

## Topical Arginine for Hair Loss?

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Editorials

The merits of L-arginine in the treatment of male pattern hair loss. An in depth look at its role, and potential as a topical agent. The merits of L-arginine in the treatment of male pattern hair loss. An in depth look at its role, and potential as a topical agent...Recently a newly patented product was released that utilizes L-arginine for topical application to promote scalp hair growth. Of course, there are numerous products on the market for hair loss, ranging from useful to useless, and it can be somewhat bewildering for the average person to decide what may be worth trying. Since L-arginine has been used in a few products now, it merits some discussion for those interested in treating pattern loss.

### **First, some Basics**

L-arginine is an amino acid, which means it is one of the building blocks of protein. What is of interest where hair growth is concerned, however, is not the protein connection but the unique properties of this amino acid. It turns out that L-arginine serves as a precursor in the body for the production of nitric oxide (NO), which is a gas. In other words, the body takes L-arginine and manufactures NO from it.

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For many years, nitric oxide's reputation was primarily as a noxious component of smog. Only in recent years has its critical role in human metabolism been discovered. Among other things, it was found that nitric oxide is produced by the linings of the blood vessels, known as the vascular endothelium. Because NO lasts for only a few seconds once produced, its discovery was particularly elusive. But, once found, researchers realized that this was the mysterious molecule that controlled blood vessel dilation. In brief, NO causes blood vessels to relax. It opens them up, promoting easy blood flow. Accordingly, NO is also referred to as endothelium-derived relaxing factor (EDRF). NO is a ubiquitous messenger with far-reaching effects in the body. Damage to blood vessel linings, which happens in normal aging, can compromise its production and release.

### **Arginine, Nitric Oxide, and Hair Growth**

The reason NO is of interest where hair loss and growth are concerned is that those vasodilators in which NO plays a role stimulate hair growth. On the other hand, those that utilize other pathways in stimulating circulation, such as prostaglandins, do not have this beneficial effect. So NO is a critical link in the hair growth process. It appears that NO is involved in opening potassium channels, also known as K-channels.

Incidentally, this is also the mode of activity for the well-known topical treatment minoxidil. It is not surprising that they share this action in common, though, for minoxidil contains the NO chemical group, as evidenced by the third and fourth characters in its name. In the case of minoxidil, it is not in the form of a gas, however, but rather is a chemical analog.

Because of the recent interest in promoting healthy nitric oxide release, many have begun experimenting with supplemental and even topical L-arginine. L-arginine is a common component in food available in dairy, beef, poultry, fish and nuts. But it can also be purchased in

concentrated capsules and powders for internal consumption. For years, athletes, bodybuilders and certain health conscious individuals have taken large dosages of supplemental L-arginine to stimulate growth hormone release by the body's pituitary gland. For that purpose, dosages typically range from 5 to 10 grams.

However, the release of GH and the promotion of NO are two entirely different matters and are completely unrelated. Much smaller amounts of supplemental L-arginine in the 1 to 2 gram (1000 - 2000 mg) range are probably adequate for supplying the body with raw materials needed to optimize NO production.

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### **L-Arginine as a Topical Hair loss Treatment**

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**L-Arginine**

Some have experimented with topical L-arginine as well. However, there are some important considerations involved here. L-arginine is soluble in water, but only slightly soluble in hot alcohol. Accordingly, best results will be obtained by using a high water content vehicle. Dermovan cream would be an ideal candidate. Dermovan is an oil-in-water emulsion that is known as a blank cream, since it is merely a carrier vehicle. It is also considered a vanishing cream since it disappears rapidly into the skin due to its high water content-hence the "van" portion of its name. Water is an outstanding penetration enhancer, which is another reason to use such a vehicle in this case. A cream containing 2-5% L-arginine would likely be a reasonable experimental strength. This translates roughly into 40-100 mg per half teaspoon.

Is topical L-arginine effective, though? Of course, it is not an FDA approved treatment and never will be due to financial considerations. But those wishing to experiment can try it and see for themselves. Don't expect miracles. Remember that even the standard FDA approved treatments only produce modest results at best. L-arginine is a safe treatment, however, and is relatively inexpensive, so there is little risk in trying it if you are so inclined.

#### **A word of Caution...**

One caveat is that people with a propensity for cold sores should ingest supplemental L-arginine with care since it may encourage their development in sensitive individuals. The same would be true of a high L-arginine diet. Most people do not have this problem, however. On the other hand, there is some interesting scientific data suggesting why it may be beneficial for hair growth and maintenance. Self-experimentation will provide the only true test for any given person, of course. Who should probably skip using it? Those who are satisfied with their results or prefer to stick to the standard approved treatments. Who might try it instead? Those who feel experimental and like to tinker with their own custom treatments and who wish to see if they can improve upon their present results. Of course, it is also available ready-made for purchase in a few products, as mentioned at the outset. In addition, those who cannot tolerate minoxidil well due to water retention or racing heart symptoms might find a good alternative in L-arginine.

Note that just because minoxidil serves as an NO analog does not mean that one should cast aside minoxidil and replace it with L-arginine. Always approach your treatment program with

discernment and caution. It's best to consider L-arginine as a possible adjunctive treatment rather than as a replacement for something else.

Used internally, L-arginine may offer other benefits apart from general hair considerations when taken in sufficient amounts to elevate NO. Things positively affected by enhanced NO include hypertension, sexual function, and many others. As research continues in this area, still more benefits may be realized from nitric oxide and the amino acid L-arginine from which it is produced.

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