

Healthy Hair - Preventing age related hair loss

Hair thinning and loss is genetically determined and common with aging in **both sexes**. Like men, over half of women under 50 years of age begin to lose hair. This can start as early as the mid-twenties and gradually worsens, affecting almost 60% of women by age 60. Contrary to urban myths, most women with hair loss have normal or low testosterone levels. Stress and vitamin deficiencies can contribute to hair loss. Over-processing hair can cause hair damage, loss, and breakage.

MEDICATIONS including **blood pressure medications, H2 blockers, antidepressants, statins, and** many others, can also cause hair loss in men and women. **Birth control pills and hormonal IUDs** can also contribute to hair loss. **Surgery and anesthesia** are a common cause of hair loss as is **mental and physical stress** from major medical illnesses. It can take months to recover.

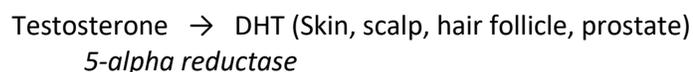
Testosterone deficiency and thyroid deficiency (or **thyroid excess**) can cause hair loss. Hair becomes fine, lifeless, dry, and brittle, breaking easily. The scalp becomes dry and may flake or itch. Like other cells in the body, skin and hair follicles require adequate levels of hormones to remain healthy. Even after a patient receives hormones, the damaged hairs may continue to 'fall out'. When thyroid deficiency or excess is corrected, it may take months to see the new hair growth. With testosterone therapy, the skin and scalp become healthier and new hair growth is noticeable within a month.

Iron deficiency can also cause hair loss along with other symptoms like fatigue and brittle nails.

Overuse of **alcohol** (toxin) can cause hair loss and depletion of essential nutrients, especially B vitamins including Thiamine.

Some people may be confused over the term 'androgenic alopecia', which has been replaced by the term 'Female Pattern Hair Loss' and is not usually associated with testosterone or androgen excess. Hair loss, in postmenopausal women is NOT associated with androgen excess. In fact, we have documented significant hair loss in some women who are **testosterone deficient**. Interestingly, 63% of patients with 'thinning' hair report hair re-growth on testosterone pellet therapy.

Dihydrotestosterone or **DHT** is the metabolite of testosterone that can cause hair loss in both sexes. 5-alpha reductase, an enzyme located in the scalp/hair follicle is responsible for the conversion of testosterone to DHT. **DHT can** cause miniaturization of hair follicles. 5-alpha reductase increases with age as testosterone declines. The combination of **low testosterone** and **high DHT** contributes to hair loss.



Some women with high levels of androgens may experience 'male pattern' hair loss if they convert testosterone to DHT in the scalp/hair follicle. This is especially prominent in women with metabolic syndrome or diabetes. Insulin increases 5-alpha reductase thus lowering testosterone and raising DHT.

The conversion of testosterone to DHT can be blocked by **finasteride** (Propecia) **or dutasteride**. We have found that increasing the dose of testosterone and combining finasteride (60 mg T + 6 mg F) in one or two implants has been able to prevent hair loss and re-grow hair in most women. Finasteride also prevents other 'side effects' attributed to testosterone, including acne.

Low estrogen may contribute to hair loss. Estrogen may be prescribed in women who do not ‘aromatize’ enough estrogen from testosterone. High estrogen may also contribute to hair loss, particularly in men.

Healthy Hair Recommendations

1. **HORMONE BALANCE** (testosterone, thyroid, estrogen if needed)
Too much thyroid medication is a common cause of hair thinning*
2. **STOP SODA, DIET SODA** and all artificial sweeteners.
3. Avoid chemicals (Chlorine, permanents, color) and harsh shampoo (which strip the oil).
4. Check ‘side effects’ of all your medications for hair loss
5. Diet: whole foods (fat and protein) eggs, nuts, seeds, fruits and vegetables
Avoid ‘processed’ carbohydrates, sugars, and processed **protein drinks**
6. **Insulin resistance, obesity, metabolic syndrome and diabetes cause hair loss in men and women**
7. Supplements (Many nutrients are found in egg yolks, nuts, and other whole food)
Iron (45 mg slow release) if iron deficient. Optimal iron and ferritin levels ≥ 80 ug
Iron may be better absorbed if taken with Vitamin C.
Biotin 5-10 mg per day, L-lysine, Iodine **if** iodine deficient
Essential fatty acids (Nordic Natural Fish Oil Capsules, Flax seed)
8. If you drink alcohol, avoid dehydration and supplement with Vitamin C (1000 mg), Zinc (50 mg), Thiamin (500 mg), and Cysteine or NAC (500 mg)
9. Topical Minoxidil (Rogaine) OTC (5%)
10. Exercise increases blood flow to the scalp
11. Stress reduction (**STRESS**, including surgery/anesthesia/illness, is a common cause of hair loss)
12. Finasteride (0.5-1 mg/d) orally, may be used ‘off label’ in women or added to the pellet implant.

*CONNECTION: Testosterone can free up thyroid hormone causing excess thyroid (TSH<0.5), which can contribute to hair loss. Doses of thyroid medication may need to be lowered. Testosterone also increases red blood cells, which binds iron and can contribute to iron deficiency, indirectly contributing to hair loss.

Recommended testing; Iron, ferritin (iron storage protein) and **TSH**.

Reference – Key Points

Glaser RL, Dimitrakakis C, Messenger AG. Improvement in scalp hair growth in androgen deficient women treated with testosterone: a questionnaire study. *British Journal of Dermatology*. 2012;166:274-278.

What’s already known about this topic?

- Androgens are *implicated* in causing scalp hair thinning in women.
- Circulating androgen levels in the female population decline from around 30 years of age.
- Scalp hair density and mean hair shaft diameter in the female population decline from early to mid-thirties.

What does this study add?

- Treatment with testosterone in women with symptoms of androgen deficiency improves scalp hair growth in a high proportion (63%) of those reporting hair thinning prior to treatment.
- Testosterone may have an anabolic effect on hair growth in women with symptoms of androgen deficiency.
- No subject reported scalp hair loss on testosterone treatment, **casting doubt over the over the presumed role of testosterone in causing hair loss.**

Non-responders (i.e., no reported hair regrowth on therapy) had significantly higher BMIs than responders ($P = 0.05$). Baseline serum testosterone levels were significantly lower in women reporting hair loss prior to therapy than in those who did not ($P = 0.0001$). There was no significant difference in serum testosterone levels, measured 4 weeks after testosterone implantation, between responders and non-responders.