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Our Members Asked:

Do hair loss supplements, such as Viviscal, Hair La Vie, and Nutrafol, or topical essential oils work?

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Latest Update | Medications & Losing Hair

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Answer:

Deficiencies in nutrients such as iron, zinc, biotin, vitamin D and protein can cause hair loss. Supplementing to offset these may reverse this hair loss. However, supplementing with these nutrients is unlikely to benefit people who already get adequate amounts.

Other supplement ingredients, including saw palmetto, beta-sitosterol, and pumpkin seed oil, and topical essential oils, have shown only modest benefits at best at promoting hair regrowth and the quality of the evidence is generally weak.

Similarly, there is little to no good evidence to suggest that "hair formula" supplements work, such as *Viviscal* (which includes marine protein), *Hair La Vie Clinical Formula*, and *Nutrafol* products, as well as hair loss shampoos such as *Pura d'or Hair Thinning Therapy Shampoo* or *Nioxin* shampoos.

Be aware that certain supplements — such as DHEA, selenium, St. John's wort, and vitamin A — as well as many drugs may *cause* hair loss.

There is preliminary evidence taking a low dose of the drug **minoxidil** *orally* (as opposed to its approved, topical use, as in *Rogaine*) or **dutasteride** (which is used for treating benign prostatic hyperplasia) may help regrow thinning hair and may work better than low-dose finasteride (*Propecia*, which *is* approved for treating male-pattern baldness), although there are possible side effects with these drugs.

Nutrient deficiencies that can cause hair loss

In premenopausal women, **iron** deficiency is a common cause of hair loss. Severe deficiencies in **protein**, **vitamin D** and **zinc** are also associated with diffuse hair loss (Franca, JCDSA 2013). Zinc deficiency can occur with hypothyroidism, leading to hair loss. Zinc supplementation has been shown to reduce hair loss and other symptoms of hypothyroidism (Ambooken, Int J Trich 2013).

Biotin is often included as an ingredient in supplements for hair and nails, such as **SugarBearHair**. Although hair loss is a symptom of biotin deficiency, taking biotin if you're *not* deficient won't help your hair. It may, however, help to strengthen brittle nails — see the Biotin section of the **B Vitamin Supplements Review** for more information about this use. Be aware that high doses of biotin can **interfere with certain medications and laboratory tests**, including tests used to diagnose thyroid disease and heart attacks, so be sure to **tell your doctor if you are taking biotin**.

Supplements for hair loss

There is very preliminary evidence that **saw palmetto extract and beta-sitosterol**, may be beneficial in **androgenic alopecia (male-pattern baldness)** — possibly by inhibiting the same enzyme (5-alpha-reductase) inhibited by finasteride (Propecia, Proscar), a prescription drug for hair loss.

A double-blind study found that 400 mg of **pumpkin seed oil** (from a branded product *Octa Sabal Plus*, Dreamplus Co., Ltd. — which also contained unlisted amounts of vegetable powder, evening primrose powder, red clover powder, tomato powder and corn silk) taken daily for 5 months increased hair growth by 30% in men with mild to moderate male pattern baldness compared to placebo. The effects of pumpkin seed oil were attributed to its phytosterol constituents, which have been shown to inhibit 5-alpha reductase in animal studies. This enzyme is also inhibited by the drug finasteride (*Propecia*), which is approved for treating hair loss (for this reason, pumpkin seed oil is also included in various **prostate supplements**) (Cho, Evid Based Complement Alternat Med 2014). This product does not appear to be available for sale in the U.S.

Cysteine and **acetyl-cysteine** supplements (typically 500 mg daily) improving hair growth in people with **temporary hair loss due to stressful experience (telogen effluvium)**, but there is no conclusive evidence to support this use (Franca, JCDSA 2013).

Topicals for hair loss

Rosemary oil contains constituents that have demonstrated muscle spasm-relieving effects in laboratory research (Sagorchev, Phytomedicine 2010). Based on this activity, it was speculated that rosemary oil might relax blood vessels in the scalp, improving blood flow to hair follicles and

reducing hair loss. A study in Iran among 100 young men (average age 24) with **male-pattern baldness** for a duration of about 4 years showed that applying 1 mL of rosemary oil to the scalp twice daily for 6 months increased the number of hairs on the scalp modestly (by about 6%), although there had been no improvement at 3 months. This improvement was slightly (but not significantly) better than in a control group, which received minoxidil 2% and showed an increase in hair count of about 2%. The significance of these results is questionable, since the concentration of minoxidil used in this study was relatively low (for instance, *Rogaine* contains minoxidil 5%) and there was no placebo control (Panahi, Skinmed 2015).

Applying a lotion containing **CBD** for 6 months was found to significantly increase the number of hairs on the scalp *compared to baseline* among men and women with male- or female-pattern baldness. However, the study did not include a placebo-control group, so a benefit cannot be proven.

A study among 60 women (average age 32) with **female-pattern hair loss** showed that applying 1 mL (about 0.2 tsp) of **pumpkin seed oil** to the scalp once daily for 3 months increased the number of regrowing hairs and reduced the number of fine hairs and variability in hair shaft diameter (a hallmark feature of hair loss onset) compared to baseline. However, applying the same amount of 5% minoxidil topically was more effective than applying pumpkin seed oil. For instance, applying minoxidil increased the number of regrowing hairs by more than twice as much as applying pumpkin seed oil (Ibrahim, J Cosmet Dermatol 2021).

Other forms of hair loss, such as **alopecia areata (hair loss caused by autoimmune disease)** may be improved by the application of certain substances, such as **essential oils**, directly to the scalp (Hay, JAMA Dermatol 1998).

A small study in Iraq among 38 men and women with alopecia areata showed that applying crude **onion juice** to the scalp twice daily for 8 weeks resulted in regrowth of terminal (coarse) hair in 87% of people in the treatment group compared to only 13% of those in a placebo (tap water) group (Sharquie, J Dermatol 2002). Larger, higher quality studies are needed to confirm this benefit.

Rinsing the hair with **rice water** has been touted as boosting hair growth, but there is no evidence to support this claim among people with any type of hair loss, and rinsing with rice water can cause the scalp to become dry and flaky (Inamasu, J Cosmetic Chemists 2010).

Topical **castor oil** is promoted for hair growth based on its vitamin E and ricinoleic acid components, which are thought to help increase the formation of new blood vessels to improve blood circulation and reduce inflammation in the scalp. However, there is no clinical evidence to support use of castor oil for any type of hair loss (Paiewonsky, J Cosmetic Dermatol 2022).

Applying **aloe vera gel** to the scalp has been popularized for hair growth, but there are no studies evaluating aloe vera gel for hair growth in humans, and evidence from an animal study showed that it was *not* beneficial in increasing hair density (Paiewonsky, J Cosmetic Dermatol 2022).

Ingredients that may *cause* hair loss

Supplements

Be aware that **DHEA** supplements and high doses of **selenium** and **vitamin A** can cause hair loss.

There is one report of hair loss associated with **St. John's wort**.

Drugs

Many drugs can cause hair loss, including **chemotherapy agents**, **ACE inhibitors** (captopril, enalapril, moexipril, ramipril), **beta-blockers** (levobunolol, metoprolol, nadolol, propanolol, timolol), **blood thinners** (captopril, enalapril, moexipril, ramipril), **antiseizure medications** (carbamazepine, hydantoines, troxidone, valproic acid, vigabatrin), **antithyroid drugs** (carbimazole, iodine, thiouracil), **birth control**, certain **cholesterol-lowering drugs** (clofibrate, fenofibrate), **pain-relievers/anti-inflammatories** (ibuprofen, indomethacin, naproxen), **levodopa**, **vitamin A derivatives** (acitretin, etretinate, isotretinoin), and certain **antidepressants** (fluoxetine, paroxetine, amytriptiline, imipramine, and others). In the case of chemotherapy drugs, hair loss is usually sudden, occurring within a few days to weeks after taking the medication. In most other cases, drug-related hair loss occurs about three months after starting the drug and results from the drug causing the hair follicle to go into resting phase (Tosti, Dermatol Clin 2007).

This latter type of drug-related hair loss, called telogen effluvium, often resolves spontaneously. However, among people prone to hair loss, a drug may cause or worsen existing hair thinning. Switching to a different drug may help, but in some cases even discontinuing the drug may not improve hair thinning. In such cases, treatment with finasteride or minoxidil might help (Tosti, Dermatol Clin 2007). There does not appear to be evidence that any supplement can improve drug-induced hair loss.

Specific products marketed for hair loss

Supplements

Viviscal, a brand of hair supplement that combines some of the aforementioned ingredients and a **marine protein complex**, has been shown to increase the number and density of scalp hairs, increase the thickness of scalp hair, and decrease shedding among men with male-pattern baldness and women with self-reported thinning hair (but not clinically diagnosed alopecia) in several small randomized, placebo-controlled, double-blinded studies. However, nearly all of these studies have been conducted by the same researcher, Glynis Ablon, M.D, FAAD, who promotes *Viviscal* as part of a hair regrowth program in her private practice. Also, the studies have all been funded by the company that sells *Viviscal*, Lifes2good, Inc. It is unclear how *Viviscal* compares to other hair loss products such as OTC minoxidil (*Rogaine*, *Keranique*, others), as comparison studies are lacking. The safety of long-term use is uncertain; most published studied conducted to date have lasted only 3 to 6 months. It is unclear if the effects of *Viviscal* persist if treatment is discontinued.

Viviscal studies:

- One of these studies showed that ***Viviscal Extra Strength Oral Tablets*** increased the number of scalp hairs by 32% and decreased hair shedding by 39% compared to baseline in women with self-perceived hair loss when taken as one tablet twice daily for 3 months. These improvements were significant compared to the placebo group, which showed no improvements in either outcome. The product provided a proprietary blend of shark and mollusk powder (*AminoMar Marine Complex*), silica from horsetail extract, vitamin C from acerola cherry, biotin, and zinc, but the exact amounts of these ingredients was not published

(Ablon, Dermatol Res Pract 2015).

- A second study among women with self-perceived thinning hair showed that ***Viviscal Professional Strength Oral Tablets*** increased the number of scalp hairs by 180% and increased hair diameter by 12% after 6 months, while there was no improvement in the placebo group. The dosage used in this study was one tablet twice daily, but, similar to the study described above, the exact amounts of the ingredients was unpublished but were listed as a proprietary blend of shark and mollusk powder (*AminoMar C Marine Complex*), silica from horsetail, vitamin C from acerola cherry, procyanidin B-2 from apple extract powder, L-cysteine and L-methionine (Ablon, J Clin Aesthet Dermatol 2015).
- A randomized, placebo-controlled study in men with male-pattern baldness showed that ***Viviscal Man*** increased scalp hair density by 7% when used for 6 months, while those given placebo showed no improvement. Tablets were taken after a meal twice daily and each provided 452.9 mg of *AminoMar Marine Complex*, 24.5 mg of horsetail extract, 50 mg of flaxseed extract, vitamin C, and zinc (Ablon, J Cosmet Dermatol 2016).
- Earlier studies with *Viviscal*, which also showed benefit for thinning hair, appear to have used formulations that differ from the *Viviscal* products currently available in the U.S., as only a silica compound and a mixture of an extract of marine origin are listed as key ingredients in one of the studies (Lassus, J Int Med Res 1992), and only a marine protein complex (*AminoMar C*), horsetail, and vitamin C are listed as key ingredients for *Viviscal Maximum Strength* used in another study (Ablon, J Clin Aesthet Dermatol 2012).

Hair La Vie Clinical Formula is a supplement designed "to promote healthy hair using the power of total body nutrition." **However, we are not able to find any clinical studies that evaluated this product.** As noted earlier, some of the ingredients in this product, such as biotin, zinc, and iron, may be beneficial *but only if you're deficient*. Other ingredients have limited or no evidence of benefit for hair loss. Selenium, when taken at the dose in this product, has actually been **linked *with* hair loss**.

Be aware that cases of flushing (possibly due to niacin, which can cause flushing although typically at higher doses) have been reported by *Hair La Vie* users on Amazon. Other users of this product reported experiencing skin rash, redness, and dryness, acne, and upset stomach (especially when taken on an empty stomach). In addition, several users reported that the capsules were difficult to swallow and that the product was expensive (the cost of a 30-day supply of capsules *without subscribing* is $59.99 or about $2 per day). Furthermore, some users reported being auto-enrolled in the subscription program after purchasing only one bottle of this supplement.

The full list of ingredients in *Hair La Vie Clinical Formula* is as follows: 1,800 mcg RAE (200% DV) of vitamin A, 20 mcg (100% DV) of vitamin D3, 3.2 mg (21% DV) of vitamin E (as d-alpha-tocopherol from EVNol Max, a palm fruit extract), 2 mg (118% DV) of vitamin B6 (as pyridoxine HCl), 18 mg NE (113% DV) of niacin (as nicotinic acid), 340 mcg DFE (85% DV) of folate, 5 mg (16,667% DV) of biotin, 14 mg (280% DV) pantothenic acid (as calcium D-pantothenate), 18 mg (100% DV) of iron (as iron fumarate), 200 mcg (133% DV) of iodine (from kelp), 15 mg (136% DV) of zinc, 200 mcg (364% DV) of selenium (as selenomethionine), 1.65 mg (183%) of copper (as copper gluconate), 320 mg of saw palmetto berry extract (USPlus), 350 mg of hydrolyzed collagen, and 500 mg of a proprietary blend containing reishi mushroom extract, amla fruit extract, flaxseed oil extract, bamboo extract, and horsetail grass.

Nutrafol by Nutraceutical Wellness Inc. is a line of hair growth supplements, with specific products marketed to women (*Nutrafol Women*), men (*Nutrafol Men*), postpartum women (*Nutrafol Postpartum*), and perimenopausal and postmenopausal women (*Nutrafol Women's Balance*). Some *Nutrafol* products seemed to show modest benefits in clinical research, but be aware that they are relatively expensive ($79 for a 30-day supply or about $2.63 per day), provide vitamins and minerals in high amounts that might increase the risk of adverse effects, and include **"proprietary blends"** that don't disclose amounts of numerous included ingredients.

One study among women with self-perceived hair loss (age range 21 to 65) showed that taking 4 capsules of *Nutrafol Women* once daily for 6 months increased total hair count as measured on a small area of the scalp by about 11% compared to only 3% with placebo. Women in the treatment group also reported improvements in hair breakage and anxiety levels compared to placebo. No treatment-related side effects were reported. This study was funded by Neutraceutical Wellness (Ablon, J Drugs Dermatol 2018). Another 6-month study conducted by employees of Neutraceutical Wellness — results of which are available as only an abstract — among men (average age 40) and women (average age 38) with self-perceived hair loss who took 4 capsules of *Nutrafol Men* or *Nutrafol Women* daily found that 84% of women reported less breakage and lack of shedding, while 72% of men reported more scalp coverage compared to baseline. However, there was no placebo group, which is needed to prove a benefit (Mitchell, ASDS Virtual Annual Meeting 2020).

The high amounts of vitamins and minerals in these supplements raise some concern. For instance, both *Nutrafol Men* and *Nutrafol Women* contain 1,563 mcg (174% DV) of vitamin A (as beta-carotene) — **beta-carotene** supplementation has been linked with **increased mortality** and is not recommended for the general population. They also contain 62.5 mcg or 2,500 IU (313% DV) of vitamin D (as cholecalciferol), 3,000 mcg (10,000% DV) of biotin, 225 mcg (150% DV) of iodine from kelp, 25 mg (227% DV) of zinc, and 200 mcg (364% DV) of selenium. *Nutrafol Women* also contains 100 mg of vitamin C (111% DV) while *Nutrafol Men* contains 60 mg of vitamin C (67% DV). Be aware that biotin may **impair absorption of certain anti-seizure medications**, and very high doses can **interfere with a variety of laboratory tests**. **Iodine** from kelp has a risk of being **contaminated with arsenic**, which is particularly concerning if used by women who are pregnant or nursing (yet it is included in *Nutrafol Postpartum*). Taking too much **zinc** can lead to **copper deficiency**, while excessive use of **selenium** by people who already have adequate or high levels (which is typical in the U.S.) may actually *cause* **hair loss** and has been linked with **increased risk of diabetes, prostate cancer, and/or death**. Furthermore, as noted above, *Nutrafol* products include proprietary blends, one of ConsumerLab's **6 red flags** to watch out for when buying a supplement.

Shampoos

In addition to supplements, many natural shampoos are marketed for thinning hair, but there is limited clinical evidence (if any) to support the use of these products, and some can be very expensive. For example, ***Pura d'or Hair Thinning Therapy Shampoo*** (previously known as *Pura d'or Hair Loss Prevention Therapy Shampoo*) is marketed as being "a clinically tested formula proven to reduce hair thinning due to breakage," but only limited evidence supports this claim. The product contains niacin, biotin, argan oil, rosemary oil, hibiscus and other natural ingredients. A clinical study (which is reported on the company's website but does not appear to be published in a peer-reviewed journal) among 31 people (average age 50), most of whom were women, apparently found that using this shampoo for 8 weeks reduced hair *breakage* by 34.05% compared to control shampoo, but hair

loss was reduced compared to baseline in only 22.6% of participants (which was not statistically significant) and only 33.3% of participants reported that the product improved the thickness of their hair. The study was sponsored by YaySave!, which markets *Pura d'or* products. The product costs $25 for 16 fl. oz.

Nioxin is another line of hair products marketed as "kits" for creating fuller, thicker hair by removing "follicle-clogging sebum, fatty acids and environmental residue from the scalp and the hair" and providing "resilience to the hair against breakage." Ingredients in the shampoo include stinging nettle, saw palmetto, grapefruit extract, hop, peppermint essential oil, and others. However, there is no evidence that excess sebum causes hair thinning, and none of the *Nioxin* shampoos (nor the conditioners or the scalp and hair treatments included in the kits) appear to have been evaluated for hair loss in published, peer-reviewed clinical studies (Bandaranayake, Cutis 2004). The cost of the shampoos range in price on Amazon from about $27 to $44 for 300 mL (about 10 fl. oz).

Drugs: Minoxidil, finasteride, and dutasteride

Minoxidil is a commonly used *topical* drug (sold over-the-counter as *Rogaine*) for preventing further hair loss or promoting hair regrowth, although not all people find that it works. Among those who do experience benefit, treatment must be continued indefinitely, since stopping leads to re-loss of hair within about 6 months.

There is preliminary evidence that minoxidil may be beneficial for hair loss when taken ***orally in low doses***, although reduced blood pressure and unwanted facial hair may occur. Several preliminary studies have shown benefit for **female-pattern hair loss** (at 0.25 to 2.5 mg per day) and **male-pattern baldness** (at 2.5 to 5 mg per day). When used for female-pattern hair loss, some experts consider the combination of 0.25 mg of minoxidil and 25 mg of spironolactone daily to be the best option due to a lower rate of occurrence of unwanted facial hair because spironolactone blocks sex hormones that can cause unwanted hair growth (Randolph, J Am Acad Dermatol 2021). For example, a study among 100 women (average age 48) with female-pattern hair loss found that taking this combination for 12 months provided a meaningful increase in hair volume and decrease in hair shedding. However, oral minoxidil (which is approved as blood pressure lowering drug) reduced average systolic and diastolic blood pressure by 4.52 mmHg and 6.48 mmHg, respectively, and two patients developed postural hypotension (low blood pressure upon standing). In addition, four women reported excessive hair growth that required plucking or waxing (Sinclair, Int J Dermatol 2018).

People interested in taking minoxidil orally should be aware that this use is "off-label" (meaning it is an unapproved use of the prescription drug), and it is still unlikely to benefit people with *severe* hair loss, such as those who are already bald. (**Note**: Topical minoxidil formulations should *never* be taken orally as a substitute for oral minoxidil).

An analysis of data from several clinical trials among men with hair loss showed that taking 5 mg/day of minoxidil *orally* was more effective than applying 5% or 2% minoxidil *topically* and *might* be more effective than taking 1 mg/day of **finasteride** (a drug used orally to treat prostate enlargement (BPH) at a 5 mg dose but also approved for hair loss at 1 mg as *Propecia*). However, taking 5 mg/day of minoxidil was considered to be less effective than taking 5 mg/day of finasteride. Interestingly, the analysis showed that taking 0.5 mg/day of **dutasteride** (a drug approved in the U.S. for treating BPH but *not* hair loss) was also more effective than taking 1 mg/day of finasteride and

seemed to be more effective than taking 5 mg/day of minoxidil. Dutasteride is approved for treating male-pattern baldness in Japan and South Korea. Keep in mind that most of the analyzed studies included men between the ages of 30 and 40, so it is unclear if this ranking of efficacy is generalizable to older or younger men (Gupta, JAMA Dermatol 2022).

Be aware that both finasteride and dutasteride have been linked with adverse effects. In clinical studies, finasteride caused sexual dysfunction (erectile dysfunction, loss of libido, ejaculation disorder, and breast tissue swelling) in about 5% of men. The frequency of this side effect was similar among those taking 1 mg or 5 mg daily. Excessive facial hair growth has also been reported, although less often. Sexual dysfunction has also been reported in about 9% of men receiving 0.5 mg/day of dutasteride. Central nervous system symptoms, including cognitive impairment, depression, crying, emotional disturbance, dizziness and headache were also reported by about 6% of people receiving dutasteride (Gupta, J Dermatolog Treat 2022).

How to get low-dose oral minoxidil

Unlike topical minoxidil, *oral* minoxidil is not available over-the-counter and, because its use for hair loss is "off-label," it remains relatively unknown to many doctors. However, according to an article by the New York Times, many dermatologists (particularly those specializing in hair loss), as well as some hair restoration surgeons, have begun to prescribe low-dose minoxidil for hair loss, although they may recommend starting with conventional hair loss treatments such as oral finasteride or topical minoxidil first.

While certain low doses of minoxidil (e.g., 1.25 or 5 mg) may be obtained by halving or quartering *Loniten*, the brand of minoxidil prescribed for treating high blood pressure, prescriptions for less than 1 mg, such as 0.5 mg, will likely require a *compounding* pharmacy (a pharmacy that can make customized medications) (Moreno-Arrones, Actas Dermosifiliogr 2022). To find a compounding pharmacy, you can visit the Alliance for Pharmacy Compounding's website or the Professional Compounding Centers of America's website.

Although rare, reports of serious side effects due to pharmacy errors have been associated with low-dose oral minoxidil preparations used for hair loss. Fainting, generalized swelling (edema), stroke and heart attack were reported among 12 patients in Spain using oral minoxidil prescriptions prepared at compounding pharmacies. In all cases, the dose of minoxidil provided by the compounding pharmacy was 50 to 200 times greater than the prescribed dose (0.5 to 1 mg). Keep in mind that these cases represented only 0.7% of the prescriptions made by the pharmacy (Moreno-Arrones, Actas Dermosifiliogr 2022). In another report from Spain, use of compounded low-dose oral minoxidil capsules was associated with a greater risk of unwanted hair growth on the body compared to *Loniten*, and this was attributed to errors in the dosage of the medication by the compounding pharmacy (Vañó-Galván, J Am Acad Dermatol 2021).