

## Using Topical Caffeine to Slow or Halt Hair Loss | Dr. Andrew Huberman

We all think of caffeine as a stimulant that we drink. I certainly drink coffee in Yorba Mate. The occasional energy drink things of that sort. Caffeine does many things besides stimulate our central nervous system and make us feel less sleepy. However, one of the things that caffeine does is it is a fairly potent PDE inhibitor. By being a potent PDE inhibitor, it indirectly stimulates IGF-1. Why? Well, because PDE can suppress IGF-1, and by ingesting caffeine or by applying topical caffeine ointment or cream to the scalp, you can suppress PDE sufficiently enough to increase IGF-1 and increase some hair growth or at least maintain hair growth in that region. This may come as a shock. It might seem a little bit esoteric or even outside the margins of typical treatments. But head-to-head topical caffeine application can be as effective as monoxide application without actually lowering things like blood pressure and potentially increasing prolactin and some of the other negative. Let's call them negative because they are side effects of monoxide. So caffeine ointments and caffeine present in various hair treatments and creams et cetera is starting to become a more prominent theme out there. I will include a reference to caffeine and its uses for offsetting hair loss. Keep in mind that topical caffeine ointments shouldn't necessarily be applied every single day. So this is the sort of thing you might do three times a week. The concentration of caffeine in different ointments varies tremendously. Most of the studies of caffeine on the stem cell niches that control hair growth and extension of the anagen phase of hair growth have been performed in vitro in a dish. Although there are some clinical studies exploring this, they are not nearly as extensive in number or duration as the studies of Minoxidil because this approach just hasn't been around quite as long. However, when comparing side effects of monoxide, cost of monoxide, comparing the efficacy of caffeine and monoxide, I think caffeine as a topical treatment for offsetting hair loss stands as a pretty good choice if you're going to start exploring this pathway. And there's no reason to think that if you were to try the caffeine ointment and it didn't work for you or you didn't like it for some reason or you needed to stop it for some reason that you couldn't stop it safely because it doesn't carry all the other you know blood pressure related effects and prolactinemia effects that minoxidil does. So if you look out there into the hair maintenance and hair replacement literature and you look at the treatments

that are being sold don't be surprised to see caffeine there And also don't be surprised when I tell you what I'm about to tell you now which is no you can't simply just drink more caffeine in order to accomplish uh the goal of offsetting hair loss It is true that when you ingest caffeine it goes systemically However you have so many adenosine receptors throughout your body those adenosine receptors and the parking of caffeine in those adenosine receptors is the main way in which caffeine exerts its stimulatory effects making you feel less sleepy So it does that because then adenosine can't have its effects which are to make you sleepy Well those adenosine receptors soak up so much of the caffeine that you would ingest orally that very very little would make it to the scalp and to the hair follicles at the concentrations that you would want So that's why you have to rely on the application of these caffeine ointments about three times a week Keep in mind that no one has really explored the dosages of caffeine in these ointments in a systematic way We're still in the early stages of all this But I do think it's important to mention caffeine because of the lower incidence of side effects at least reported side effects and the general safety margins and the head to head essentially comparable efficacy with minoxidil because minoxidil has a bunch of other issues Now keep in mind that both minoxidil and caffeine are generally used as a preventative for reducing hair loss over time They are not expected and they do not as far as we know create new hair growth to any sufficient degree If any of you have used caffeine ointments or minoxidil and observed new hair growth that was robust Please put that in the comment section I'd be curious about those experiences but as far as I know and from the clinical literature that I read there's no examples of that one other point about caffeine it does appear that caffeine can not only indirectly stimulate IGF one in the anagen phase of hair cell growth by way of reducing PDE and TGF beta But it also seems to reduce apoptosis which is naturally occurring cell death of that stem cell niche We've been talking a lot about the anagen or growth phase of hair We also talked about the catagen or the recession of that hair from the inside out But remember that third phase the telogen phase where that whole bulb down at the bottom the bulge as it's called gets pinched off and the whole thing dies and takes the stem cells off to the grave with it It appears that caffeine can offset the death of that niche and potentially maintain the stem cell population longer making caffeine a really good choice to think about in conjunction with the various chemical treatments aimed at directly attacking the DHT pathway that we'll talk about Next