

Vraag uw apotheker om advies. Gebruik de gel alleen op een gezonde, droge en schone huid en breng het niet aan op uw geslachtsdelen. Was goed uw handen na het opsmeren. Injectie: spuit dit medicijn in uw bilspeer of bovenbeenspier. Uw arts of verpleegkundige zal uitleggen hoe u uzelf kunt prikken. Mannen kunnen een vergrote prostaat krijgen.



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OPEN Testosterone therapy masculinizes speech and gender presentation in transgender men

Carolyn R. Hodges-Simeon^{1,2,3,4}, Graham P. O. Grail^{1,2,7}, Graham Albert¹, Matti D. Groll^{1,5}, Cara E. Stepp^{1,5,6}, Justin M. Carré⁶ & Steven A. Arnocky⁴

Voice is one of the most noticeably dimorphic traits in humans and plays a central role in gender presentation. Transgender males seeking to align internal identity and external gender expression frequently undergo testosterone (T) therapy to masculinize their voices and other traits. We aimed to determine the importance of changes in vocal masculinity for transgender men and to determine the effectiveness of T therapy at masculinizing three speech parameters: fundamental frequency (i.e., pitch) mean and variation (f_0 and f_0 -SD) and estimated vocal tract length (VTL) derived from formant frequencies. Thirty transgender men aged 20 to 40 rated their satisfaction with traits prior to and after T therapy and contributed speech samples and salivary T. Similar-aged cisgender men and women contributed speech samples for comparison. We show that transmen viewed voice change as critical to transition success compared to other masculine traits. However, T therapy may not be sufficient to fully masculinize speech: while f_0 and f_0 -SD were largely indistinguishable from cismen, VTL was intermediate between cismen and ciswomen. f_0 was correlated with salivary T, and VTL associated with T therapy duration. This argues for additional approaches, such as behavior therapy and/or longer duration of hormone therapy, to improve speech transition.

Transgender individuals describe the incongruence between their assigned sex at birth and their own gender identity to be a significant source of distress^{1–3}. Compared to cisgender individuals, trans individuals have higher rates of suicide and suicide attempts⁴, distress^{5,6}, depression, and anxiety⁷ and are more likely to be the victims of harassment and violence⁸. As a result, many seek gender confirmation surgeries or testosterone (T) therapy to bring their physical appearance and/or speech into alignment with their experienced gender. These interventions are generally effective: recipients report greater external validation of their gender from social engagements following treatment⁹ as well as overall improvements in quality of life^{10–12}. For transgender men (referred to as transmen throughout) undergoing T therapy, more masculine speech is correlated with greater reported well-being².

Two key acoustic characteristics of speech independently contribute to a masculine-sounding voice^{13–16}: 1) fundamental frequency (f_0) of vocal fold vibration, relating to voice pitch, and 2) the spectral structure of speech formants, which give identity to vowels and thus speech content, but also reflect vocal tract length (VTL)¹⁷. During puberty in cisgender males (whose natal sex and identity are both male, called “cismen” throughout), both the length and thickness of the vocal folds increase alongside T levels, thereby lowering f_0 ^{18–21}. The relationship between T and f_0 remains consistent following puberty such that adult cismen with lower f_0 also have higher salivary T^{22–24} (but not always²⁵). Compared to ciswomen, cismen’s vocal folds are approximately 60% longer²⁶ and speaking f_0 is, on average, 80 Hz lower²⁷. In addition to vocal fold changes, the larynx also descends in cismen during puberty, resulting in a larger and longer vocal tract. This 10–20% difference in VTL between cismen and ciswomen accounts for overall lower formant frequencies in cismen that occupy a smaller total frequency range^{17,28,29}.

In previous studies of T therapy-related changes in the voices of transmen, f_0 is reliably reduced in most participants after sufficient time on T therapy. Longitudinal studies demonstrate significant (e.g., ~60–70 Hz)

¹Department of Anthropology, Boston University, 232 Bay Stated Rd., Room 102-B, Boston, MA 02215, USA. ²Department of Forensic Sciences, George Washington University, Washington, D.C., USA. ³Department of Speech, Language, and Hearing Sciences, Boston University, Boston, MA, USA. ⁴Department of Otolaryngology – Head and Neck Surgery, Boston University School of Medicine, Boston, MA, USA. ⁵Department of Biomedical Engineering, Boston University, Boston, MA, USA. ⁶Department of Psychology, Nipissing University, North Bay, ON, Canada. ⁷These authors contributed equally: Carolyn R. Hodges-Simeon and Graham P. O. Grail. ✉email: crhodges@bu.edu

Androgen blockers are a necessary part of estrogen treatment for transfeminine people because testosterone acts more strongly in the body than estrogen does. Therefore, in order for transfeminine people to experience the effects of estrogen treatment, they must block their testosterone. The most common medication used to block testosterone is .

Testosterone Blockers for Transgender Women - Verywell Health

TransGender
BODY FEMINIZER
T-Block

Discrete
PACK

Strogest
Herbal
Available

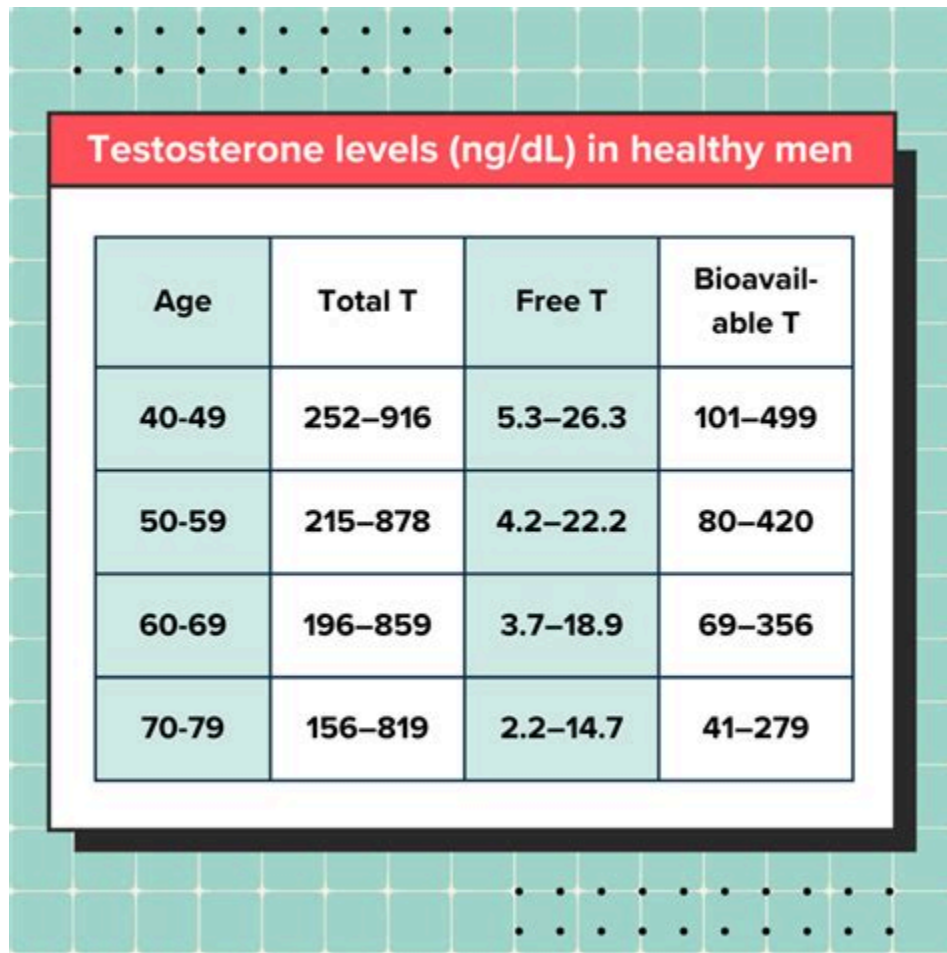
Breasts
Skin
Hair
Nails

**THREE
MONTH
SUPPLY**

Trans form
Testosterone Blocker and Body Feminizer

Summary Transgender men and other transmasculine people may use testosterone to masculinize their bodies in order to align their bodies with their gender identity. The effects of testosterone therapy include physical changes, like increased facial and body hair, increased muscle mass, and lower vocal pitch.

Testosterone Levels: Normal Levels by Age, Gender, and More



The infographic features a teal grid background with a red header box containing the title "Testosterone levels (ng/dL) in healthy men". Below the header is a table with four columns: Age, Total T, Free T, and Bioavailable T. The table lists data for four age groups: 40-49, 50-59, 60-69, and 70-79. The values for Total T, Free T, and Bioavailable T decrease as age increases.

| Age | Total T | Free T | Bioavailable T |
|-------|---------|----------|----------------|
| 40-49 | 252-916 | 5.3-26.3 | 101-499 |
| 50-59 | 215-878 | 4.2-22.2 | 80-420 |
| 60-69 | 196-859 | 3.7-18.9 | 69-356 |
| 70-79 | 156-819 | 2.2-14.7 | 41-279 |

Testosterone therapy is a cornerstone of medical treatment for transgender men who choose to undergo it. The goal of testosterone therapy is usually to achieve serum testosterone concentrations in the male reference range. Testosterone has several desired effects as well as undesired and unknown effects.

Testosterone concentrations and prescription patterns of 1% testosterone gel in transgender and gender diverse individuals

Brendan J. Nolan, Sav Zwickl, Alex F. Q. Wong, Peter Locke, Satu Simpson, Ling Li, Jeffrey D. Zajac and Ada S. Cheung

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Abstract

Background: Masculinising hormone therapy with testosterone is used to align an individual's physical characteristics with their gender identity. Standard testosterone doses and formulations recommended for hypogonadal cisgender men are typically administered, although there are currently limited data evaluating the use of 1% testosterone gel in gender-affirming hormone therapy regimens.

Objectives: The objective of the study was to assess the prescription patterns and serum total testosterone concentrations achieved with 1% testosterone gel in trans and gender diverse individuals.

Materials and Methods: A retrospective cross-sectional analysis was undertaken of trans individuals at a primary and secondary care clinic in Melbourne, Australia. Sixty-seven individuals treated with 1% testosterone gel were included. Primary outcomes were testosterone dose and serum total testosterone concentration achieved.

Results: Median age was 25 [22–30] years and median duration of testosterone therapy was 12 [7–40] months. Thirty-five (52%) individuals had a nonbinary gender identity. Initial median testosterone dose was 25 mg [12.5–31.3] daily. Fifty-two (78%) individuals commenced doses <50 mg daily, the recommended starting dose for hypogonadal cisgender men. Median total testosterone concentration achieved was 11.9 nmol/l [7.3–18.6]. Polycythaemia (haematocrit >0.5) was documented in eight of 138 (6%) laboratory results in six individuals.

Discussion and Conclusions: One percent testosterone gel achieves serum total testosterone concentrations in the cisgender male reference range. A high proportion of individuals had a nonbinary gender identity and most individuals commenced a lower dose than that typically administered to hypogonadal cisgender men, potentially related to slow or 'partial' masculinisation goals.

Keywords: gender identity, nonbinary, testosterone, transdermal, transgender

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Introduction

Testosterone therapy is a necessary component of management for some transgender (trans) individuals (including those with a binary and/or non-binary gender identity) to permit development of physical characteristics to align with their gender

identity. Testosterone therapy is associated with reductions in gender dysphoria and improvement in mental health.^{1–3} Standard doses of parenteral or transdermal testosterone used to treat hypogonadal cisgender men are recommended in consensus guidelines for the care of trans adults.^{4,5}

Correspondence to:
Ada S. Cheung
Department of Medicine,
Austin Health, The
University of Melbourne,
143 Soutley Road,
Heidelberg, VIC 3084,
Australia

Department of
Endocrinology, Austin
Health, Heidelberg, VIC,
Australia
ada@unimelb.edu.au

Brendan J. Nolan
Department of
Endocrinology, Austin
Health, Heidelberg, VIC,
Australia

Department of Medicine,
Austin Health, The
University of Melbourne,
Heidelberg, VIC, Australia
Equitas Gender Diverse
Clinic, Thorne Harbour
Health, Abbotsford, VIC,
Australia

Sav Zwickl
Alex F. Q. Wong
Department of Medicine,
Austin Health, The
University of Melbourne,
Heidelberg, VIC, Australia

Peter Locke
Satu Simpson
Ling Li
Equitas Gender Diverse
Clinic, Thorne Harbour
Health, Abbotsford, VIC,
Australia

Jeffrey D. Zajac
Department of
Endocrinology, Austin
Health, Heidelberg, VIC,
Australia

Department of Medicine,
Austin Health, The
University of Melbourne,
Heidelberg, VIC, Australia

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Female-to-male (FTM) testosterone therapy, or T therapy, is a treatment that some people may receive to induce "masculine" physical traits and suppress "feminine" ones. Those who choose to

Testosterone in men with hypogonadism and transgender males: a .



The Endocrine Society guidelines on monitoring transgender women suggests that patients should reach a serum testosterone $<50\text{ng/dl}$. Only a quarter of transgender women taking a regimen of spironolactone and estrogens were able to lower testosterone levels within the usual female physiologic range.

Estrogen-Based Gender-Affirming Hormone Therapy: Medications . - GoodRx



Testosterone therapy is the cornerstone in the care of men with hypogonadism and transgender males. Gel and intramuscular injections are most frequently used and are registered and included in the international guidelines.



Testosterone blockers, also known as anti-androgen drugs, are commonly prescribed to transgender women to block the effects of testosterone, the primary male sex hormone. By doing so, the drug can reduce some of the characteristic male traits (like facial hair and male-pattern baldness).

Practical Guidelines for Transgender Hormone Treatment

Gender Affirming Care

Gender Care for the Primary Care Pediatrician

Child Developmental Framework:
Gender identity formation is part of normal child development. Pediatricians should ask **all kids** at developmental nodal points about their gender as part of anticipatory guidance & screening.

Using Affirming Language:
Start by asking any patient how they identify. Their terms, identifications, & descriptions should guide the language providers use. Use of chosen name in more contexts (ie home) is protective against depression.

Modalities of Gender Affirmation

| Legal | Social | Medical | Surgical |
|--|---|--|---|
| Can include updating <ul style="list-style-type: none">• Birth certificate• Social Security Card• Medical record• Driver's license/state or city ID | Can include changing <ul style="list-style-type: none">• Pronouns• Name• Clothing/style• Gender expression | Commonly used: <ul style="list-style-type: none">• GnRH agonists• Estradiol• Testosterone• Finasteride• Spironolactone• Birth control | Can include <ul style="list-style-type: none">• Chest/breast reconstruction, augmentation, removal• Hysterectomy, orchiectomy• Vaginoplasty, Phalloplasty• Facial feminization |

Remember: all different kinds of affirmation are completely up to the patient, & providers should support patients in making the changes they want to without making any assumptions. Gender affirmation should be **Patient-Centered Consent-Based Care**.

Take home points

- Gender care is primary care!
- Trauma informed care is essential.
- Kids who are safe & loved at home do well.

References

1. Raymond-Kolker R, Forcier M, Chiu C, Berk J. "Gender Affirming Care: Gender Care for the Primary Care Pediatrician." The Cribsiders Pediatric Podcaster. <https://www.thecribsiders.com/> April 2021.

Masculinizing hormone therapy typically is used by transgender men and nonbinary people to produce physical changes in the body that are caused by male hormones during puberty. Those changes are called secondary sex characteristics. This hormone therapy helps better align the body with a person's gender identity.

Current use of testosterone therapy in LGBTQ populations - Nature

Addressing Opioid Use Disorder among LGBTQ Populations



The objectives of this scoping review are to describe the process of gender-affirming T therapy and what is known about reproductive consequences of T exposure in transgender men; draw parallels with existing animal models of androgen exposure; summarize the existing literature on parenting experiences and desires in transgender people; discuss .

Medicine Alone Does Not Completely Suppress Testosterone Levels Among .



Lucas, who began transitioning six years ago aged 29, decided to use testosterone bought online after being told he would face a two-and-a-half year wait for a gender identity clinic appointment.

Masculinizing hormone therapy - Mayo Clinic

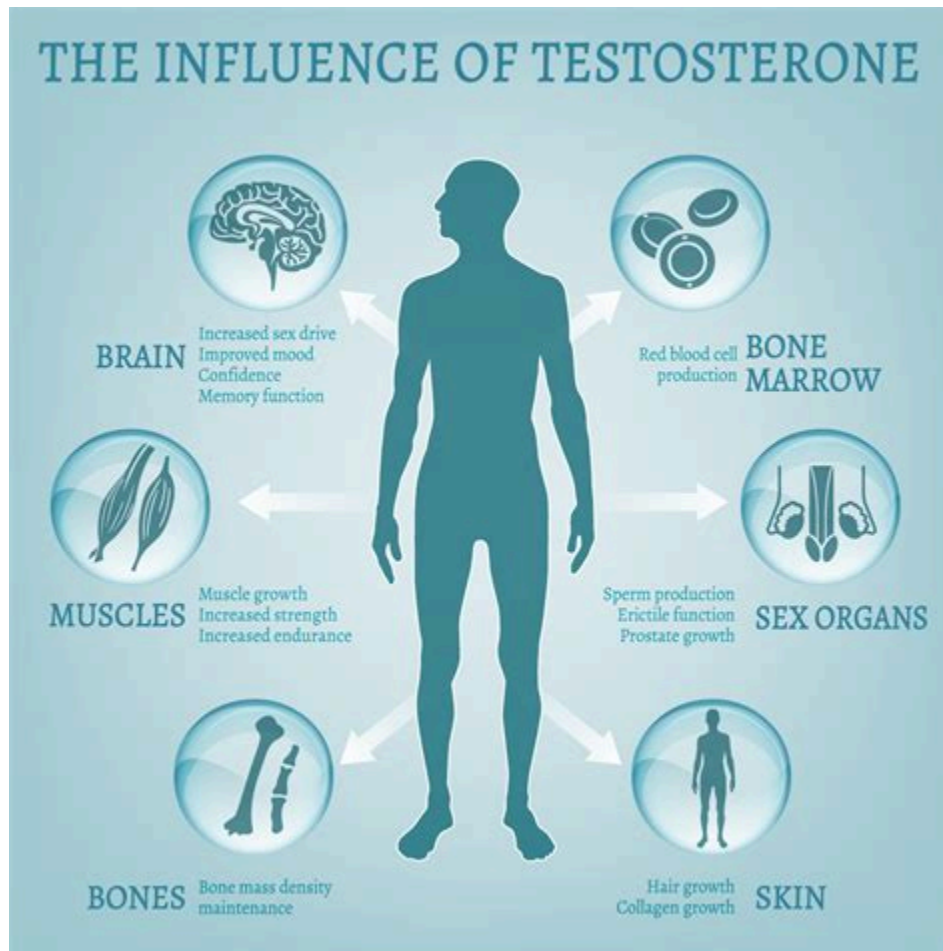


| PREPARATION | METHOD | COST (IF NOT ON AN EXTENDED DRUG PLAN) |
|--------------------------------|--|--|
| TESTOSTERONE ENANTHATE* | INJECTION - EITHER INTO THE MUSCLE OR FATTY TISSUE | \$14-\$28/MONTH |
| TESTOSTERONE CYPIONATE* | INJECTION - EITHER INTO THE MUSCLE OR FATTY TISSUE | \$9-\$18/MONTH |
| TESTOSTERONE PATCH (ANDRODERM) | PATCH - CHANGED ONCE DAILY | \$75-\$300/MONTH |
| TESTOSTERONE GEL (ANDROGEL) | GEL - APPLIED ONCE DAILY | \$75-\$315/MONTH |



Your muscle mass will increase, as will your strength, although this will depend on a variety of factors including diet and exercise. Overall, you may gain or lose weight once you begin hormone therapy, depending on your diet, lifestyle, genetics and muscle mass. Testosterone will cause a thickening of the vocal chords, which will result in a .

Female-to-male testosterone: What to know - Medical News Today



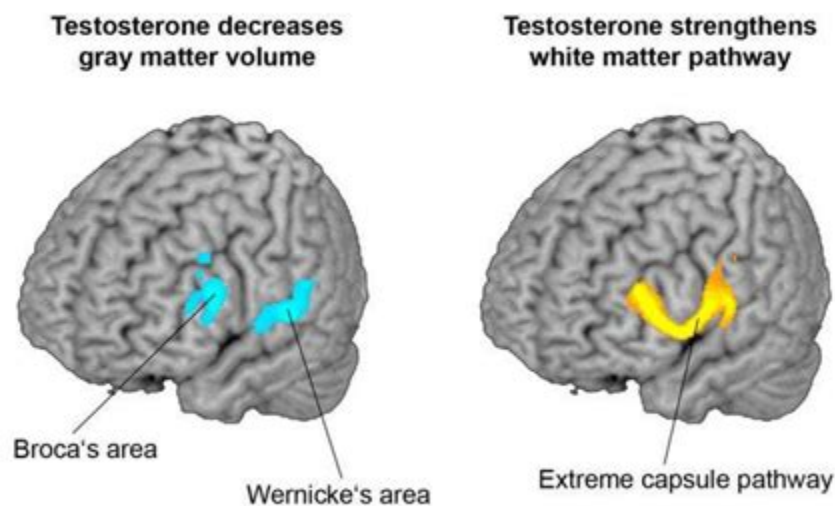
In a small study of transgender men and gender-diverse people who take testosterone, scientists found that one-third of the participants still ovulate and could therefore potentially become pregnant.

One-third of trans people taking testosterone may still ovulate .



Testosterone therapy is a cornerstone of medical treatment for transgender men who choose to undergo it. The goal of testosterone therapy is usually to achieve serum testosterone concentrations in the male reference range. Testosterone has several desired effects as well as undesired and unknown effects. The desired effects include increased facial and body hair, increased lean mass and .

The Effects of Testosterone on the Brain of Transgender Men



A simple blood test can help you determine if your levels are in the normal range, which are 300-1,000 ng/dL for men and 15-70 ng/dL for women. Treatments are available if your testosterone levels are

abnormal. Testosterone Blockers for Transgender Women and Transfeminine People. Testosterone for Transgender Men and Transmasculine People.

Testosterone for Transgender Men and Transmasculine People



Testosterone therapy (TT) is a type of gender-affirming hormone therapy (GAHT) in lesbian, gay, bisexual, transgender, and genderqueer (LGBTQ) populations for gender dysphoria (GD), body .

An Approach to Nonsuppressed Testosterone in Transgender Women .

An Approach to Non-Suppressed Testosterone in Transgender Women Receiving Gender Affirming Feminizing Hormonal Therapy

Arvind Maheshwari MBBS¹, Todd Nippoldt MD¹, Caroline Davidge-Pitts MBBCh¹

¹Division of Endocrinology, Diabetes, Metabolism, and Nutrition, Mayo Clinic, Rochester, MN, USA

Corresponding author:

Caroline Davidge-Pitts MBBCh

Division of Endocrinology, Diabetes, Metabolism, and Nutrition, Mayo Clinic

200 First St. SW, Rochester, MN 55905, USA

E-mail Davidge-Pitts.Caroline@mayo.edu

Tel: +1-507-284-2511

Conflicts of interest: None.

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A practical target for hormone therapy for transgender women (MTF) is to decrease testosterone levels to the normal female range (30–100 ng/dl) without supra-physiological levels of estradiol (<200 pg/ml) by administering an antiandrogen and estrogen.

Estrogen Treatment for Transgender Women and Transfeminine People



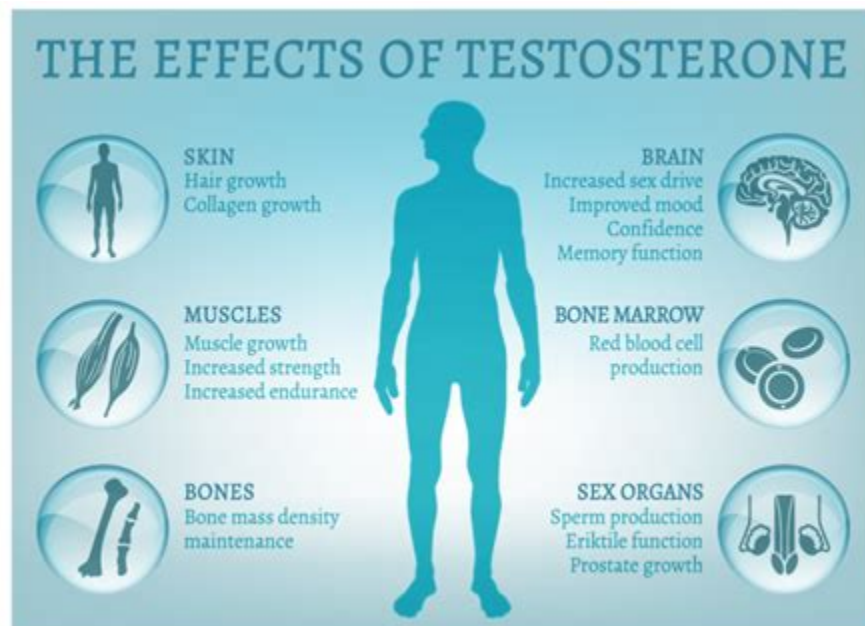
For some people, this may include estrogen-based gender-affirming hormone therapy (GAHT). Estrogen is a cornerstone of estrogen-based GAHT. It's taken as a sublingual (under the tongue) tablet, injection, or patch. Testosterone blockers and progesterone are also sometimes recommended. There are many ways to save on estrogen-based GAHT.

Transgender patients self-medicating over NHS waits - BBC News



The American Psychological Association¹ defines it as "a person's deeply-felt, inherent sense of being a boy, man, or male; a girl, woman, or female; or an alternative gender (e. g. , genderqueer, gender nonconforming, gender neutral) that may or may not correspond to a person's sex assigned at birth or to a person's primary or secondary sex char.

Information on Testosterone Hormone Therapy



Testosterone treatment is a necessary component of care for some transgender and gender-diverse individuals. Observational studies have reported associations between commencement of gender-affirming hormone therapy and improvements in gender dysphoria and depression, but there is a lack of data from randomized clinical trials. Objective

Impact of Exogenous Testosterone on Reproduction in Transgender Men

The Effects of Exogenous Testosterone on Hypertrophy in Transgender Males

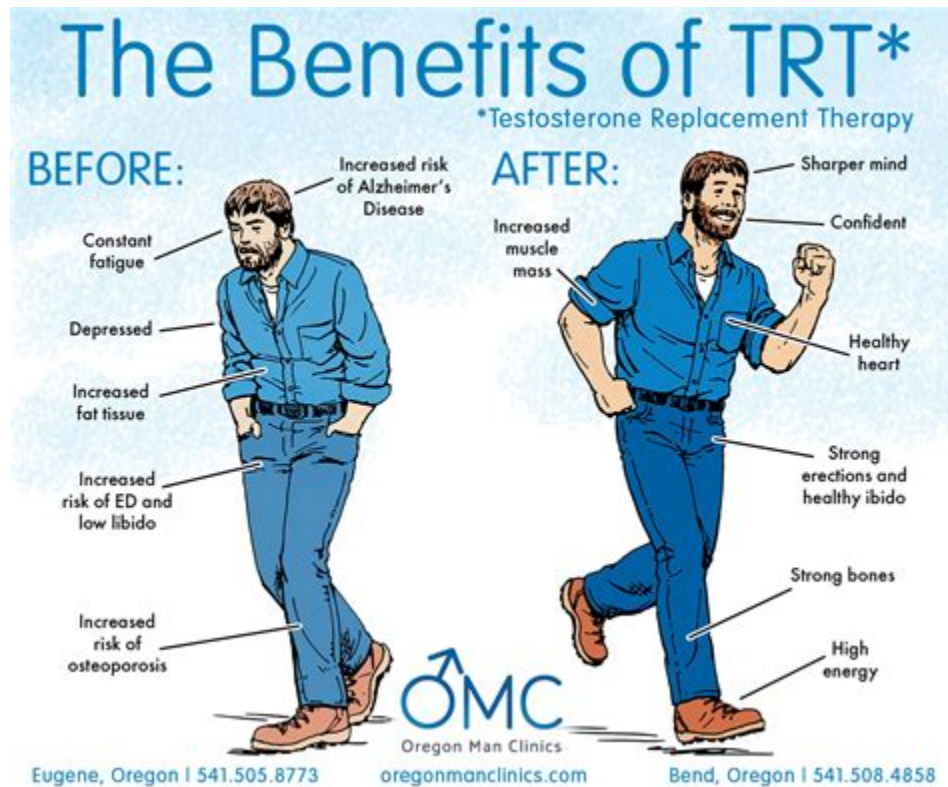
Nadine Sikora (presenter)
Dr. Elizabeth Wuorinen, Dr. Matt Kilgas, Dr. Megan Nelson, Dr. Megan Doczi
Northern Michigan University

Midwest Chapter
1970

Nonsuppressed levels of testosterone are seen in up to a quarter of transgender women on gender-

affirming feminizing hormonal treatment. Multiple factors contribute to this situation, including patient, medication, laboratory, and organ-specific concerns.

Effects of testosterone treatment on transgender males: A single .



Transgender men aged >18 years who newly started testosterone therapy during January 2015 to October 2019 were recruited. Physical changes, laboratory results, and adverse events, including cancer, thromboembolism, cardiovascular events, and death after masculinizing hormone therapy, were evaluated. Results:

- <http://www.fanart-central.net/user/grishagavrilovqw/blogs/20356/Anavar-Hi-Tech-Antes-E-Depois>
- <https://collectednotes.com/aas2024reviwer/stanabol-50-alchemy>
- <https://blog.libero.it/wp/nikitagusevhi/wp-content/uploads/sites/88235/2024/01/Prohormones-That-Don-T-Cause-Hair-Loss.pdf>