



transkit®

MODULE TWO | PHYSIOLOGY

BEFORE WE GET STARTED

CONSIDERATIONS OF SENSITIVITY

CONSIDERATIONS OF GENDER & PHYSIOLOGY

Substantial evidence suggests a biological connection with gender identity. New research has been published wherein several neuro-labs feel they can accurately surmise a person's gender identity through fMRI assessment. Post-mortem autopsy studies of transgender individuals have shown brain structures and compositions congruent with the gender identity, opposed to sexual/reproductive anatomy.

ISSUES

- How would our health care insinuations and treatment change for those who did not qualify through such assessments?
- Who would have access to such assessments?
- If we could identify a direct correlation between gender identity and physiology, does this now become a *curable* issue?
- Where do we draw the line between biological factors and social norms of expression and behavior?

GOOD INFORMATION TO BE AWARE OF... WITH NUMEROUS PITFALLS

NOT MENTALLY OR PHYSICALLY DISORDERED

While gender dysphoria remains a diagnosable condition within the DSM-V, the condition itself does not equate to a disorder or illness. A gender expansive identity in and of itself does not directly equate or cause negative mental or physical health conditions.

- Many will seek to claim that a transgender status is an illness. If this were true, it would be the only illness which in no direct way increases mortality or suffering. Who would have access to such assessments?
- Shortened life spans and increase health concerns come not from the identity or status but are directly associated to the way in which they are marginalized and oppressed by social mores.
- Many transgender individuals, especially those with strong spiritual belief of dichotomous gender find comfort recognizing there is (or could be) a concrete manner to demonstrate reason for their identity.
- More so with younger generations, and the prevalence of non-binary identities, the desire to identify a biological connection is counter productive or invalidating of their experience of gender and expression.

SEX + GENDER

DIFFERATION IN EARLY DEVELOPMENT

DEFINITIONS

SEX

The designation made at birth as “male” or “female” currently based on a medical professionals visual inspection of genitalia. Frequently assumed to be the same as gender, a person’s sex is only one of the dimensions that constitute an individual’s gender.

GENDER | GENDER IDENTITY

One’s innermost concept of self as male, female, a blend of both or neither — how individuals perceive themselves and what they call themselves. One’s gender identity can be the same or different from their sex assigned at birth. While most people develop a gender identity aligned with their biological sex, for some gender identity is different from their biological or assigned sex.

SEX DIFFERENTIATION BASICS

THE XY CHROMOSOME STANDARD

The use of chromosomes, specifically the presence of XX (Female) or XY (Male) gene pair, is the current accepted standard of determining if a human is male or female. This standard has been fine tuned since the late 1950's, and considered the gold standard of accuracy since 1990. These genes are the map for the fetus to develop.

THE ZYGOTE

The cell formed by the union of a male and female reproductive cell, AKA a fertilized egg. One X chromosome comes from the egg, while the additional X or Y chromosome is carried by sperm. Depending on which sperm fertilizes the egg, you have a gestational trajectory of biological male or female. This process remains the accepted standard and typical experience for ~98% of humanity...



SEX DIFFERENTIATION BASICS

SEXUAL ANATOMY IN GESTATION

During the first eight weeks of development the physical development of XX and XY individuals is identical. Each fetus develops gonads, and a genital tubercle. Depending on the genetics and hormone processing, the gonads will either start to become ovaries or testicles near week nine. The tubercle will either become the clitoris or extend to become a penis.

Substantial evidence denotes an imprinting period in brain development, wherein the brain receives instructions or hormones to develop in a male or female structure and composition.



ENTER INTERSEX

Development in the womb can vary dramatically, resulting in any number of atypical chromosomal, hormonal, gonadal and neurological differences.

- Variances in development can lead a child to appear, think, or feel different than those with typical sex development.
- Some conditions are immediately recognizable at birth or through advanced imaging in the womb.
- Certain conditions may not manifest until puberty.
- Many conditions go unnoticed until genetic testing, ultrasound, or some other happenstance situation.

In many historical and current medical articles, the term *hermaphrodite* is used to describe people with an atypical or mixed sex development. That term, the “H” word, is now considered pejorative and should **never** be used in treatment.



INTERSEX CONDITIONS

From the American Psychological Association, the following are a small sample of intersex condition:

- Congenital adrenal hyperplasia, in which overproduction of hormones in the adrenal gland causes masculinization of the genitals in female infants
- 5-alpha-reductase deficiency, in which low levels of an enzyme, 5-alpha-reductase, cause incomplete masculinization of the genitals in male infants
- Partial androgen insensitivity, in which cells do not respond normally to testosterone and related hormones, causing incomplete masculinization of the genitals in male infants.



INTERSEX CONDITIONS

- Complete androgen insensitivity, in which cells do not respond at all to testosterone and related hormones, causing female-appearing genitals in infants with male chromosomes
- Klinefelter syndrome, in which male infants are born with an extra X (female) chromosome, which typically causes incomplete masculinization and other anomalies
- Turner syndrome, in which female infants are born with one, rather than two, X (female) chromosomes, causing developmental anomalies.



INTERSEX EXAMPLE

GUEVEDOCES

Be sure and check out this video regarding an example of intersex conditions and their diverse way of manifesting in individuals. <https://vimeo.com/145344626>



PUBERTY

FIRST | DELAYED | SECOND

PUBERTY

GENETIC FEMALE

Typical changes at puberty include breast development, widening of hips, presence of pubic hair and armpit hair, menstruation, and a growth spurt.

GENETIC MALE

Typical changes at puberty include a growth spurt, greater presence of body and public hair, voice change, and genital growth.

INTERSEX

A combination of symptoms depending on hormone processing, genetic instruction, and predominant genes.



PUBERTY FOR TRANSGENDER PEOPLE

POTENTIALLY TRAUMATIC DEVELOPMENTAL STAGE

Physical changes in puberty, especially for female identified transgender girls (AMAB), result in intense feelings of dysphoria, self-loathing, increased suicidal ideation and attempts, increased self-harm, and often results in complex trauma.

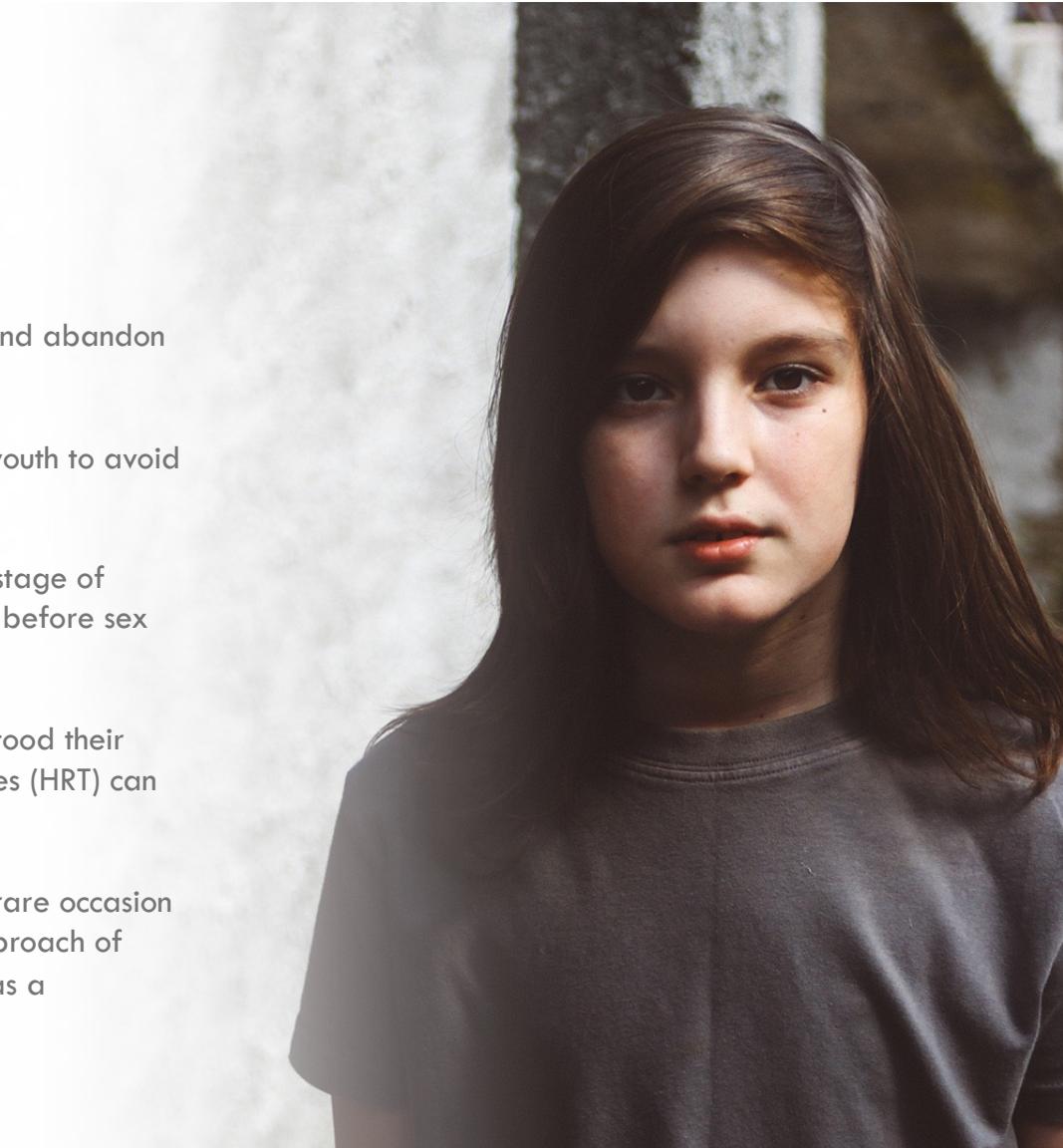
The greater level of dysphoria in transgender girls stems from the irreversibility of the testosterone induced physical changes, including larger stature, loosening of vocal chords, masculinizing of facial structure.

Transgender boys may dysphoria related to breast development, widening hips, and limited vertical growth. Other changes such as increased body hair, facial hair, lowering of voice, masculinizing muscle and facial structure, can be achieved at a later point using Hormone Replacement Therapy (HRT).



DELAYING PUBERTY

- Some children do learn to accept their sex as their gender, and abandon desires to medically or socially transition their gender.
- The introduction of hormone inhibitors, i.e. “blockers” allows youth to avoid the undesired secondary sexual characteristics from puberty.
- For transfeminine youth, administration begins after the first stage of puberty, allowing growth in stature, but stopping the process before sex specific changes occur.
- Once the child has consistently, persistently, insistently understood their desire for sexual development, the administration of hormones (HRT) can begin. This has happened as early as the age of 14.
- For those who argue against this process, as it on extremely rare occasion leads to physical side-effects, one must take a measured approach of safety. The transgender child who does not delay puberty has a significantly increased likelihood of self-harm or suicide.



HORMONES

HORMONE INTERVENTIONS AND THERAPY

HORMONE REPLACEMENT THERAPY

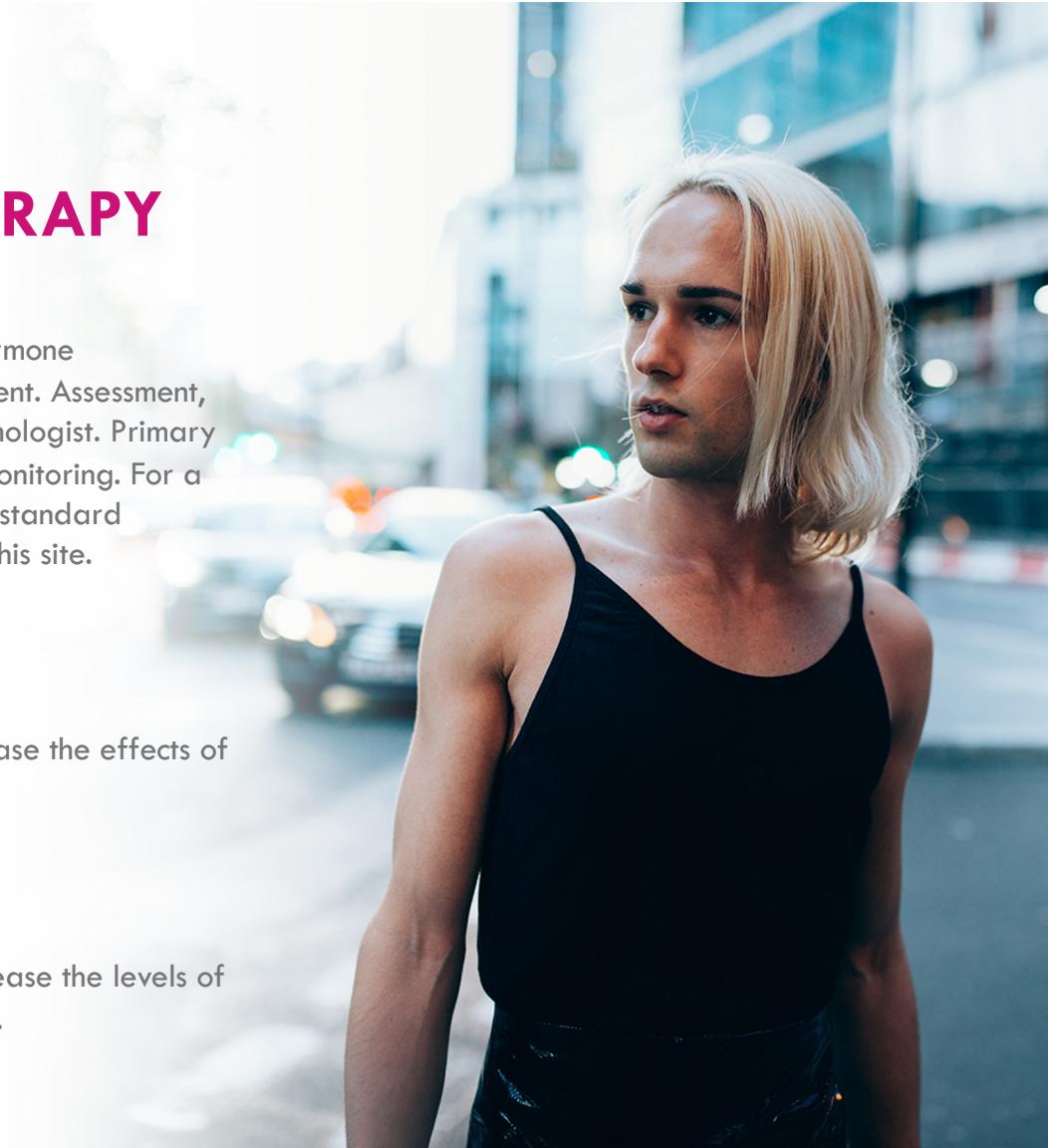
For those seeking to transition from the sex assigned at birth, hormone administration is typically the first medical intervention in treatment. Assessment, treatment and administration is typically handled by an endocrinologist. Primary care providers are becoming more adept in maintenance and monitoring. For a patient or client to begin HRT, a gender assessment and letter is standard practice. Information and templates for letters can be found on this site.

TRANSFEMININE HRT REGIMINE

Transfeminine patient and clients are generally looking to decrease the effects of testosterone and increase level of estrogen.

TRANSMASULINE HRT REGIMINE

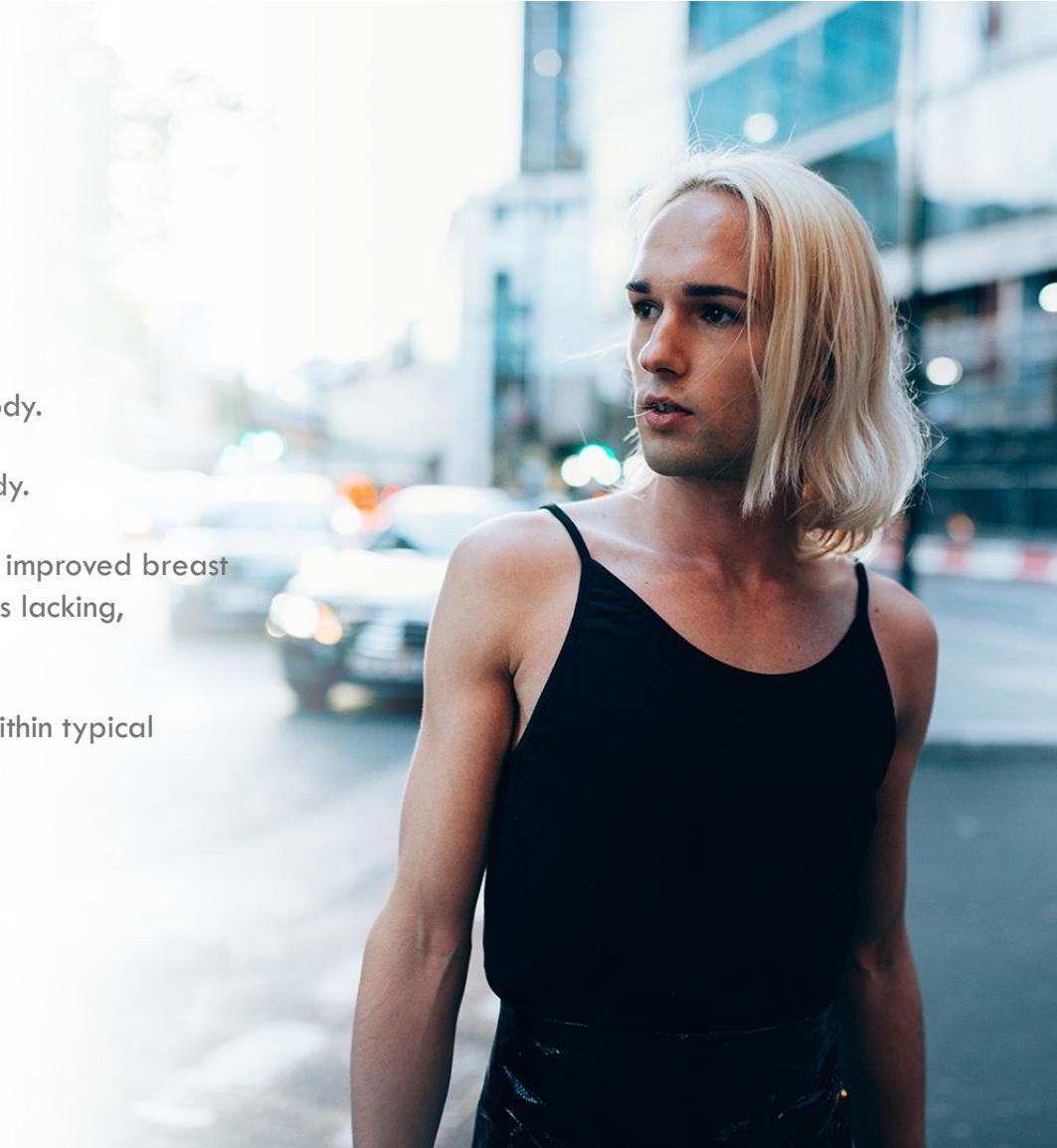
Transmasculine patients and clients are generally looking to increase the levels of testosterone in their bodies in attempts to masculinize themselves.



TRANSFEMININE HRT

TYPICAL HRT INTERVENTION

- Estradiol (patch, shot, oral) – increases estrogen levels in the body.
- Spironolactone (oral) – blocks action of testosterone in the body.
- Optional: Progesterone – Anecdotal reports of effects include improved breast & areole development and increased libido. Research on this is lacking, however, it has been shown to not be harmful.
- Hormone levels are regularly checked to ensure the patient is within typical genetic female ranges of testosterone and estrogen levels.



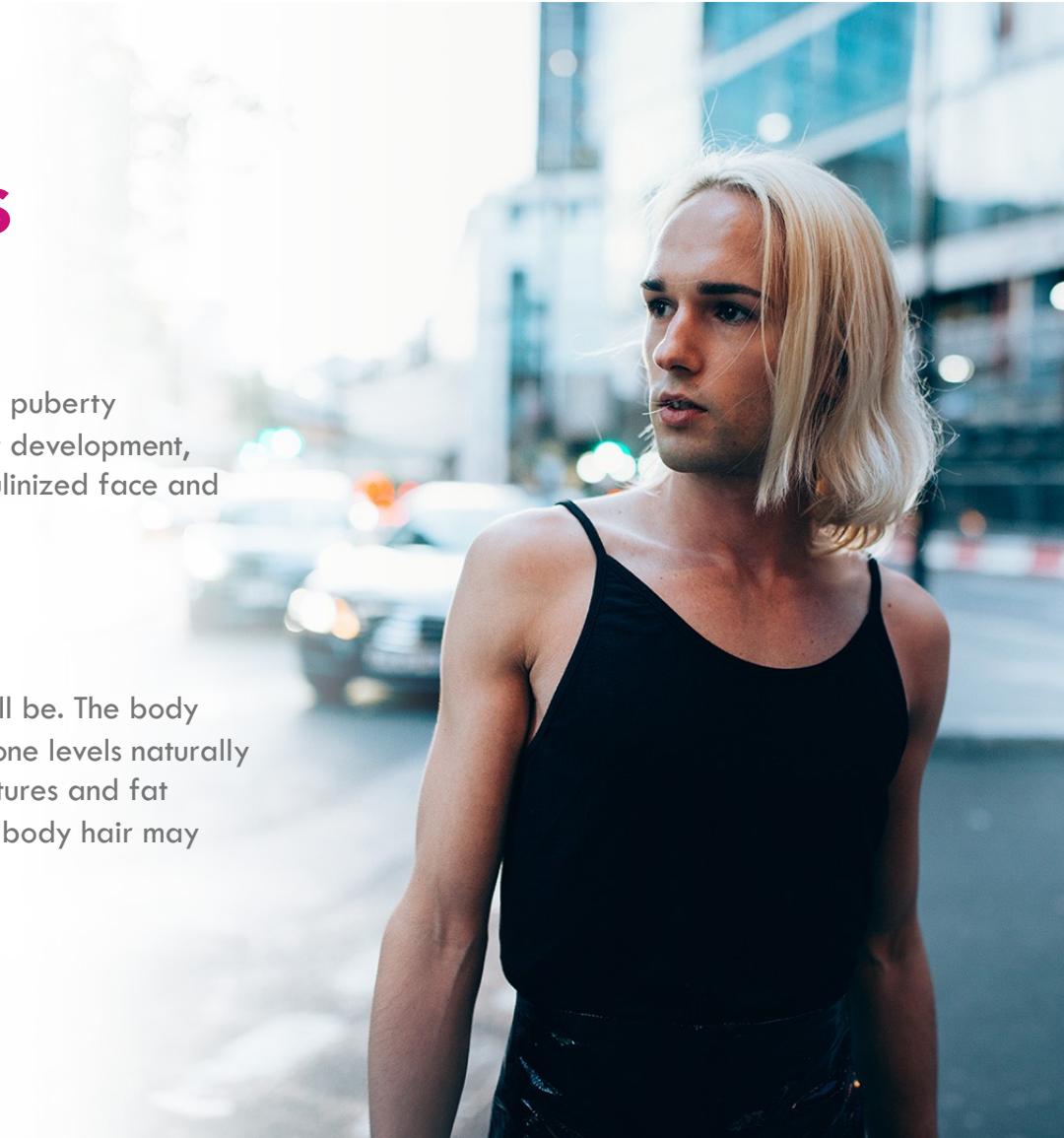
TRANSFEMININE HRT EFFECTS

IN YOUTH

Youth who begin HRT prior to second-stage puberty will have a puberty experience nearly identical to genetic females, including breast development, body shape change, limited hair growth, maintaining non-masculinized face and bone structure, etc...

POST PUBERTY

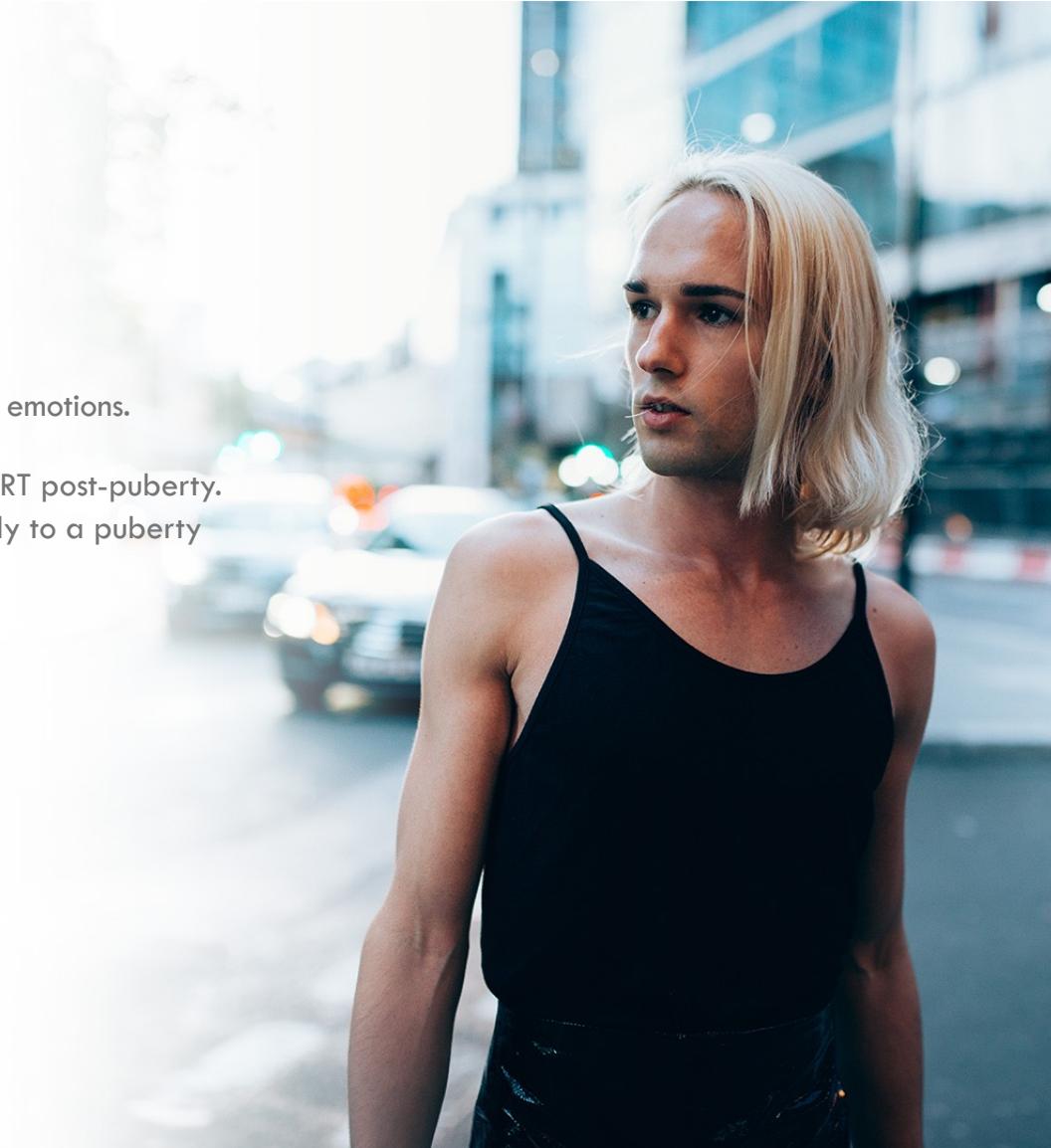
The sooner an individual can start HRT, the better the effects will be. The body continues to masculinize itself well into mid-life (where testosterone levels naturally decrease). Effects such as breast growth are limited. Facial features and fat distribution will change slightly. Hair growth will slow, and dark body hair may become more blond and light.



TRANSFEMININE HRT EFFECTS

MENTAL EFFECTS

- Transfeminine individuals report HRT changing their mood and emotions.
- A Second Puberty is commonly experienced when beginning HRT post-puberty. This includes influx of emotions which can manifest very similarly to a puberty aged genetic female.



NON-BINARY HRT

THERE IS NO TYPICAL INTERVENTION

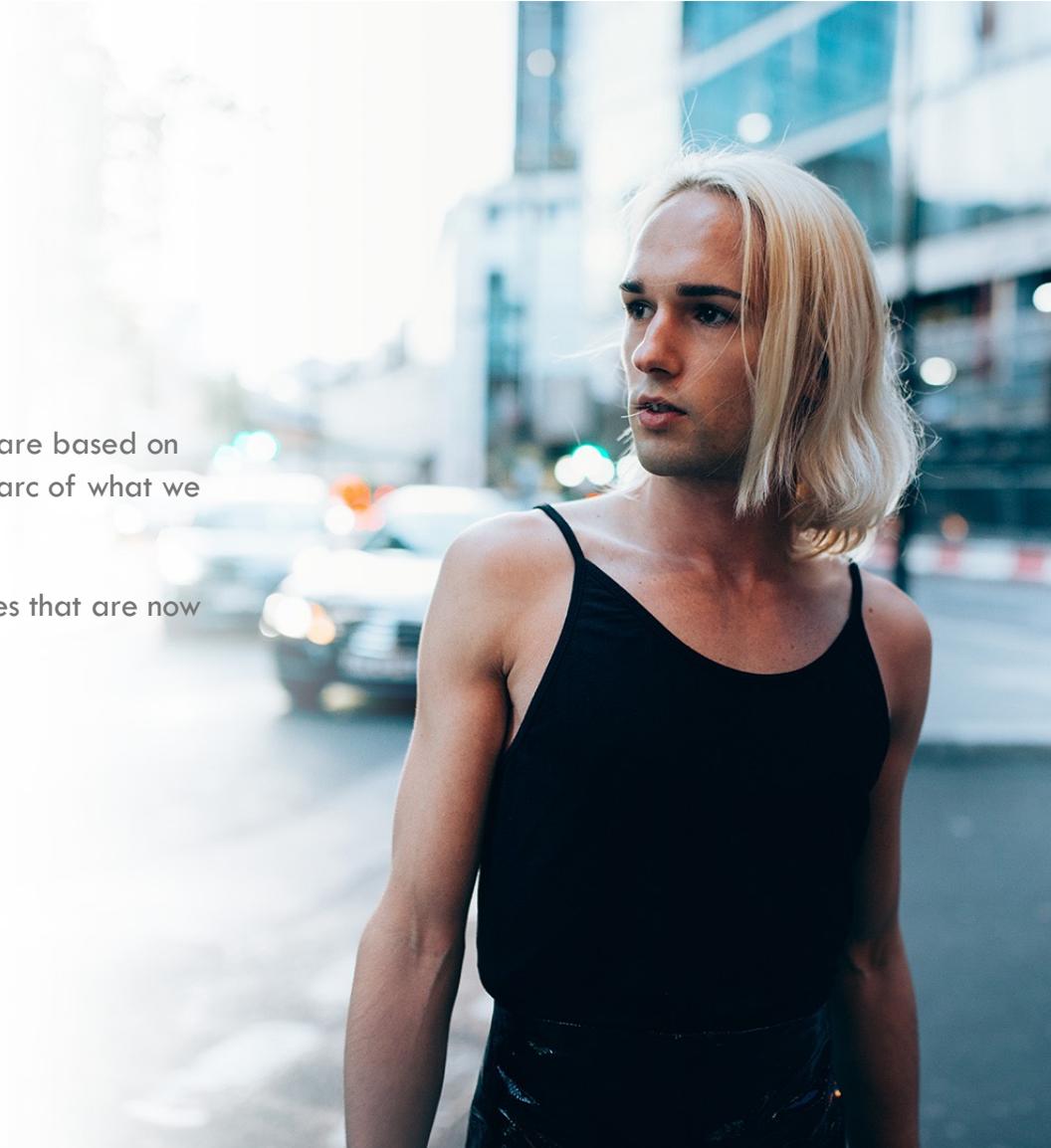
- Nonbinary individuals may choose to take hormones to allow them to present as more masculine or feminine. Not all nonbinary individuals choose to take hormones. Some individuals take hormones for a short time or for extended management of appearance.
- Masculine of center nonbinary people may take testosterone to lower their voice or increase body/facial hair
- Feminine of center individuals may take estrogen for breast development
- The dose and length of time an individual will stay on hormones depends on the effects they desire, while keeping into consideration which effects are permanent and which will reverse



NON-BINARY HRT

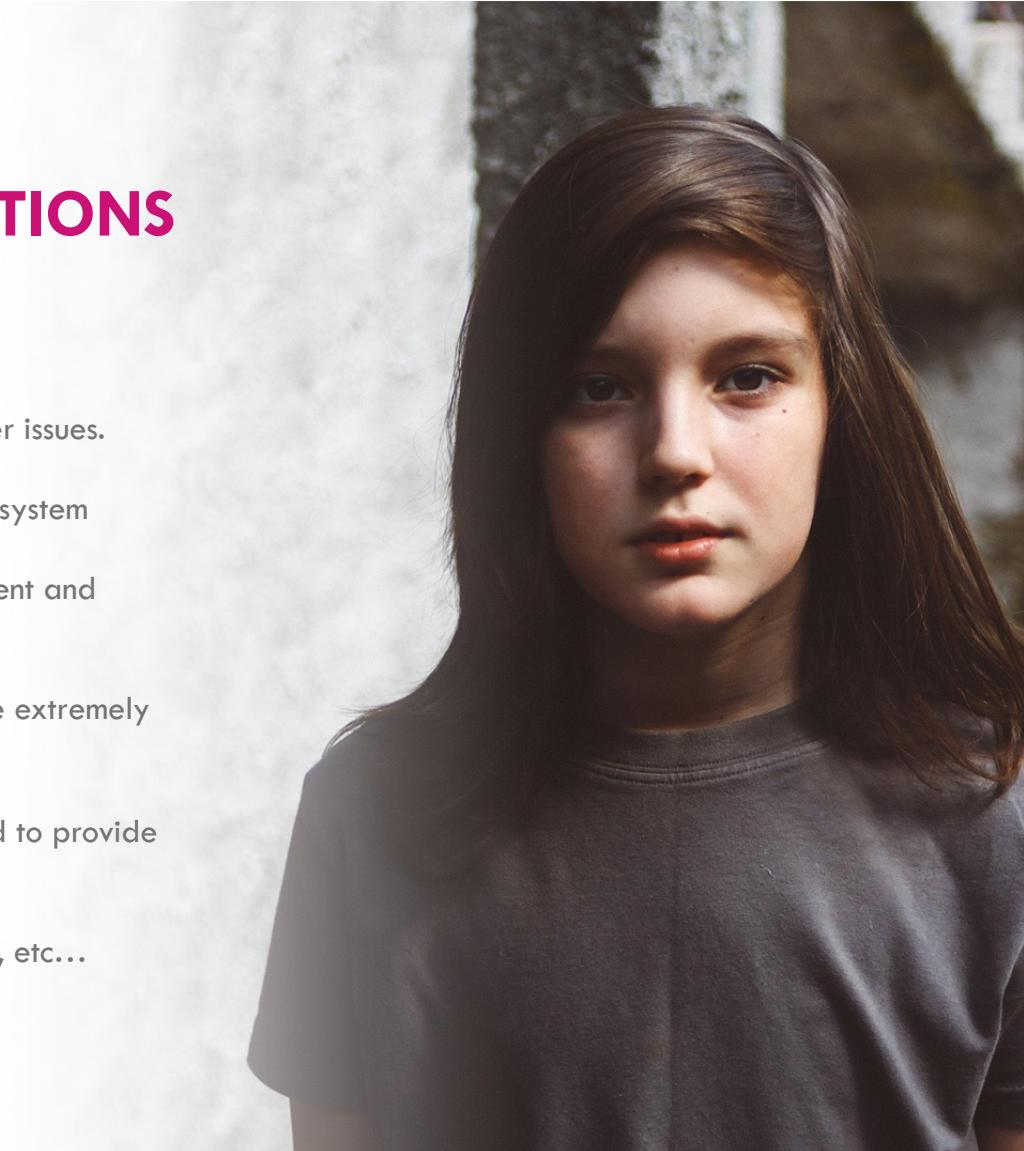
THERE IS NO TYPICAL INTERVENTION

- It is important for clinicians to allow individuals to guide their care based on what they want, even if their desires don't follow the "typical" arc of what we expect transition to look like.
- Receiving medical as a nonbinary individual presents challenges that are now present for those who have a more binary desire.



HORMONES & HRT CONSIDERATIONS

- HRT has been shown to pose similar risk as oral contraceptives.
- The continued use of oral medication can potentially lead to liver issues.
- Procedures such as an orchiectomy can reduce testosterone in a system
- Anecdotal evidence suggests injectable estrogen is the most potent and effective in feminization.
- Many trans individuals obtain black market hormones. These are extremely dangerous and should be avoided at all costs.
- Due in large part to the AHA – insurance providers are required to provide HRT – for those who have coverage
- Coverage is not common amongst trans – unemployed, homeless, etc...



COMMON PROCEDURES

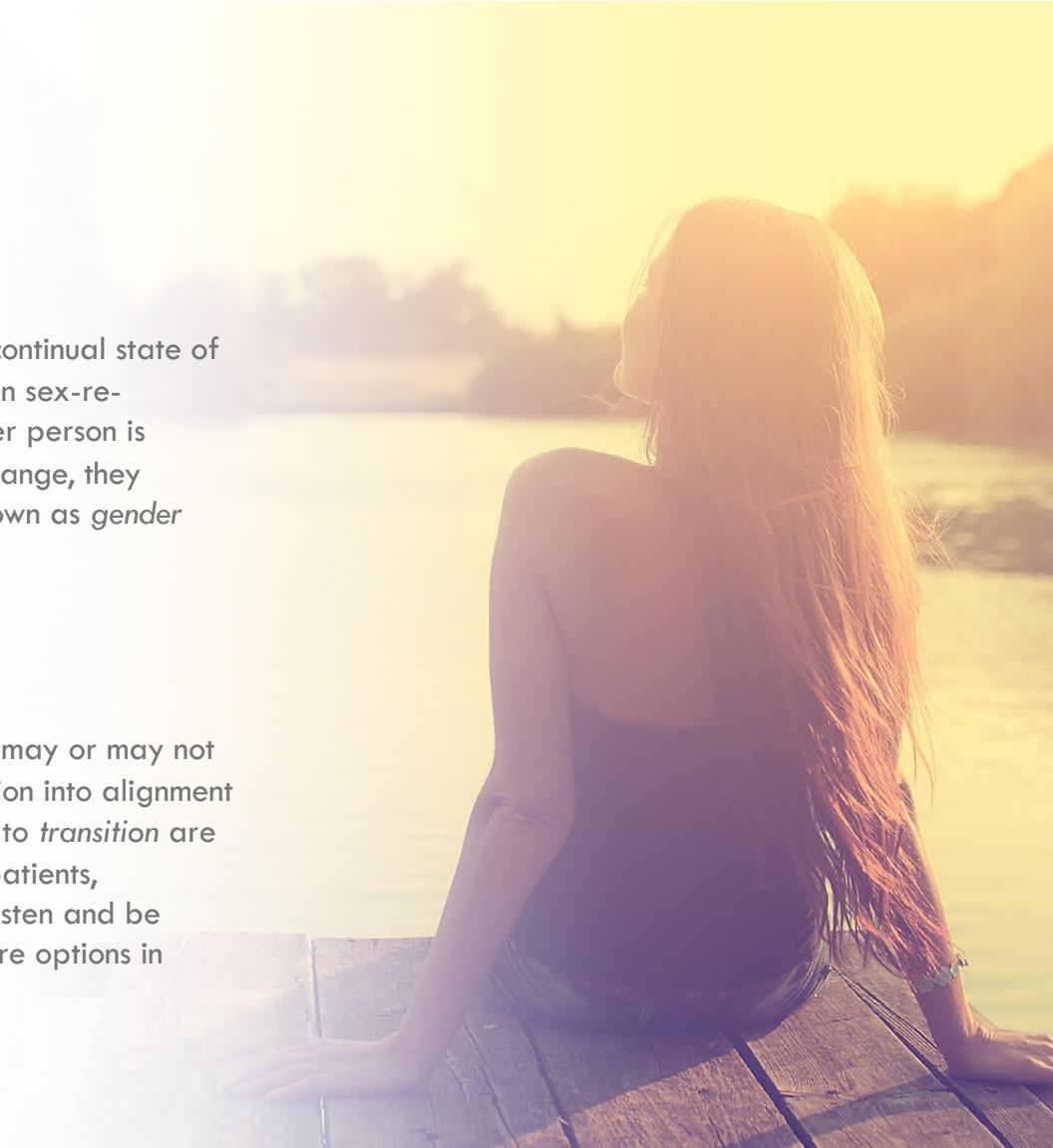
COSMETIC & SURGICAL GENDER CONFIRMING INTERVENTIONS

COSMETIC & PROCEDURES

Nomenclature surrounding gender expansive procedures is in a continual state of evolution. Long gone are the days of sex-change surgery, or even sex-re-assignment surgery. Terminology like this infers that a transgender person is changing sex & gender. We understand that a person doesn't change, they always are. The most current terminology for procedures are known as gender confirming procedures.

* PROCEDURES ARE NOT REQUIRED

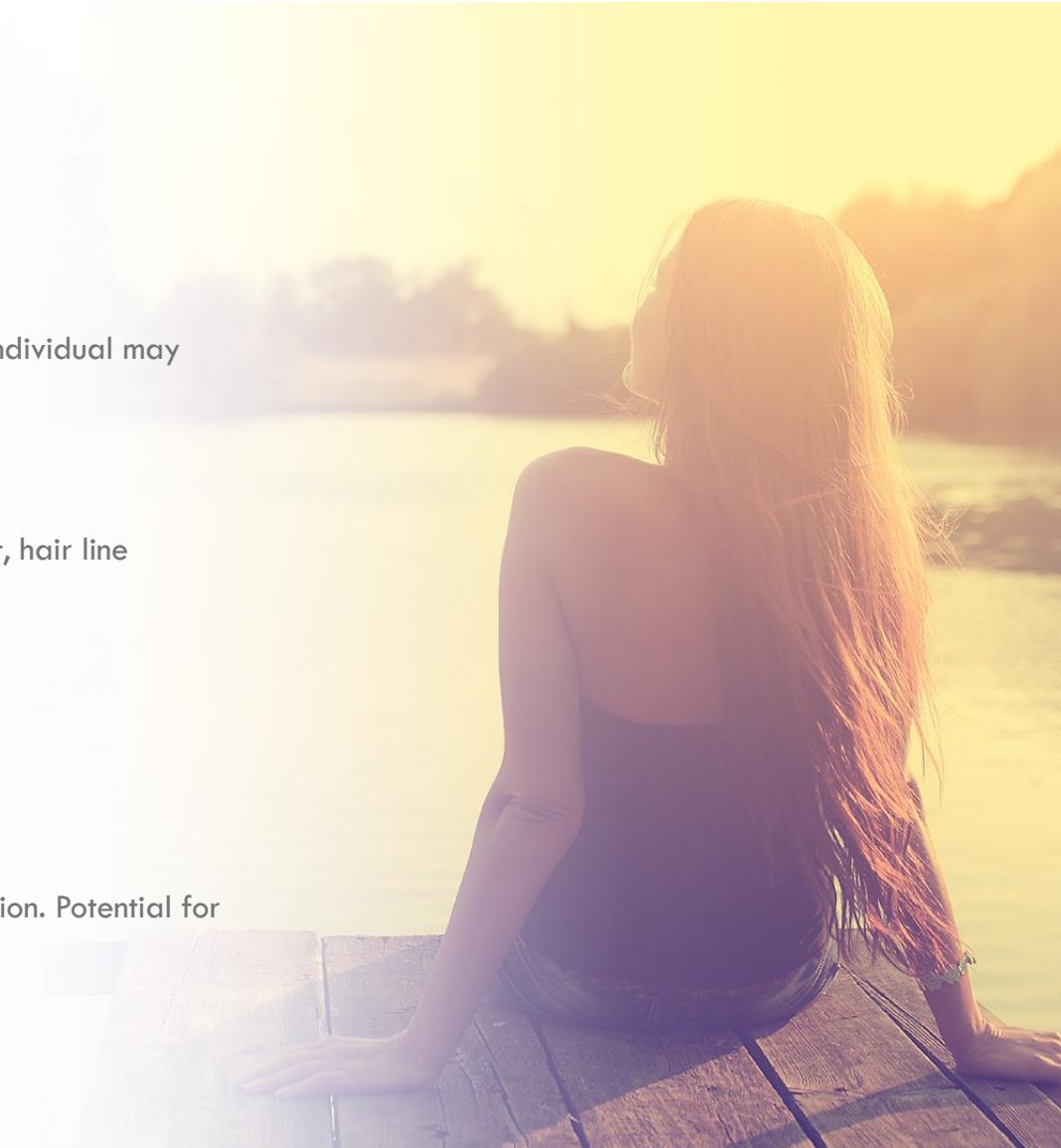
A transgender, non-binary or other gender expansive individual may or may not desire any number of procedures to bring their physical expression into alignment with their gender. Assumptions of medical interventions or paths to *transition* are rarely accurate and often act as barriers to gender expansive patients, particularly non-binary and agender individuals. Remember to listen and be ready with information of procedures to help your patient explore options in comfort with a trusted professional ally.



FEMINIZING PROCEDURES

A list of the commonly undertaken procedures a transfeminine individual may consider, beyond hormone replacement therapy (HRT).

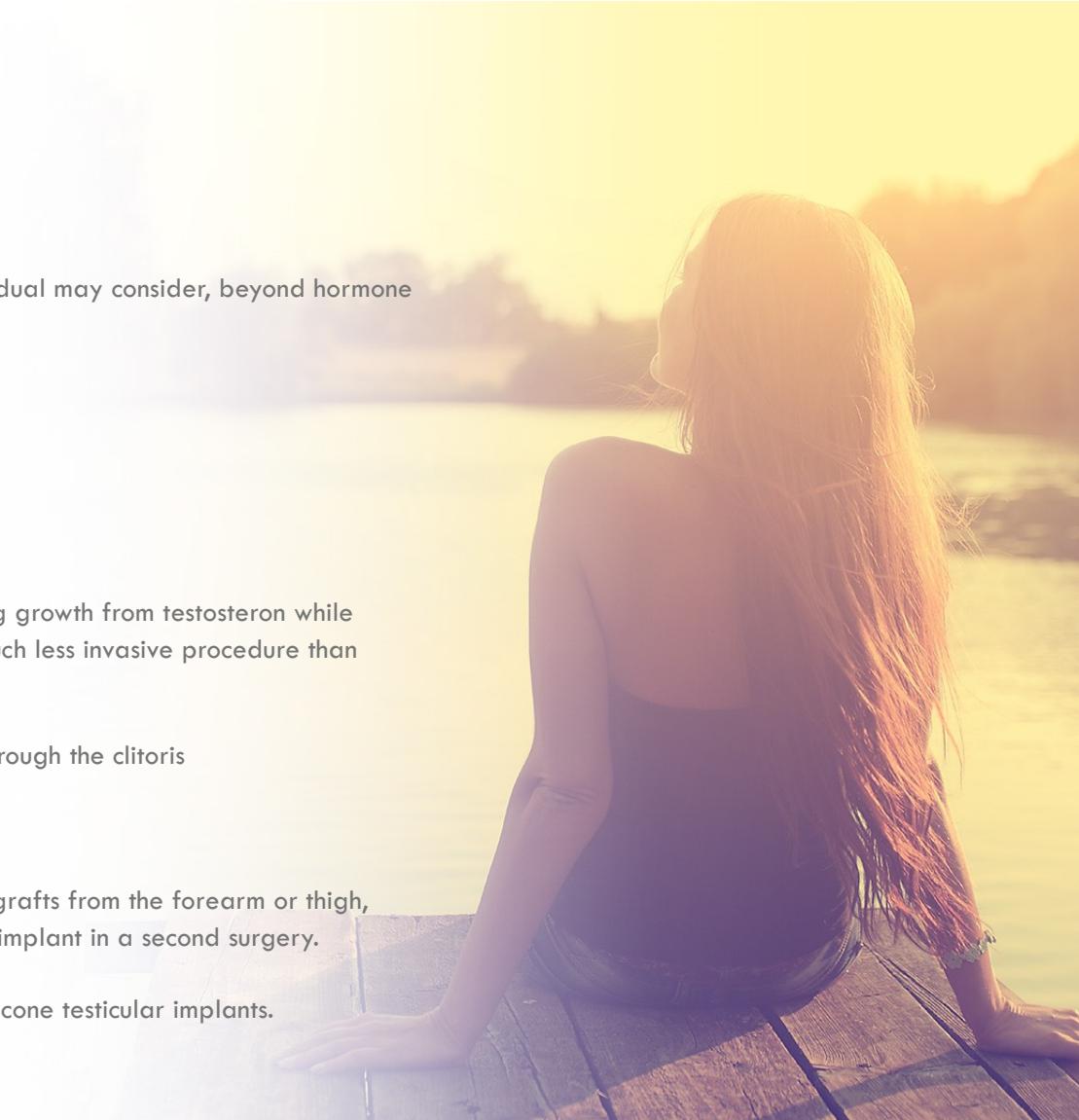
- Laser / Electrolysis: Facial Hair Removal
- Facial Feminization Surgery (FFS): Jaw recontouring, brow lift, hair line lowering, rhinoplasty, lip-shaping, etc..
- Tracheal Shave: Reducing Adams apple protrusion
- Orchiectomy: Removal of testicles.
- Breast Augmentation
- Vaginoplasty: Creation of a vagina, currently a penile inversion. Potential for stomach tissue, etc...
- Labioplasty – Forming of labia, typically from scrotum tissue,



MASCULIZING PROCEDURES

A list of the commonly undertaken procedures a transmasculine individual may consider, beyond hormone replacement therapy (HRT).

- Facial Masculinization Surgery
- Top surgery
- Hysterectomy/Oophorectomy- Removal of uterus/ovaries
- Metoidioplasty- release of the clitoris to create a small penis using growth from testosterone while preserving ability to get erect and maintain sensation. This is a much less invasive procedure than phalloplasty.
- Urethroplasty- combined with Metoidioplasty to allow urination through the clitoris
- Vaginectomy- Removal of vaginal tissue to close the vagina
- Phalloplasty- Creation of a phallus resembling a penis using skin grafts from the forearm or thigh, combined with urethroplasty. Erection is possible through a penile implant in a second surgery.
- Scrotoplasty- Construction of a scrotum using labia majora and silicone testicular implants.



PROCEDURE FOR NON-BINARY INDIVIDUAL

A nonbinary individual may take a less linear approach to medical transition. They may not want hormones but may want a surgery. Some physicians may require hormones before performing certain surgeries and it will be important to support your client as they navigate getting their needs met by medical practitioners. Some individuals may be asking for something that medical providers have not been asked to do under non linear circumstances (example: an individual who wants a hysterectomy but no hormones, top surgery, or bottom surgery).

Nonbinary individuals may find themselves forging new paths in medical care and need a higher level of support to cope with various amounts of education they have to provide to doctors and rejection they may face.

