

Hormone therapy (HT), also called hormone replacement therapy (HRT), for transgender people involves taking estrogen and testosterone. Hormones are produced by the endocrine system, which is made up of glands that release chemical hormones into the bloodstream. Among other functions, hormones control sex characteristics, like breast development, facial hair, and reproductive systems. Both men and women produce these hormones, but biologically, women produce more estrogen while men produce more testosterone.

Transgender people use hormones during the anatomical and psychological transition to another sex and gender. Hormones allow transgender people to look like the other sex and to feel comfortable; they improve their functioning and limit the potential for depression and anxiety.

### **Effects**

The feminizing effects of estrogen and the masculinizing effects of testosterone may appear after the first couple of doses, though it may be several years before a person is satisfactorily transitioned.

### **Male to Female Changes**

Males transitioning to females (MTF) experience the following effects of estrogen:

- Breast development (full development takes several years)
- Loss of ejaculation
- Loss of erection
- Shrinkage of testicles
- Sterility

Temporary changes, which are reversible after HT is stopped, include the following:

- Decrease in acne
- Decrease in facial and body hair
- Decrease in muscle mass and strength
- Skin becomes softer and smoother
- Slowing of balding pattern
- Redistribution of fat from abdominal area to hips and buttocks

Risks associated with HT include the following:

- Benign pituitary tumors
- Gallbladder disease
- Hypertension (high blood pressure)
- Hypothyroidism
- Liver disease
- Migraine headache
- Tendency for blood to clot, causing related conditions:

- Aneurysm
  - Deep vein thrombosis (DVT)
  - Pulmonary embolism (can be fatal)
- Weight gain
- Worsening of depression (if present); increased sensitivity to stress

### **Female to Male Changes**

Females transitioning to males (FTM) may experience the following permanent effects of testosterone:

- Atrophy of the uterus and ovaries, resulting in sterility
- Baldness; hair loss, especially at temples and crown of head
- Beard and mustache growth
- Deepening of the voice
- Enlargement of the clitoris
- Increased growth of body hair
- Sterility

Temporary changes, which are reversible after HT is stopped, include the following:

- Behavioral developments associated with testosterone production during male puberty:
  - Aggression
  - Increased libido
- Development of acne, similar to male puberty
- Increased muscle mass and strength
- Increase in number of red blood cells
- Redistribution of fat from breasts, hips, and thighs to abdominal area

Risks associated with FTM testosterone therapy include the following:

- Breast cancer
- Cancer of endometrium
- Diabetes
- High cholesterol
- Hypertension
- Liver disease

Tobacco increases a person's risk for disease and complications. A general medical checkup is necessary before treatment, as well as a review of patient and family health history.

### **Requirements for Hormone Therapy for Adults**

The Harry Benjamin International Gender Dysphoria Association provides the following eligibility and readiness criteria for transgender adults seeking hormone therapy:

#### **Eligibility**

- Legal age of majority (age 18 in the United States)
- Demonstrable knowledge of what hormones can and cannot medically do and hormone benefits and risks
- **Either** real-life experience of at least 3 months living in the desired role **or** a period of psychotherapy (usually at least 3 months) specified by a mental health professional

#### **Readiness**

- Real-life experience or psychotherapy has further consolidated gender identity.
- Patient has made progress in improving or continuing stable mental health (implies control of sociopathy, substance abuse, psychosis, and suicidal tendencies).
- Patient is deemed likely to take hormones responsibly.

### **Surgical Guidelines**

Transgender surgery is an option for adults who are diagnosed by a mental health care provider as having gender identity disorder. In actuality, very few transgender patients undergo sexual reassignment surgery.

The Harry Benjamin International Gender Dysphoria Association provides the following eligibility and readiness criteria for transgender adults seeking reassignment surgery:

#### **Eligibility**

- Legal age of majority (age 18 in the United States)
- 12 months of prior continuous hormone therapy (HT), unless medically contraindicated
- 12 months of successful, continuous, full-time, real-life experience
- Regular, responsible participation in psychotherapy, if required by the mental health professional
- Demonstrable knowledge about surgical cost, length of hospitalization, complications, and rehabilitation
- Knowledge of different competent surgeons

## **Readiness**

- Patient has made demonstrable progress in consolidating gender identity.
- Patient has made progress in improving or continuing stable mental health (implies control of sociopathy, substance abuse, psychosis, and suicidal tendencies).

Adapted from *Standards of Care for Gender Identity Disorders*. 2001. The Harry Benjamin International Gender Dysphoria Association