

# Female Pattern Hair Loss

Androgenetic alopecia (AGA), also referred to as female pattern hair loss (FPHL), is the most prevalent form of hair thinning in women. It is characterized by gradual thinning of hair, primarily on the vertex and frontal scalp, with preservation of the hairline. It affects approximately one-third of women at some point in their lives, particularly after menopause. Unlike total baldness, which is rare in women, AGA typically manifests as diffuse thinning, which can have a significant psychological impact on affected individuals.

## Pathophysiology and Genetics

The underlying cause of AGA in women is the interaction between genetic predisposition and hormonal factors. It is a genetically inherited condition that can be passed down from either the maternal or paternal side of the family. The process involves androgens—primarily testosterone and its derivative dihydrotestosterone—which cause the miniaturization of hair follicles, shortening the anagen (growth) phase of the hair cycle and leading to thinner hair strands. Over time, the affected follicles may produce only fine, barely visible hairs, often referred to as peach fuzz.

## Clinical Presentation

In women, AGA typically begins as diffuse thinning around the crown, temples, and frontal scalp, progressing in a pattern that may be more diffuse than in men. The condition may also begin as early as puberty, though it is most common during perimenopause and postmenopause. Women with AGA often experience gradual hair thinning rather than complete hair loss, which differentiates it from other forms of alopecia, such as alopecia areata, which may cause patchy hair loss.

In addition to genetic factors, hormonal changes play a significant role in female hair loss. Pregnancy, discontinuation of oral contraceptives, and postpartum periods often trigger temporary forms of hair loss known as telogen effluvium, where excessive hair enters the telogen (resting) phase. This condition is typically reversible, with full regrowth occurring within 6-8 months.

## Diagnosis

Diagnosis of female pattern hair loss is largely clinical, based on the history and physical examination. It is important to rule out other causes of hair thinning, including nutritional deficiencies, hypothyroidism, iron deficiency, polycystic ovary syndrome (PCOS), and chronic telogen effluvium. In cases where an underlying medical cause is suspected, hormonal evaluations (e.g., testosterone, DHEAS, FSH, LH) and thyroid function tests may be performed.

A scalp biopsy or dermatologic evaluation may be considered in uncertain cases, and the pull test or trichogram can help assess hair shedding and hair cycle abnormalities. The Ludwig Scale is often used to categorize the severity of female pattern hair loss, providing a guide for treatment and assessment.

### **Treatment Options**

Treatment for female pattern hair loss is generally aimed at slowing the progression of hair loss, promoting regrowth, and improving the cosmetic appearance. Several treatment options, both pharmacologic and nonpharmacologic, are available:

- ***Minoxidil (Rogaine)***: Minoxidil is the only FDA-approved topical medication for the treatment of female pattern hair loss. Available in 2% and 5% concentrations, minoxidil works by stimulating hair follicles and prolonging the anagen phase of the hair cycle. It can take several months to notice results, and continued use is necessary to maintain its benefits.
- ***Spironolactone***: Spironolactone, an anti-androgen medication, is effective for women whose hair loss is driven by androgens, especially if it occurs before menopause. Spironolactone works by blocking androgen receptors and inhibiting testosterone production, thus reducing the miniaturization of hair follicles. It can take several months to see improvement, and side effects, such as hyperkalemia or menstrual irregularities, may occur.
- ***Oral Contraceptives and Hormone Replacement Therapy (HRT)***: In women who are menopausal or perimenopausal, the use of hormonal therapy, such as oral contraceptives or HRT, may be beneficial. These therapies help balance hormone levels and reduce the effects of androgens on hair follicles.
- ***Platelet-Rich Plasma (PRP) Therapy***: PRP therapy involves injecting the patient's own plasma, which is rich in growth factors, into the scalp to stimulate hair growth. While evidence is still emerging, PRP therapy has shown promise in increasing hair density and improving the hair growth cycle.
- ***Hair Transplantation***: In cases of advanced or unresponsive hair loss, hair transplant surgery can offer long-term cosmetic benefits. Modern techniques, such as follicular unit extraction (FUE) and minigraft procedures, have significantly improved the aesthetic outcomes of hair restoration in women.
- ***Low-Level Laser Therapy (LLLT)***: LLLT, also known as red light therapy, uses light energy to stimulate hair follicles and promote hair regrowth. It is available in devices such as laser combs, caps, and helmets. Although studies have shown modest success, it is still considered an adjunctive treatment.

### **Non-Pharmacologic Approaches**

While medical treatments are the cornerstone of managing female pattern hair loss, cosmetic options can improve the appearance of thinning hair. These include hairpieces, wigs, topical

volumizing products, cosmetic fibers, and hair extensions. These options provide immediate results but do not address the underlying cause of hair loss.

### Psychosocial Support

Hair loss can have a profound emotional and psychological impact on women, leading to feelings of embarrassment, self-consciousness, and low self-esteem. In cases where medical treatments are insufficient or unwanted, women may benefit from psychosocial support through counseling or support groups to help them cope with the emotional challenges of hair loss.

### Conclusion

Female pattern hair loss is a multifactorial condition that can significantly impact a woman's quality of life. Advances in both pharmacologic and non-pharmacologic treatments offer potential solutions for managing this condition. Early intervention with treatments like minoxidil, spironolactone, and PRP therapy, along with cosmetic and psychological support, can help women address hair loss and improve their overall well-being. A multidisciplinary approach involving dermatologists, endocrinologists, and psychologists is often the most effective way to manage this common condition.

### References

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