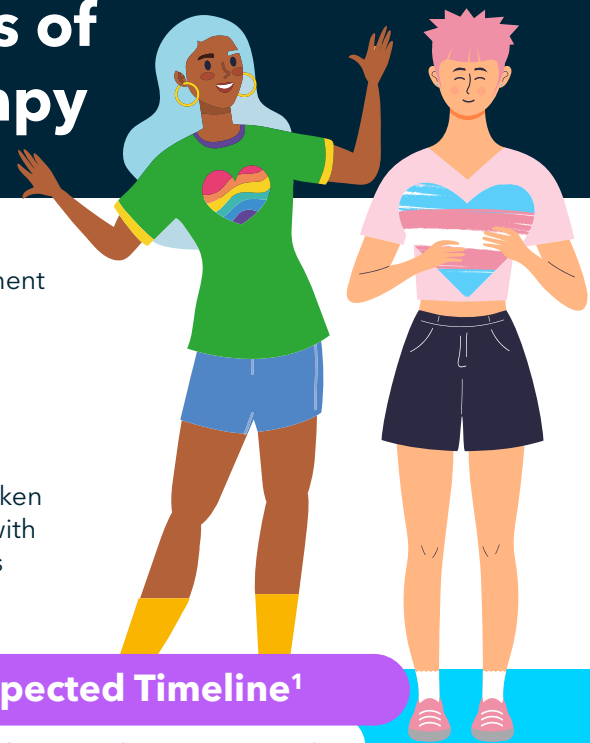




Effects and Possible Side Effects of Estrogen-Based Hormone Therapy



Gender-affirming hormone therapy is a medical process that can help some people better align their physical traits with their gender identity. This document focuses specifically on **testosterone-lowering and estrogen-based hormone therapy**, which typically includes estrogen and/or medications that block testosterone (anti-androgens) and/or progesterone.

Estrogen-based hormone therapy can improve people's quality of life and reduce distress. It can also cause side effects, which vary depending on the person and their treatment plan (including the type of medication, how it's taken and the dosage). The tables below outline what physical changes to expect with estrogen-based hormone therapy and when these changes typically occur as well as how to manage common side effects.

Effects of Estrogen-Based Hormone Therapy and Expected Timeline¹

Note: Some effects (marked with *) may be permanent or semipermanent, even if hormone therapy is stopped.

EFFECTS	ONSET	FULL EFFECT
Changes to sexual response (decreased sex drive and erections)	1-3 months	~3-6 months Long-term effects vary depending on individual factors
Decreased scalp hair loss	Loss may stop within 1-12 months; no regrowth	Variable (3+ years)
Breast growth*	3-6 months	2-5 years
Reduced muscle mass/strength	3-6 months	1-2+ years
Changes in where fat is stored on the body (fat redistribution)	3-6 months	2-5 years
Decreased gonadal (testes) size*	3-6 months	Variable (2-3+ years)
Skin changes including softening and decreased oiliness	3-6 months	Unknown (1-2 years)
Moderately decreased growth of facial and body hair²	6-12 months	3+ years
Infertility (decreased sperm production/production of ejaculate)*	Variable	Variable (1-2 years) *Irreversible effects are more likely with long-term use

¹ If estrogen-based hormones are started after puberty, voice and skeletal structure such as height will not change with hormones alone. Gender-affirming voice coaching is available.

² Total absence of hair growth might not be achieved. Permanent hair removal techniques (e.g., laser or electrolysis) may be needed if that is the goal.



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How to Manage Possible Side Effects

Abbreviations: HCP = health-care provider; ED = erectile dysfunction; OTC = over the counter

Anti-androgen: spironolactone (e.g., Aldactone)

Drop in blood pressure when standing up: You may experience dizziness/lightheadedness, so avoid standing up too quickly, driving and operating heavy machinery. If symptoms are severe or persistent, contact your HCP. These effects are typically temporary and mild.

Increased urine production and thirst: Monitor for signs of dehydration such as darker urine, headaches, dry mouth/eyes/skin and muscle cramps. Drink plenty of water, especially in hot weather and if you drink caffeine-containing beverages. Medication should preferably be taken in the morning to avoid frequent waking at night to urinate.

Stomach upset (e.g., heartburn, nausea): Medication should preferably be taken after a meal to avoid indigestion.

High potassium blood levels: Monitoring (blood work) may be necessary if you are at risk (e.g., chronic kidney problems).

Decreased sex drive and ED: Your HCP can prescribe medication to help with low sex drive or erectile issues. A sex therapist can be a helpful resource for navigating changes to sexual experiences.

You may experience these more as *positive effects* that you are looking for rather than *unwanted side effects*.



This medication tastes like mint.

Blood work to be done regularly at the start then annually as needed by your HCP.

Anti-androgen: cyproterone (e.g., Androcur)

Tiredness and lack of energy: Even if you feel tired, try to keep a regular sleep schedule. Avoid driving or operating machinery if symptoms are severe. Exercising regularly, fuelling the body with nutrients by eating regular meals/snacks and staying hydrated may help. These effects will likely occur for the first few weeks and should subside by the third month.

Decreased sex drive, ED and breast/chest tenderness: These effects are directly related to the hormonal effects.

You may experience these more as *positive effects* that you are looking for rather than *unwanted side effects*.

For **breast tenderness** (e.g., soreness, dense breast tissue, changes to areola), which is a sign of breast growth, apply warm or cool compresses.

Your HCP may prescribe medication to help with **low sex drive or erectile issues**. A sex therapist can be a helpful resource for navigating changes to sexual experiences.

Likely increased risk of the following: liver disease—if alcohol is consumed, do so in moderation.

Possible effects of long-term use: osteoporosis, blood clots, diabetes.

IMPORTANT

Caution if you have a history of mood disorders, such as depression, especially in the first 6–8 weeks.

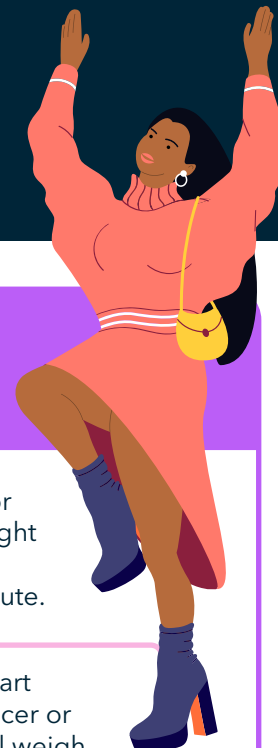
May decrease fertility permanently; more likely with long-term use.

Blood work and other tests may be needed for prevention of long-term use effects. Drugs may need to be prescribed as required.





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Estrogen: Oral/sublingual tablet, topical gel (e.g., EstroGel), transdermal patch (e.g., Estradot), injections (available from compounding pharmacies only)

Nausea, headache and migraine: You may treat these with OTC medications such as Gravol for nausea or Tylenol or Advil for headaches. Check with your pharmacist to see which option is right for you. If Advil or Tylenol are not working well enough for migraines, consult your HCP for a different medication or a preventative drug. Your HCP may consider switching the estrogen route.

Skin irritation (topical or transdermal estrogen only):

OTC products are likely to resolve the issue. Use a cool compress to reduce inflammation, use a moisturizer to keep skin hydrated, and/or use hydrocortisone cream to help reduce itching and inflammation. Avoid any scratching if possible. If irritation continues, contact your pharmacist.

If you have a history of chronic heart disease, estrogen-dependent cancer or severe liver disease, your HCP will weigh the benefits and risks of hormone therapy with you thoroughly.

Common effects like nausea, headache, migraine and skin irritation are typically short term and will likely resolve within a few weeks.

Anxiety, mood swings and hot flashes: While many people report an overall improved mood with the start of gender-affirming hormone therapy, many also report mood swings or a change in emotions (e.g., cry easily). If you feel anxious, have mood swings or hot flashes and these symptoms are impacting your quality of life, talk to your pharmacist or HCP. You can try deep breathing exercises, meditation, doing activities you enjoy, avoiding triggers and dressing in layers. As with any big life change, support from psychotherapists, psychologists or social workers can help navigate this period positively.

A healthy lifestyle is recommended, including regular exercise, healthy eating and smoking cessation.



Decreased sex drive and ED: Your HCP can prescribe medication to help with low sex drive or erectile issues. A sex therapist can be a helpful resource for navigating changes to sexual experiences.

You may experience these more as *positive effects* that you are looking for rather than *side effects*.

Common effects such as anxiety, mood swings, hot flashes, ED and decreased sex drive are related to the hormonal effects. It means your hormone therapy is doing its work. Anxiety, mood swings and hot flashes, if present, will likely resolve with time as your body adapts to the hormones.



Discuss with your HCP if you would like to have a biological child, as this drug lowers fertility.

Weight gain: Talk to your HCP to make a management plan moving forward if this is of concern to you.

Increased risk of blood clot: If you experience shortness of breath; swelling in your extremities; or painful, tender, warm skin with colour changes (red in lighter skin tones; brown or purple in darker skin tones), go to your nearest emergency department immediately, as you may have developed a blood clot.



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Progesterone (e.g., Prometrium)

Possible side effects: Nausea or stomach pain; mood changes; drowsiness; headaches; sleepiness; swelling or bloating from water retention; breast tenderness/swelling/pain.

Rare side effects

Increased risk of blood clot: If you experience shortness of breath; swelling in your extremities; or painful, tender, warm skin with colour changes (red in lighter skin tones; brown or purple in darker skin tones), go to your nearest emergency department immediately, as you may have developed a blood clot.

Breast cancer: Your HCP may discuss screening with you, as needed.

Oral progesterone may have only weak desired effects on breast development.



IMPORTANT

Prometrium is formulated with sunflower oil instead of peanut oil; use caution if you have a soy allergy (contains soy lecithin).

Generic progesterone contains peanut oil; avoid if you have a peanut allergy.

Resources:

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