

## Green Tea and Hair Loss

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Editorials

Green Tea as a hair loss Treatment, does it work?May 26, 2004

Dr. Marty Sawaya reviews the legitimacy of Green Tea as a hair loss supplement and the reasons why some people feel it may help. She also covers the potential side effects and its correlations with Minoxidil...

One of the most popular herbal agents being used these days is green tea. The plant name for green tea is *Camellia sinensis*, which originates in China, but very popular in Japan and other Asian countries. Green tea comes from the dried leaves of the tea plant; while black tea is fermented tea leaves from the same plant. Green tea has been used in the last few years to combat skin aging, intestinal ailments, as well as androgenetic alopecia.

*No published studies have been done to demonstrate efficacy for hair growth by using green tea, whether taken orally or topically.* Most people infer that if it has all these wonderful anti-oxidant effects, it must also be good for aging and hair loss.

### Active ingredients

Purine alkaloids are in green tea, which is a big name for caffeine, not to mention theobromine and theophylline, the other ingredients you find in most other teas. The catechins are the important compounds found in the unfermented tea leaves, and the primary ingredients thought to be so helpful for Green Tea. Catechins are known to have several medicinal properties, such as causing vasorelaxation of blood vessels, so that it may help cardiovascular activity. Catechins are also known to inhibit and kill certain bacteria, so it has antibacterial effects. Most importantly, it is the anti-oxidant effects that people seem so enthralled with to help skin wrinkles, aging, energy and stamina, and yes, also hair growth. Green tea is also thought to help and be protective against cancers, such as stomach and colon cancers.

### Green Tea and Hair Loss

Using green tea to grow hair probably relates to the evidence for influencing circulating hormones in the body. A high intake of green tea correlates to higher levels of sex hormone-binding protein - or globulin, which carries hormones like testosterone around the body in a bound, unusable form so that tissues cannot use it directly. Testosterone is usually carried around the body by this binding protein, therefore, reducing levels of free testosterone, so that it cannot be converted to dihydrotestosterone (DHT) in the hair follicle, which is thought to shorten the hair cycle and cause hair loss in men. Green tea is thought to effect the 5 $\alpha$ -reductase **type I** enzyme, which converts testosterone to DHT. There are two forms of 5 $\alpha$ -reductase, and

type I is the enzyme in higher amounts around the body, but it is the **type II** enzyme, which is thought to be responsible for most of the DHT formed in the hair follicle. Finasteride/Propecia effects or inhibits the type II form found in hair follicle.

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In any case, the 5a-reductase enzymes can be confusing when you try to figure out what type I does and what type II does and what the difference is for hair growth. From a hair growth perspective, both can be important, it is just that Merck makes a big hype about the fact that their product, finasteride/Propecia inhibits type II and this is supposed to be the main enzyme form found in hair follicle, however, research work done in my lab a few years ago, revealed both forms in hair follicle, and also sebaceous glands. If anything, the type I enzyme is found mostly in sebaceous gland, which is just next door to the hair follicle and can also effect the level of male hormones around the hair follicle.

Again, no clinical studies have been done to show efficacy of green tea for hair loss, so it is up to the user to be aware of the cost, side effects, the fact that no proper dose level is known to effect hair growth, etc.

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### **Side effects**

Care should be taken to those with sensitive stomachs, since the caffeine, tannins, acids, etc, can cause stomach irritation. Many people do resort to taking high doses of herbals, so that 1.5 g of caffeine per day in green teas can cause restlessness, irritability, sleeplessness, palpitations, vomiting, headache and other symptoms. Those who consume more than 300 mg or 5 cups of tea beverage can lead to the above symptoms, however fatal doses are most likely not possible.

### **Other uses**

Green tea is most widely known in cosmetic preparations for wrinkles on the face. The price of topical creams, lotions, potions with green tea is off the wall, and again, I haven't seen any real evidence that using these agents, topically or orally really helps in reversing wrinkles, but ladies will stand in line at cosmetic counters, not to mention popular shopping networks to buy the stuff for big bucks.

**Interesting comment**

Minoxidil or Rogaine is also thought to work in stimulating hair growth because of its oxidative-reducing capacity for cofactors in the metabolic pathway. I would think that if green tea works to help hair growth, it would be in a similar way to minoxidil, rather than influencing the 5 $\alpha$ -reductase enzymes. Who knows? Not enough research has been done to really find out if it works and what mechanism(s) it may have in skin.

**Conclusion**

Try it if you want to, but again with any hair-growing agent, it is advised to use for a 6 month to 12-month period for hair growth. I'd be interested to know if it helped with hair shedding, so if you try it, let me know what you think. Remember, we usually shed about 100 hairs per day (shower, hair brush, comb, pillow, floor etc), so if you see reduced shedding, there may be something to it.

**References:**

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