat distribution. We may desire certain changes and not others.

### Transfeminine Hormone Regimens

Hormone therapy for trans women may include three different kinds of medicines: estrogen, testosterone blockers, and progesterone.

Estrogen is the hormone responsible for most female characteristics. It causes the physical changes of transition and many of the emotional changes. Estrogen may be given as a pill, by injection, or in a number of skin preparations such as a cream, gel, spray, or patch.

Pills are convenient, cheap, and effective, but they are less safe for those of us who smoke or are older than 35. They are more likely than other methods to lead to blood clots. Patches can be very effective and safe, but they need to be worn at all times. They can also irritate the skin.

*“I use a generic estradiol patch. It costs about \$60 for a month’s worth.”*

Many trans women are interested in estrogen through injection. Estrogen injections tend to cause very high and fluctuating estrogen levels, which can cause mood swings, weight gain, hot flashes, anxiety, or migraines. Of note, these side effects can be seen with any regimen—not just injections, and especially if the dose is high. Little is known about the effects of the peak levels caused by injections over the long term. If injections are used, it should be at a low dose with an understanding that there may be uncomfortable side effects, and that switching off of injections to other forms of estrogen may cause mood swings or hot flashes.



Ashley at the breakfast table (Arthur Robin Williams MD, [www.MyRightSelf.org](http://www.MyRightSelf.org)).

*"I began transition by using estrogen patches and spironolactone. . . I also use [estradiol] (Estrace) cream to soften and lubricate my vagina for dilation."*

*"I inject estradiol valerate intramuscularly every two weeks (about \$50 for a six month supply including equipment). . . I have some modest breast development."*

Maximum transitional effects can be achieved with relatively small doses of estrogen. Taking high doses does not make changes happen more quickly. It can, however, endanger our health. For those of us who have genital surgery or orchiectomy (removal of the testicles), our estrogen dose can be lowered even further. Without our testicles we need less estrogen to reach normal female blood levels and maintain our feminine characteristics and overall health.

While taking estrogen and testosterone blockers, our providers may check our estrogen and testosterone levels if we are progressing slowly or having side effects such as migraines or mood swings. However, levels are not always accurate, and what works for one person may not work for another. The most important way to judge whether hormones are effective is by looking at how they affect us physically and emotionally.

*"I was prescribed spironolactone, medroxyprogesterone (Provera), and estradiol. So far, my skin has become softer, my body hair has thinned immensely, I have developed breasts, and my hips have widened."*

*"I am currently taking both oral estrogen and spironolactone for HRT. Supposedly, I am producing less testosterone and I have developed small breasts."*

There are a number of medicines, known as antiandrogens, that can block testosterone. Most testosterone blockers are very safe, but they can have side effects. The blocker most commonly used, spironolactone (spiro), can cause us to urinate excessively and feel dizzy or lightheaded, especially when we first start taking it. It is important to drink plenty of fluids with this medication. Because spironolactone can be dangerous for people with kidney problems and because it interacts with some blood pressure medicines, it is essential we share our full medical histories with our providers. A rare but potentially dangerous side effect of spironolactone is a large increase in the blood levels of potassium, which could cause our heart to stop. Therefore, while taking this medication we should have our potassium levels checked periodically.

*“In my 20s I added spironolactone to that mix. The spironolactone helped with redistribution of my bodily fat.”*

Finasteride and dutasteride are medicines that prevent the production of dihydrotestosterone (DHT), a specific form of testosterone that has action on the skin, hair, and prostate. These medicines are weaker testosterone blockers than spironolactone but have few side effects, and they are useful for those who cannot tolerate spironolactone. It is unclear whether there is any added benefit of taking one of these medicines at the same time as spironolactone.

Progesterone is a source of constant debate among both trans women and providers. Though it is commonly believed to have a number of benefits, including improved mood and libido, enhanced energy, and better breast development and body fat redistribution, there is very little scientific evidence to support these claims. Nevertheless, some trans women say they experience some or all of these benefits from progesterone. Progesterone (as a class of medications referred to as “progestogens”) may be taken as a pill or applied as a cream. There are both bioidentical (micronized progesterone) and synthetic (medroxyprogesterone acetate, cyproterone acetate) forms of this medication. There is not enough evidence to recommend one form versus the other. Some experts argue that progesterone can increase our risk of depression, weight gain, mood swings, or breast cancer. These arguments are rooted in research on cisgender women. It is unclear whether these risks and side effects translate to transgender women.

Progesterone can serve as a testosterone blocker in women who cannot tolerate other blockers or who are having difficulty lowering their testosterone levels while taking blockers. Cyproterone is widely used outside the United States as the primary testosterone blocker in transgender women. Cyproterone, however, is not authorized for sale in the United States for any condition and has been associated with liver problems.

*“When I first started transition, I took cyproterone acetate to totally shut down testicular testosterone production and finasteride to block processing of testosterone already in my system, along with estradiol sublingually.”*

### **Physical Changes on Transfeminine Hormones**

There are many physical, emotional, and sexual changes that result from taking estrogen and testosterone blockers. Many of the effects of hormone therapy are reversible. The degree to which they can be reversed depends on how long we have been taking hormones. Two permanent changes are breast growth and possibly sterility.

The first noticeable changes with transfeminine hormones are often that our skin becomes a bit drier and thinner. Our pores become smaller and there is less oil production. We may become more prone to bruising or cuts, and in the first few weeks we may notice that we sweat less and that the odors of our sweat and urine change. Things may feel different to the touch.

*“The biggest changes have been in my skin and the development of breasts. My skin, while still oily, is not as acne prone as it was before. In fact, ever since*



*adolescence, my back was always like reading Braille. Since being on HRT, it has cleared up. My nose no longer gets blackheads as it did before. It is almost as if my body had been ‘allergic’ to the testosterone.”*

*“Other than my breasts, the most significant changes for me were psychological. My senses of smell and taste have grown somewhat more acute, and my sense of touch has changed immensely. We don’t have much language to describe these changes, but I feel far, far more in touch with my body, connected, with a much clearer, sharper sense of touch. It’s kind of analogous to wearing gauze over my ears for twenty years and suddenly having it removed. I also hadn’t heard about and wasn’t anticipating changes to my senses, so that took me by surprise, though they’re very welcome!”*

Within a few weeks, many of us begin to develop small “buds” beneath our nipples. These may be slightly painful, especially to the touch, and the right and left side may be uneven. This is the normal course of breast development and the pain typically diminishes significantly over the course of several months.

Breast development varies from person to person. Not everyone develops at the same rate and most of us, even after many years of hormone therapy, can only expect to develop an “A” cup or perhaps a small “B” cup. Like all other women, the breasts of transgender women vary in size and shape and will sometimes be uneven with each other. It is best to wait until 18–24 months on hormones before considering breast augmentation surgery in order to have a good idea of what our natural breast contour will look like.

*“Physically I got most of the usual results. Breast development was a disappointment so I later had an augmentation at the same time as my SRS.”*

*“I am very happy with my breasts, they are not super big, but they fit my body image very well. I have not had implants and do not plan to.”*

*“All the women in my family are big girls, and I am totally my mother’s daughter. Thankfully my breasts STOPPED at ‘C’ cups. My sister had TWO reductions, and I think if she’d been able, been allowed to, my Mom would have had a reduction done herself. So my breasts are at a size that I’m happy with.”*

On transfeminine hormones, our bodies will begin to redistribute weight. Fat will begin to collect around our hips and thighs and the muscles in our arms and legs will become less defined and have a smoother appearance as the fat just below our skin becomes a bit thicker. Hormones do not tend to have a significant effect on the fat in our abdomen or “gut.” We can expect our muscle mass and strength to decrease significantly. To maintain muscle tone, and for our general health, exercise is recommended—even just 30 minutes of brisk walking most days of the week. What we eat is also important—the best way to stay healthy is to eat a balanced diet with plenty of vegetables and whole grains, and avoid processed and junk foods, including foods with added sweeteners. Overall, we may gain or lose weight once we begin hormone therapy, depending on our diet, lifestyle, genetics, and muscle mass. What will not change is our bone structure, including our hips, arms, hands, legs, and feet. Some people may notice minor changes in shoe size or height.

*“I have had a substantial amount of fat redistribution, have lost a lot of upper body muscle mass, and had a large amount of breast growth.”*

*“I take estrogen daily. I have developed very nice breasts and am seeing other appropriate shifts in bodily form.”*

*“Probably the most amazing change was being able to lift a box of heavy books at first and three months later I could barely push it across the floor.”*

Our eyes and face will begin to develop a more female appearance as the fat under the skin increases and shifts. Because it can take two or more years for these changes to fully develop, it is probably a good idea to wait at least that long before considering any facial feminization procedures.

*“Within a few months my face looked different. It was subtle, but significant. I began to see a woman looking back at me in the mirror.”*

The hair on our body, including our chest, back, and arms, will decrease in thickness and grow at a slower rate. However, it may not go away all together. Many trans women consider electrolysis or laser treatment. Remember that all women have some body hair and that this is normal. On transfeminine hormones, facial hair may thin a bit and grow slower, but it will rarely go away entirely without electrolysis or laser treatments. For those of us with scalp balding, hormone therapy should slow or stop it, but how much of it will grow back is unknown.

*“I have only been on the hormones 18 months, and I have seen some great reduction in bodily hair everywhere except the face. On the face, however, it does grow slower.”*

*“My breasts are tender from growth, body fat is shifting around, eyes twinkle more, acne has gone away, skin has softened, and receded hair has regrown.”*

### **Emotional Changes on Transfeminine Hormones**

Our overall emotional state may or may not change when we begin taking estrogen or blockers—this varies from person to person. By taking hormones, we are putting our body through a second puberty, which can be an emotional time. Some of us find that we process emotions differently or relate to others in new ways.

*“Everyone says I look younger. My libido has decreased dramatically, and I am much happier and nicer to others.”*

*“I cry way more than I used to. I’m generally more prone to rapid changes in mood, but I became more content in and at peace with my body. I gained self-confidence.”*

Estrogen is typically considered a “female” hormone, and we learn to expect that we will act stereotypically female once we start taking it. However, cisgender women are not universally more emotional than cisgender men, and when they do act differently from cisgender men, the reasons may be more social than physical.

It may be challenging for many of us to experience new hormones coursing through our bodies at the same time that we are making large social changes in our lives. This can be a good time to start seeing a therapist, who may be able to help us explore our new thoughts and feelings, and help us to get to know our new bodies.

### **Sexual and Reproductive Changes on Transfeminine Hormones**

Soon after beginning hormone treatment, we typically experience a decrease in the number of erections we have. When we do have erections, we may lose the ability to penetrate, because our erections will not be as firm or last as long. We should, however, still have erotic sensations and be able to orgasm.

*“I never have spontaneous erections anymore.”*

*“My semen became clear, and reduced greatly in volume.”*

Some of us find that we get erotic pleasure from different sex acts and different parts of our bodies. We may find different images and activities more or less arousing than we did before. Orgasms may last longer, and feel like more of a whole-body experience, but with

less peak intensity. We may experience ejaculation of a small amount of clear or white fluid, or perhaps no fluid. This is all healthy—as long as it feels healthy to you. Do not be afraid to explore and experiment with your new sexuality through masturbation and with sex toys such as dildos and vibrators.

If any of the sexual changes on hormones are concerning, there are ways to address this. Changing our doses of testosterone blockers can sometimes help. As always, it is important to talk to a provider before changing medication doses. In addition, there are other things that we can do to retain erectile function independently of hormones. Medications like sildenafil (Viagra) or tadalafil (Cialis) that improve erectile function in cisgender men with erectile dysfunction can be beneficial for those of us who wish to retain erections while on hormones. We may also benefit from other treatments for erectile dysfunction, such as suction pumps.

Hormone therapy can cause a decrease in the size of the testicles. For some of us, they shrink to less than half their original size. Most experts agree that the amount of scrotal skin available for future genital surgery is not affected.

Within a few months of beginning hormone therapy, we must assume that we will become permanently and irreversibly sterile. Some people may maintain a sperm count on hormone therapy, or have their sperm count return after stopping hormone therapy, but many do not.

If there is any chance you may want to parent a child from your own sperm, you should speak to your provider about preserving your sperm in a sperm bank. This process generally takes two to four weeks and costs roughly \$2,000–\$3,000. The sperm should be stored before beginning hormone therapy. All too often, we decide later in life that we would like to parent a child using our own sperm but we are unable to do so because we did not take the steps to preserve sperm before beginning hormone treatment.



Mel and Allie (Arthur Robin Williams MD, [www.MyRightSelf.org](http://www.MyRightSelf.org)).

For those of us on hormones but remaining sexually active with someone who could become pregnant, we should always continue to use a birth control method to prevent unwanted pregnancy. As always, safe sex and testing for sexually transmitted infections and HIV as appropriate are very important.

### **Risks and Side Effects of Taking Transfeminine Hormone Regimens**

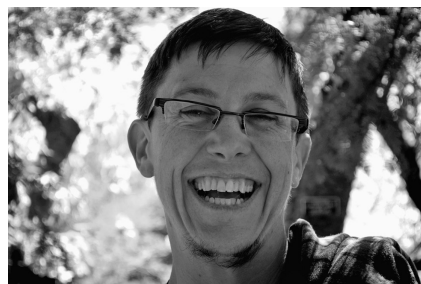
One well-known risk of taking estrogen is an increase in the likelihood of blood clots, which can move to our lungs and cause us to stop breathing. If we are taking a safe and appropriately monitored regimen, as well as avoiding cigarette smoking, the risk of blood clots is minimal. The type of estrogen we take may impact our risk for blood clots. There are different forms of estrogen. 17-beta estradiol is also known as bio-identical estrogen. This estrogen is identical to the estrogen created in a human ovary. Research on this form of estrogen is reassuring with respect to risk of blood clots. Other forms of estrogen include ethinyl estradiol, which is a synthetic estrogen found in birth control pills, and conjugated equine estrogens (“CEE,” Premarin), a form of estrogen obtained by keeping horses pregnant, collecting their urine, and isolating the estrogen in the urine in order to make it into pill form. There is evidence that synthetic estrogen may increase risk of blood clots or other side effects such as stroke.

#### **TRANSNATURAL: HOLISTIC SUPPORT FOR TRANS BODIES AND SPIRITS**

*Dori Midnight is a community-based healer and educator who teaches workshops on community healing and queer magic and maintains a local and distance healing practice in western Massachusetts. Jacoby Ballard is a genderqueer trans guy and cofounder of Third Root Community Health Center in Brooklyn, where he teaches yoga (including queer and trans yoga) and Third Root’s Herbal Education Program. Together, Dori and Jacoby are available to come to your school, community center, or gathering to teach workshops on herbal support for trans health.*



Dori Midnight



Jacoby Ballard

Herbal medicine has always been a people’s medicine. All over the world, people use plants for their health in daily ways. Herbal medicine is accessible, affordable, empowering, and grassroots; it is also powerful because it allows us to take care of ourselves and each other and puts our wellness in our own hands.

There are many ways to bring more herbal and holistic medicine into our lives as transgender or gender nonconforming people. Herbs and nutrition can be used to support our bodies before and after surgery, to support our mental and emotional well-being, and to maintain health for the rest of our lives.

Herbs, like people, are unique, and there is no one herb for everyone. We recommend finding an herbalist, acupuncturist, or other holistic practitioner in your area if you’re interested in using more natural ways to support your health.

“Transition” means something different to every trans person. However, the medical path that is offered to us can often be linear in a way that our transitions are not. Holistic medicine, which supports and encourages people to be wherever they are at, is particularly well suited to meet the varied paths we each may take. There are many herbs that can help increase the effects of hormones. There are also many that can mitigate side effects, including anxiety, acne, hair loss, and heart disease.

Herbs, nutrition, and some nutritional supplements can also greatly support the body’s natural healing process from surgery. You can use herbs for the nausea, sleep difficulties, and pain that you may experience. If you are taking both herbs and pharmaceutical medications, make sure to let your providers and pharmacists know, in order to avoid “drug-drug” or “herb-drug” interactions. Well before surgery, let your surgeon know what herbs you are taking because many surgeons will want you to stop taking certain herbs (especially those that can increase bleeding) for a period of time before surgery.

For more information on holistic approaches to health for trans folks, look for the yahoo group “transnatural.”



In addition to increasing the risk of blood clots, estrogen can also raise our blood pressure. High blood pressure can lead to problems, including vision trouble and blindness, kidney disease requiring dialysis, strokes, heart attacks, and heart failure. High blood pressure causes few symptoms at first, so we may not recognize that we have it.

*“I also have concerns about the long-term health effects of estrogens on everything from cholesterol profiles and heart disease to cancer risk to liver function and beyond.”*

High cholesterol is also a condition with few initial symptoms. By the time we develop problems from high cholesterol, such as heart attacks or strokes, the damage has been done. Progestogens (especially the synthetic ones found in medications like medroxyprogesterone, as well as “street” hormone products such as Perlutal and Progravidinona) may raise “bad” (LDL) cholesterol as well as triglycerides. High triglycerides can lead to a dangerous inflammation of the pancreas called pancreatitis. Estrogen tends to lower bad cholesterol, but certain synthetic forms may cause it to rise. Whether this rise ends up changing our risk for heart disease and strokes is not known. A provider can monitor cholesterol with a simple blood test obtained after an eight-hour fast, usually performed in the morning before breakfast. In addition to making sure we are on the correct dosage of hormones, a provider will also be able to help us control our cholesterol through diet, exercise, vitamins, or prescription medications if needed.

In addition to monitoring our blood pressure and cholesterol, our providers will also run lab tests to monitor our kidney and liver function, as well as a diabetes screening test. Estrogen, like other hormones, can affect our liver because that is where our body breaks down hormones. For some of us, estrogen can lead to changes in our body weight and fat distribution, and it can affect our likelihood of developing diabetes.

While we are taking estrogen, we are thought to have some protection from developing osteoporosis—weakened bones that can lead to fractures as we age. For those of us who have an orchiectomy (removal of the testicles) or vaginoplasty (in which the testicles are typically also removed), we can often take a lower dose of hormones. However, we should remain on at least a low dose of estrogen until we are 50, or perhaps older, to prevent weakening of our bones.

There is not much scientific evidence regarding the risks of cancer in transgender women. It is likely that our risk of prostate cancer decreases when we start taking hormones. In fact, in many cases of prostate cancer, the treatment is testosterone blockage, and in some cases also the administration of estrogen. However, recent research suggests that estrogen may play a role of its own in certain prostate cancers. The prostate-specific antigen (PSA) test used sometimes for cisgender men for prostate cancer screening may not be as useful when taking estrogen. It is best to continue to follow the current recommendations for prostate cancer screening.

Risk of breast cancer in transgender women is not well understood. From what knowledge we do have, it seems that taking hormones may slightly increase our risk of breast cancer. However, we are still at lower risk than cisgender women. When we have been on hormones for at least two to three years, we should begin regular breast cancer screenings based on our age and other risk factors, such as family history.

Medical providers taking care of transgender women are typically aware of another risk of estrogen—a prolactinoma, a benign (noncancerous) tumor of the pituitary gland. The pituitary gland controls many of the hormone systems in our body. It is about the size of a pea and rests inside the skull behind our eyes. Parts of the pituitary gland can grow in response to estrogen therapy. If a benign tumor grows large enough, it can press on the nerves coming from our eyes into our brain and cause visual problems. Pituitary tumors can be treated by surgery or medication.

There are limited and conflicting data on the risk of prolactinoma from taking hormones. Some providers recommend periodic checks of the level of the hormone prolactin.

Others disagree and instead just watch for vision complaints. One argument against testing prolactin is that it is elevated in many people who are taking estrogen, including those of us who have no tumor. If you are found to have a high prolactin level, your provider should lower or stop your estrogen dosing for several weeks, and then recheck the level. If it has gone down, then you do not likely have a tumor and may resume taking estrogen. Checking estrogen and testosterone levels at this point is also a good idea, because the high prolactin level might have been because your estrogen dose was too high. If prolactin levels do not go down when estrogen is lowered or stopped, the provider may send you for a computed tomography (CT) scan or magnetic resonance image (MRI) to evaluate for prolactinoma.

## CONCLUSION

Starting hormones can be exciting. Try to be patient and remember that all of the changes associated with the puberty you are about to experience can take years to develop. We may not always like every change, but many of them come together, and we have to accept the positive with the negative if we want to continue taking hormones. Finally, our hormonal treatment does not exist in a vacuum. Our health, diet, lifestyle, stress management, sleep, and other factors are even more important when we are making changes to our bodies.

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