

About Hair Loss

General Info

It is important to understand **how the body produces healthy hair**. The scalp is composed of 3 basic layers of skin. The Epidermis – The Dermis – and the Subcutaneous Layers. Within these three layers of skin are blood vessels, nerves, muscles, glands, millions of cells, and of course, the hair. The hair like any other part of the body is supported by the blood. As the blood brings oxygen and nutrients into the papilla area it promotes cellular activity for the hair, and as these cells reproduce, they build a flexible substance called Keratin (hair). As the hair grows in the follicle, it is then lubricated by the sebaceous gland that secretes oil in the follicle, which coats the hair for smooth growth and provides luster and sheen.

There are [many causes for hair loss](#); including androgenetic alopecia, auto immune diseases, connective tissue disease, exposure to toxic chemicals, certain [prescription drugs](#) that cause hair loss, certain diseases, prolonged illness, radiation treatments, hormonal imbalances, stress, poor nutrition, sebaceous oil build-up and slow cellular activity, are just some of the causes. Heading the list is Male Pattern Baldness. This problem affects over 40% of the adult male population and thousands of women.

The interaction of DHT with androgen receptors in scalp skin and follicles appears to cause male and female pattern baldness. DHT miniaturizes hair follicles by shortening the anagen (growth) phase and/or lengthening the telogen (resting) phase. This is usually a gradual process of converting terminal to vellus-like hair. The net result is an increasing number of short, thin hairs barely visible above the scalp.

It's just that simple – *where there is no blood – there is no life!* A constricted blood supply prevents certain nutrients from coming into the papilla area where vitamins, minerals, and amino acids are necessary for proper cellular reproduction. [Good nutrition is vital for strong, healthy hair](#). When blood and nutrients are not reaching the papilla area, cells reproduce at a much slower rate. This slow cellular activity produces a thinner, poorer quality hair, but this fine hair is a good sign that *there is still life in the follicle*, so there's still hope for your hair.

Stress is another contributor and causes of hair loss. While under stress, the pituitary gland can produce hormones and enzymes that can constrict the vascular system, thus hindering the oxygen, nutrients, and blood flow to the hair. It is very important to bring stress levels under control to stop it as a cause of hair loss.

Probably the most talked about cause of hair loss is Sebaceous Oil Build-up - referred to by many as sebum plug. The function of the sebaceous gland is to supply oil (sebum) to the hair follicle, which lubricates the hair for smooth growth. The problem occurs when thin, poor quality hair is being produced in the follicle. If the hair is not in its proper condition, oil fills up in the follicle, hardens, and can hinder proper hair growth.

The secret to stimulating good hair growth is: *An adequate blood supply, proper nutrients, and neutralizing the damaging effects of DHT.*

What is Hair

Hair is composed of a hardened protein called keratin. There are three layers to hair:

Cuticle – external layer of hair formed from hardened cells. It is scaly in nature and gives hair texture.

Cortex – Under the scalp and related to hair volume. The cells of the cortex contain keratin and melanin (pigment).

Medulla – Innermost center of hair, which is about 10% of volume, except in thin hair when the medulla may be absent.

Root – the living part of the hair anchored in the scalp. At the end of the root is the bulb, a thicker whitish structure.

Papilla – Empty area at the base of the bulb connecting the hair to the head. This is where the blood vessels and nerves give the hair its nourishment.

HAIR CYCLES

*Everyone has approximately 100,000 hairs

*Hair cycles every 2 to 6 years (average-3 years) and is genetically programmed

There are three phases of hair growth:

- **Anagen Phase** – the initial growth phase of hair, usually lasting about 1000 days. It regularly occurs in most of the hairs on the human head. Approximately 85% of the hair on your head grows one inch per month. During this phase, hair is very sensitive to nutrition and environment.
- **Catagen Phase** – Is a period of arrest which causes the follicle (root) to form a club hair and fall out. Most hair regrows because the follicle remains. As new hair grows from the root inside the follicle, it pushes out the old hair.
- **Telogen Phase** – Is a resting mode 3 to 4 months prior to the anagen phase starting all over again. This phase usually lasts 100 days. Approximately 10 to 15% of all hairs are in this state of rest at any given time.

CAUSES OF HAIR LOSS

(aka. baldness, balding, man baldness, male pattern baldness, male balding, male pattern hair loss, female balding, female pattern baldness, female balding, hair loss, hair loss in man, hair loss woman, hair loss in woman, hair loss for woman)

1. **Androgenetic Alopecia**
2. **Auto immune diseases** – an immune reaction attacks the hair follicles, producing antibodies that attack these tissues as if they were foreign invaders.
 - a. Androgenic Alopecia – the body's immune system is sensitized to increased levels of DHT in the scalp causing hair loss in these high concentrated DHT areas.
 - b. Alopecia totalis, universalis – immune sensitivity to a substance other than DHT.
3. **Connective tissue disease** – causes scarring of skin, loss of circulation to hair follicle and autoimmune reaction leading to temporary or permanent loss of hair
 - a. Lupus, Rheumatoid arthritis, Scleroderma, MCTD.
4. **Exposure to toxic chemicals** - Tobacco smoke contains hundreds of lethal and damaging chemicals which can accelerate normal hair loss and retard effects of medication and surgical restoration. This effect can result either from being a smoker or from second hand smoke.
5. **Radiation exposure** – Irradiation therapy or exposure to radiation from any source can cause localized or total hair loss, which may be permanent if the dose is high enough.
6. **Iron deficiency anemia** - very common with woman but also can effect men.
7. **Hormonal changes** - due to pregnancy, birth control pills and menopause.
8. **Thyroid disease** – either hypothyroid or hyperthyroid disease causes hair to become brittle and break resulting in localized or generalized loss. Correction of the thyroid condition usually causes hair to regrow.
9. **Stress** – usually temporary and transient of the alopecia areata type.

10. **Drug interactions** – certain vitamins prescription and over the counter, may have individual and non specific side effects of hair loss. Usually, when the medication is discontinued, the hair regrows. Tell your health care provider all medications you are taking and try to have one pharmacist fill all prescriptions and over the counter products.
 - a. Excessive Vitamin A
11. **Individual reaction to illness or a personal sensitivity to the environment** – Alopecia can be a reaction to your environment where hair loss is almost like an allergic reaction.
12. **Chemotherapy**
13. **Fungal and Bacterial Infections** – impetigo and tinea capitis.

PRESCRIPTION DRUGS & HAIR LOSS

Many prescription drugs have an effect on a person hair loss, sometime they can be dramatic, particularly if nothing is done to counteract their effects.

Drugs That Cause Hair Loss

1. **Acne**-Accutane
2. **Blood - Anticoagulants**- warfarin, aspirin, coumadin, heparin
3. **Cholesterol Lowering** - Atorvastatin, Lipitor
4. **Convulsion/Epilepsy** - Anticonvulsants –Tridione
5. **Antidepressants** - Prozac, Zoloft, Paxil, Anafranil, Janimine, Tofranil, Adapin, Sinequan, Surmontil, Pamelor, Ventyl, Elavil, Endep, Norpramin, Pertofane, Vivactil, Asendin, Haldol
6. **Diet** - Amphetamines
7. **Fungus** - Antifungals
8. **Glaucoma** - Timoptic eye drops, Ocudose, XC
9. **Gout**- Allopurinol
10. **HeartBeta blockers such as** - Tenormin, Lopressor, Corgard, Inderal
11. **Hormonal Conditions** - Birth Control pills, Progesterone, Estrogen, Male Androgenic hormones and all forms of testosterone, anabolic steroids, Prednisone and other steroids
12. **Inflammation** - Arthritis drugs, NSAIDS such as: Naprosyn, Anaprox, Indocin, Clinoril
13. **Anti-inflammatory drugs such as** - Methotrexate, Rheumatex, Folex
14. **Parkinson's Disease** - Levodopa
15. **Thyroid Disorders** - Most all of these drugs
16. **Ulcers** - Both prescription and OTC: Tagamet, Zantac, Pepcid

DIETARY GUIDELINES FOR HEALTHY HAIR

Most people who still have hair can keep what they have. 95% of hair loss is androgenetically based. The remaining 5% is from other causes. Testosterone is converted to DHT by 5 alpha reductase. DHT is an agent that creates seborrhea, causing oil, scales, and bacteria to build up. This inhibits the growth of a new hair follicle comparable in size to the one it is replacing.

Low Fat, sugar balanced diet

High fat –

- a. increases testosterone changing normal hormonal balance levels
- b. decreases sex hormone binding globulin thus more testosterone circulates

Propecia and oral Anti-Androgenetic Pills inhibit 5 alpha reductase conversion of testosterone to DHT, however it is also beneficial to modulate testosterone production with a low fat, sugar balanced diet.

Females – adipose tissue metabolizes estrogen to testosterone, therefore decrease fat intake and lose weight.

Sugar Balanced diet – based on keeping blood sugar levels at a more even level and avoiding very low or very high blood sugar levels. This means eating at regular intervals to avoid low blood sugar levels, and not eating high sugar foods to avoid high blood sugar levels. The amount of insulin your body manufactures is based on the amount of sugar you include in your diet. By controlling insulin production, one controls the production of an essential fatty acid called arachidonic acid which aids in the production of testosterone. Controlling arachidonic acid production, also helps in another hormonal system known as eicosanoids (eye-kah-sah-noids), key hormones that control many body functions such as blood pressure and synthesis of keratin proteins (the major component of hair).

What should you eat?

A balanced diet of lean protein, soy, and complex carbohydrates found in fruits and vegetables and monounsaturated fats found in extra virgin olive oil and certain nuts.

Carbohydrates - Eat lots of fruits and vegetables but avoid potatoes, pasta and bread as they immediately turn to glucose and elevate blood sugar.

Monounsaturated fats – Found in extra virgin olive oil, almonds, avocado, macadamia nuts, cashews, pistachios, pecans, and hazelnuts.

Alcohol – No more than one drink per day is advisable. Alcohol robs the body of zinc, vitamin B, folic acid, and vitamin C. It also acts as a diuretic and effects blood sugar levels.

Caffeine – Limit your use of caffeine as it depletes the body of Vitamins B and C, potassium, and zinc, causing stress to the adrenal glands by decreasing nutrients in the bloodstream and increasing DHT levels.

Avoid nicotine

For further information, read *The Zone*, by Barry Sears, Ph.D., and consult with a registered dietician or your primary care physician

IMPORTANT ELEMENTS FOR HEALTHY HAIR

<u>Element</u>	<u>Purpose</u>	<u>Groups</u> <u>Food</u>
Protein	Building blocks of keratin synthesis	Dairy, Soy
Fats	Health of your hair (HDL)	Fish, lean meat- avoid red meat
<u>Vitamins</u>		
A (Beta Carotene)	In moderation retards aging	Fish, parsley, spinach, carrot
B Group -Biotin, Folic acid, Niacin, Thiamine	Essential for hair growth and vitality	Brewers Yeast, egg yolk, green vegetables
B2 – Riboflavin	If lacking, allows sebaceous gland production	Milk, peanuts
B5 – Panthenol	Fosters growth in Alopecia & produces anti-inflammatory action	Wheat germ, soy beans, cantaloupe
B6 – Pyridoxine ,Pyridoxal Pyridoxamine	B6 is an anti-seborrheic and inhibitor of 5 alpha reductase, your body is unable to store B6	Cooking & processing of foods destroys B6
C	Antioxidant	Citrus fruits
E	Antioxidant	Wheat germ, corn
Pycnogenol	Potent antioxidant	OPC-3 pine bark, Grape seed, red wine extract
<u>Trace Elements</u>		
Zinc	Keeps nails and hair healthy	Dried beans, fish, Oyster
Calcium	Prevents brittle nails and reduces dandruff	Dairy, fish, almonds
Magnesium	Necessary for proper absorption of calcium	Wheat, cocoa
Water	Needed for proper hydration	Drink 8 glasses, 8oz each, per day

Prevention Tips

IMPORTANT ACTIONS TO PREVENT ABNORMAL HAIR LOSS

1. **Never pull on your hair. It is ordinarily better to use a comb rather than a brush. Along the same lines, never dry your hair by rubbing it with a towel. Instead use the towel as a sponge.**
2. **Do not wear any wig without the counsel of your trichologist or physician.**
3. **Do not use permanents and colorants without the counsel of your trichologist or physician.**
4. **Daily shampoos are acceptable if using [Scalp Scripts shampoo](#). All other detergent shampoos are likely to cause further damage. Only one application is necessary and always rinse thoroughly.**
5. **Good nutrition is important. It must include adequate protein intake and be well balanced.**
6. **Try to avoid fatty foods since they not only increase your serum lipids but also are liable to increase secretion of your scalp sebaceous glands.**
7. **In excessive amounts, Vitamin A has been known to cause hair loss.**
8. **Raw eggs may decrease Biotin in your body. Cook them well.**
9. **Avoid any actions that tend to brutalize the scalp such as vibro massage.**
10. **Avoid sunburn on your scalp.**
11. **Always rinse your hair after bathing in chlorinated or salt water.**