



The Association of Minimally Invasive Gynecologic Surgeons

...dedicated to safe, state-of-the-art surgery and health life-styles for women of all ages

R. Wayne Whitted MD, MPH

Paul A. Pietro MD

8740 N Kendall Dr. Suite 101

Miami, Florida 33176

Phone: 305-596-3744

www.floridaamigos.com

Hair Loss in Women

Introduction



Mistakenly thought to be a strictly male disease, women actually make up forty percent of American hair loss sufferers. Hair loss in women can be absolutely devastating for the sufferer's self image and emotional well being.

Unfortunately, society has forced women to suffer in silence. It is considered far more acceptable for men to go through the same hair loss process. Even more unfortunately, the medical community also treats the issue of women's hair loss as if it were nonexistent. Since hair loss doesn't appear to be life threatening, most physicians pay little attention to women's complaints about hair loss and essentially tell their patients that "it's no big deal", and that "you'll just have to live with it."

Of course what these physicians don't seem to realize is that the psychological damage caused by hair loss and feeling unattractive can be just as devastating as any serious disease, and in fact, can take an emotional toll that directly affects physical health.

The American Hair Loss Association recognizes that hair loss in women is a serious life altering condition that can no longer be ignored by the medical community and society as a whole.

Types of Women Hair Loss



Hair loss can be temporary or long lasting. Temporary hair loss can be easy to fix when its cause is identified and dealt with or difficult when it is not immediately clear what the cause is. Hair loss that could have been merely temporary may become long lasting as a result of an incorrect diagnosis. The potential for such misdiagnoses is perhaps the most frustrating aspect of hair loss for women. The information in this section will help you identify the cause of your hair loss and ideally lead you and your doctors to the right treatments for your particular kind of hair loss sooner rather than later.

Alopecia is the medical term for excessive or abnormal hair loss. There are different kinds of alopecia. What all hair loss has in common, whether it's in men or women, is that it is always a symptom of something else that's gone wrong in your body. Your hair will remain on your head where it belongs if hormone imbalance, disease, or some other condition is not occurring. That condition may be as simple as having a gene that makes you susceptible to male or female pattern baldness or one of the forms of alopecia

areata. or it may be as complex as a whole host of diseases. Fortunately, hair loss may also be a symptom of a short-term event such as stress, pregnancy, and the taking of certain medications. In these situations, hair will grow back when the event has passed. Substances (including hormones), medications, and diseases can cause a change in the hair growth and shedding phases and in their durations. When this happens, synchronous growth and shedding occur. Once the cause is dealt with, hairs go back to their random pattern of growth and shedding, and your hair loss problem stops.

Causes of Hair Loss



Dihydrotestosterone (DHT), a derivative of the male hormone testosterone, is the enemy of hair follicles on your head. Simply put, under certain conditions DHT wants those follicles dead. This simple action is at the root of many kinds of hair loss, so we'll address it first.

Androgenetic alopecia, commonly called male or female pattern baldness, was only partially understood until the last few decades. For many years, scientists thought that androgenetic alopecia was caused by the predominance of the male sex hormone, testosterone, which women also have in trace amounts under normal conditions. While testosterone is at the core of the balding process, DHT is thought to be the main culprit.

Testosterone converts to DHT with the aid of the enzyme Type II 5-alpha reductase, which is held in a hair follicle's oil glands. Scientists now believe that it's not the amount of circulating testosterone that's the problem but the level of DHT binding to receptors in scalp follicles. DHT shrinks hair follicles, making it impossible for healthy hair to survive.

The hormonal process of testosterone converting to DHT, which then harms hair follicles, happens in both men and women. Under normal conditions, women have a minute fraction of the level of testosterone that men have, but even a lower level can cause DHT-triggered hair loss in women. And certainly when those levels rise, DHT is even more of a problem. Those levels can rise and still be within what doctors consider "normal" on a blood test, even though they are high enough to cause a problem. The levels may not rise at all and still be a problem if you have the kind of body chemistry that is overly sensitive to even its regular levels of chemicals, including hormones.

Since hormones operate in the healthiest manner when they are in a delicate balance, the androgens, as male hormones are called, do not need to be raised to trigger a problem. Their counterpart female hormones, when lowered, give an edge to these androgens, such as DHT. Such an imbalance can also cause problems, including hair loss.

Hormones are cyclical. Testosterone levels in some men drop by 10 percent each decade after thirty. Women's hormone levels decline as menopause approaches and drop sharply during menopause and beyond. The cyclic nature of both our hair and hormones is one reason hair loss can increase in the short term even when you are experiencing a long-term slowdown of hair loss (and a long-term increase in hair growth) while on a treatment that controls hair loss.

The following are the most common causes of women's hair loss:

Androgenetic Alopecia

The majority of women with androgenic alopecia have diffuse thinning on all areas of the scalp. Men on the other hand, rarely have diffuse thinning but instead have more distinct patterns of baldness. Some women may have a combination of two pattern types. Androgenic alopecia in women is due to the action of androgens, male hormones that are typically present in only small amounts. Androgenic alopecia can be caused by a variety of factors tied to the actions of hormones, including, ovarian cysts, the taking of high androgen index birth control pills, pregnancy, and menopause. Just like in men the hormone DHT appears to be at least partially to blame for the miniaturization of hair follicles in women suffering with female pattern baldness. Heredity plays a major factor in the disease.

Telogen Effluvium

When your body goes through something traumatic like child birth, malnutrition, a severe infection, major surgery, or extreme stress, many of the 90 percent or so of the hair in the anagen (growing) phase or catagen (resting) phase can shift all at once into the shedding (telogen) phase. About 6 weeks to three months after the stressful event is usually when the phenomenon called telogen effluvium can begin. It is possible to lose handfuls of hair at a time when in full-blown telogen effluvium. For most who suffer with TE complete remission is probable as long as severely stressful events can be avoided. For some women however, telogen effluvium is a mysterious chronic disorder and can persist for months or even years without any true understanding of any triggering factors or stressors.

Anagen Effluvium

Anagen effluvium occurs after any insult to the hair follicle that impairs its mitotic or metabolic activity. This hair loss is commonly associated with chemotherapy. Since chemotherapy targets your body's rapidly dividing cancer cells, your body's other rapidly dividing cells such as hair follicles in the growing (anagen) phase, are also greatly affected. Soon after chemotherapy begins approximately 90 percent or more of the hairs can fall out while still in the anagen phase.

The characteristic finding in anagen effluvium is the tapered fracture of the hair shafts. The hair shaft narrows as a result of damage to the matrix. Eventually, the shaft fractures at the site of narrowing and causes the loss of hair.

Traction alopecia

This condition is caused by localized trauma to the hair follicles from tight hairstyles that pull at hair over time. If the condition is detected early enough, the hair will regrow. Braiding, cornrows, tight ponytails, and extensions are the most common styling causes.

Oral Contraceptives



Since the "pill" was approved by the FDA in 1960, oral contraception has become one of the most popular forms of birth control used today.

Millions of women are prescribed the pill each year in this country, but very few are aware that oral contraceptives are a common trigger of hair loss for many who use them.

The "pill" suppresses ovulation by the combined actions of the hormones estrogen and progestin or in some cases progestin alone. Women who are predisposed to hormonal related hair loss or who are hypersensitive to the hormonal changes taking place in their bodies can experience hair loss to varying degrees while on the pill or more commonly, several weeks or months after stopping the pill.

The American Hair Loss Association recognizes that for the most part oral contraceptives are a safe and effective form of birth control. The AHLA also recognizes that the "pill" has been clinically proven to have other health benefits for some women who use them. However, with that said, the AHLA believes that it is imperative for all women especially for those who have a history of hair loss in their family to be made aware of the potentially devastating effects of birth control pills on normal hair growth.

The American Hair Loss Association recommends that all women interested in using oral contraceptives for the prevention of conception should only use low-androgen index birth control pills, and if there is a strong predisposition for genetic hair loss in your family we recommend the use of another non-hormonal form of birth control.

Below is a list of birth control pills ranging from lowest androgen index to highest:

Desogen, Ortho-Cept, Ortho-Cyclen, Ortho Tri-Cyclen, Micronor, Nor-Q D, Ovcon-35, Brevicon/Modicon, Ortho Norvum 7/7/7, Ortho Novum 10-11, Tri-Norinyl, Norinyl and Ortho 1/35, Demulen 1/35, Triphasil/Tri-Levien, Nordette, Lo/Ovral, Ovrette, Ovral, Loestrin 1/20, Loestrin 1.5/30.

The following hormonal contraceptives have a significant potential of causing or exacerbating hair loss.

It is important to note that any medication or therapy that alters a woman's hormones, including but not limited to, contraceptives, can trigger hair loss in anyone who takes them.

Progestin Implants

Implants, such as Norplant, are small rods implanted surgically beneath the skin, usually on the upper arm. The rods release a continuous dose of progestin to prevent ovulation.

Hormone Injections

Progestin injections, such as Depo-Provera, are given into the muscles of the upper arm or buttocks. This injection prevents ovulation.

Skin Patch

The skin patch (Ortho Evra) is placed on your shoulder, buttocks, or other location. It continually releases progestin and estrogen.

Vaginal Ring

The vaginal ring (NuvaRing) is a flexible ring about 2 inches in diameter that is inserted into the vagina. It releases progestin and estrogen

Diagnosis



Hair loss in women isn't always as straightforward as it is in most men. In men about 90 percent of all cases are caused by hereditary male pattern baldness. In women however hair loss can be triggered by a multitude of conditions and circumstances.

The below battery of diagnostic tests should be performed when attempting to pinpoint the hair loss trigger. These tests can at the very least eliminate the possibility of certain disorders causing your hair loss and perhaps find the actual cause. The truth of the matter is that for many patients these test usually come back with reading within the "normal range, but it's important to remember that the proper diagnosis of female hair loss usually starts of with the process of elimination.

Diagnostic Tests

.Hormone levels (DHEAs, testosterone, androstenedione, prolactin, follicular stimulating hormone, and leutinizing hormone)

.Serum iron

.Serum ferritin

.Total iron binding capacity (TIBC)

.Thyroid stimulating hormone (T3, T4, TSH)

.VDRL (a screening test for syphilis)

.Complete blood count (CBC)

.Scalp biopsy

A small section of scalp usually 4mm in diameter is removed and examined under a microscope to help determine the cause of hair loss.

.Hair pull

The hair pull test is a simple diagnostic test in which the physician lightly pulls a small amount of hair (approx 100 simultaneously) in order to determine if there is excessive loss. Normal range is one to three hairs per pull.

.Densitometry

The densitometer is a handheld magnification device which is used check for miniaturization of the hair shaft

Treatment



Women are in a "Catch-22" position when it comes to drug treatments for androgenetic alopecia. While many drugs may work to some degree for some women, doctors are reluctant to prescribe them, and drug companies aren't exactly falling over themselves to test existing or new drugs specifically for their ability to prevent and treat female pattern baldness.

Physicians are reluctant to use systemic treatment (a pill or other form of internal treatment that affects your entire system) unless they know that the hair loss is due to an excess of androgen in the system or a sensitized "over-response" to the so-called "normal" amounts of androgen in the system. That's because these systemic treatments may lower the body's androgen levels. Therefore, physicians often choose topical treatments (those that are applied directly to the scalp).

The best results from treatment happen when you begin treatment as soon as possible after the hair loss begins because prolonged androgenetic alopecia may destroy many of the hair follicles. The use of anti-androgens after prolonged hair loss will at least help prevent further hair loss and encourage some hair regrowth from those follicles that have been dormant but are still viable. Stopping treatment will result in the hair loss resuming if the androgens aren't kept in check in some other way. Maintaining your vitamin and mineral levels helps while you're on anti-androgen medications.

As always, treatments have the best chance of being effective if they are geared to the cause of the hair loss as well as to triggering hair growth.

Currently there is only one FDA approved treatment for female pattern hair loss.

Below you will find a list of treatments currently being used to treat hair loss in women. Some of these drugs have not been approved by the FDA for this particular application, however they have all been approved for other applications and are used "off label" to treat hair loss.

The effectiveness of these agents and methods vary from person to person, but many women have found that using these treatments have made a positive difference in their hair and their self-esteem.

Minoxidil 2% Topical Treatment

Minoxidil was first used in tablet form as a medicine to treat high blood pressure (an antihypertensive). It was noticed that patients being treated with minoxidil experienced excessive hair growth (hypertrichosis) as a side effect. Further research showed that applying a solution of minoxidil directly to the scalp could also stimulate hair growth. The amount of minoxidil absorbed through the skin into the bloodstream is usually too small to cause internal side effects.

Women with diffuse androgenetic alopecia can use minoxidil and it actually seems to be more effective for women compared to men. The makers of minoxidil recommend women only use the 2% concentration of minoxidil and not 5%. The makers of minoxidil have not received FDA approval for promoting 5% minoxidil or minoxidil extra strength for use by women. Many dermatologists do prescribe minoxidil 5% for women with androgenetic alopecia if used under their supervision. Some small clinical trials have been conducted on 5% minoxidil for androgenetic alopecia in women showing that indeed the 5% solution is significantly more effective in both retaining and regrowing hair than the 2 % solution.

In clinical studies of mostly white women aged 18-45 years with mild to moderate degrees of hair loss, the following response to minoxidil was reported: 19% of women reported moderate hair growth after using minoxidil for 8 months (19% had moderate regrowth; 40% had minimal regrowth). This compares with 7% of women reporting moderate hair regrowth after using the placebo, the liquid without the active ingredient in it, for 8 months (7% had moderate regrowth, 33% had minimal regrowth).

The American Hair Loss Association recognizes the limitations of topical minoxidil treatment in the fight against female androgenic alopecia (female pattern baldness) therefore we recommend that you seek out the advice of an informed hair loss specialist that can provide you with information on the potential treatments listed on this website.

Androgen Receptor Inhibitors.

Aldactone / Spironolactone

Spironolactone or the more popular brand name Aldactone is in a class of drugs called potassium-sparing diuretics (water pill). It

is used to reduce the amount of fluid in your body without causing the loss of potassium. It is also used to treat hypertension (high blood pressure) and edema (swelling) and used to treat potassium deficiency and hyperaldosteronism (a hormonal disorder).

Spironolactone is an antiandrogen that works in two ways. Primarily it slows down the production of androgens in the adrenal glands and ovaries. Secondly it blocks the action of androgens in part by preventing dihydrotestosterone from binding to its androgenic receptor.

Tagamet / Cimetidine

Cimetidine sold under the brand name Tagamet, belongs to a class of histamine blockers used mainly to treat gastrointestinal ulcers. The histamine blocking action prevents the stomach from producing excess acid, allowing the body to heal the ulcer. Cimetidine also has a fairly powerful anti-androgenic effect and has shown to block dehydrotestosterone from binding the follicle receptor sites.

Cimetidine has been used to treat hirsutism in women (excess facial hair growth) and has been studied in women with androgenic alopecia showing promising results. Because of the high doses needed to achieve it's hair raising results, men should not take cimetidine to treat their hair loss due to possible feminizing effects including adverse sexual side effects.

Cyproterone Acetate

Cyproterone Acetate is used to reduce sex drive in men which have excessive sex drive and for the treatment of pronounced sexual aggression. It is also prescribed to treat severe hirsutism in woman of childbearing age and also androgenic alopecia in women. Cyproterone acetate exerts its effects by blocking the binding of DHT dihydrotestosterone to its receptors.

Cyproterone acetate is not available in the US and is thought of as one of the last resorts for treating female pattern hair loss because of its possible toxicity and long term side effects.

As with any drug side effects other than those listed may occur, contact your doctor if you are experiencing a side effect that is unusual or particularly bothersome

Estrogen/Progesterone

Also known as hormone replacement therapy (HRT) and commonly prescribed at menopause, estrogen and progesterone pills and creams are probably the most common systemic form of treatment for androgenic alopecia for women in menopause or whose estrogen and/or progesterone are lacking for other reasons.

Oral Contraceptives

Since birth control pills decrease the production of ovarian androgens, they can be used to treat women's androgenic alopecia. Keep in mind, however, that the same cautions must be followed whether a woman takes contraceptive pills solely to prevent contraception or to treat female pattern baldness. For example, smokers over thirty-five who take "the pill" are at higher risk for blood clots and other serious conditions. Discuss your medical and lifestyle history thoroughly with your doctor. Contraceptive pills come in various hormonal formulations, and your doctor can determine which is right for your specific needs, switching pills if necessary until you are physically and emotionally comfortable with the formulation. Note: *Only low androgen index birth control pills should be used to treat hair loss. High androgen index birth control pills actually contribute to hair loss by triggering it or enabling it once it's been triggered by something else.*

Nizoral/Ketoconazole

Available as a topical treatment by prescription, Ketoconazole is currently used as an antifungal agent in the treatment of fungal infections. It also has anti-androgenic effects and can cause a reduction in the production of testosterone and other androgens by the adrenal gland and by the male and female reproductive organs (in women, the ovaries). Because of this action, it can be used to help treat hair loss. Nizoral shampoo contains 2 percent Ketoconazole and is prescribed not only for the treatment of scalp conditions, but also in combination with other treatments for androgenic alopecia. A 1 percent version is now available over-the-counter, but it may not be as effective as the 2 percent prescription strength. There are no significant side effects.

Propecia/Proscar

The drug finasteride inhibits the enzyme 5-alpha reductase, thereby inhibiting the production of prostate-harming, follicle killing DHT. It was first marketed to treat the prostate under the brand name Proscar in 5 mg pills. In 1998, a 1 mg version with the brand name Propecia entered the market as the first pill approved by the FDA for men's hair loss. It works quite well for most

men in both preventing hair loss and triggering regrowth, and it may work for some women, although women must not take it if they are pregnant and must not get pregnant while on the drug because of the risk of birth defects in a male fetus. Less than 2 percent of men experience transient sexual side effects including erectile and libido difficulties. In women these side effects do not occur.

Cyproterone Acetate with Ethinyloestradiol

Sold under the brand name Diane 35 and Diane 50, this contraceptive tablet is prescribed in Europe for women's androgenetic alopecia. The drug works by blocking some of the actions of male hormones commonly present in women. Although it's possible for the drug to stop further hair loss and trigger regrowth of hair within about a year, it needs to be used on an ongoing basis in order to maintain regrowth and eliminate hair loss. Possible side effects include breast tenderness, headaches, and decreased libido. It does have one good side effect- it helps prevent osteoporosis. The drug is a combination of cyproterone and estradiol, an estrogen. Both Diane 35 and Diane 50 contain 2 mg of cyproterone. Diane 35 contains 0.035 mg of estradiol. Diane 50 contains 0.050 mg of estradiol. The drug is as effective as, if not more than, spironolactone. Currently this drug is not available in the US

Degree of Hair Loss

There are two widely known female hair loss density scales used by most hair loss specialists: the Ludwig Scale and the Savin Scale. For all intents and purposes, they are identical except that the Savin Scale also measures overall thinning.

As you will see in these illustrations, eight crown density images reflect a range from no hair loss to severe hair loss. Density 8 is rarely seen in clinical practice. One example of frontal anterior recession is also illustrated (again, it's not too common), and one example of general diffuse thinning, lateral view, is shown.

