

Q-SkinScience® Forti5

Hair Recovery Supplement

Properties of Key Ingredients

Melatonin:

Induce Hair Growth and Pigmentation

- The anagen hair follicle (HF) produces melatonin in loco as a cyto-protective and apoptosis suppressive agent
- Melatonin prevents telogen as it reduces spontaneous apoptosis in HF keratinocytes
- Prevents stress-induced hair loss. Melatonin can protect the follicle from systemic “stressors”
- associated with high levels of norepinephrine
- Melatonin is a potent antioxidant-free radical scavenger with capacity to stimulate DNA repair
- Melatonin interacts with androgen receptors and has anti-androgenic properties

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4. Fischer TW, Slominski A, Tobin DJ, Paus R. Melatonin and the hair follicle. *J Pineal Res*. 2008 Jan;44(1):1-15. Review. PubMed PMID: 18078443.
5. Slominski RM, Reiter RJ, Schlabritz-Loutsevitch N, Ostrom RS, Slominski AT. Melatonin membrane receptors in peripheral tissues: distribution and functions. *Mol Cell Endocrinol*. 2012 Apr 4;351(2):152-66. Epub 2012 Jan 8. PubMed PMID:22245784;
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Vitamin D (Cholecalciferol)

- The vitamin D pathway regulates hair follicle biology in mammals and humans
- 1.25-dihydroxyvitamin D3 (1.25-D3) modulates growth and differentiation of keratinocytes via
 - binding to a high-affinity nuclear vitamin D receptor (VDR)
 - VDR null mutant mice exhibit hair loss that begins with the second hair cycle after birth
 - Mutations in VDR also lead to an inherited form of rickets, type IIA vitamin D–dependent rickets.
 - Patients with this form of rickets also exhibit alopecia
 - VDR and beta-catenin also regulate hair follicle gene transcription
 - When VDR is absent, the synergistic activation of a WNT response element by beta-catenin and Lef1 is prevented
 - Optimal concentration of vitamin D is necessary to delay the aging phenomena, including hair loss
- Vitamin D deficiency is associated with increased hair shedding

7. Amor KT, Rashid RM, Mirmirani P. Does D matter? The role of vitamin D in hair disorders and hair follicle cycling. *Dermatol Online J*. 2010 Feb 15;16(2):3. Review. PubMed PMID: 20178699.
8. Demay MB. The hair cycle and Vitamin D receptor. *Arch Biochem Biophys*. 2011 Oct 7. [Epub ahead of print] PubMed PMID: 22008469.
9. Oda Y, Hu L, Bul V, Elalieh H, Reddy JK, Bikle DD. Coactivator MED1 ablation in keratinocytes results in haircycling defects and epidermal alterations. *J Invest Dermatol*. 2012 Apr;132(4):1075-83. doi: 10.1038/jid.2011.430. Epub 2011 Dec 22. PubMed PMID: 22189783

Beta Sitosterol (*Non competitive 5-alpha reductase type 1 and 2 inhibitor*)

- Phytosterols are 5-alpha reductase inhibitors and are utilized in the treatment of androgenic alopecia and benign prostatic hyperplasia. In a randomized, double blind, placebo-controlled pilot study with 26 male subjects, the effectiveness of a combination of β -sitosterol 50 mg and extract from the berries of saw palmetto showed that 60% of the study subjects were rated as improved as compared with only 11% of the placebo group
- Provides estrogen and androgen receptor blocking
- Increases Sex Hormone Binding Globulin (SHBG) levels
- Provides anti-inflammatory benefits

12. Prager N, Bickett K, French N, et al. A randomized, double-blind, placebo controlled trial to determine the effectiveness of botanically derived inhibitors of 5-alpha reductase in the treatment of androgenetic alopecia. *J Altern Complement Med* 2002 Apr; 8 (2): 143-52

13. Reuter J, Merfort I, Schempp CM. Botanicals in dermatology: an evidence-based review. *Am J Clin Dermatol*. 2010;11(4):247-67

Soy Isoflavones

- Are shown to provide activation of aromatase enzyme involved in the conversion of testosterone into estrogens. They are:
 - 5-alpha reductase inhibitors to help block DHT (dehydrotestosterone - known to cause hair loss)
- Antioxidants to help prevent oxidative stress-induced aging of the hair follicle
- Increased SHBG levels. Low levels of SHBG are known to be associated with Male and Female Pattern Baldness

Green Tea Extract

Antioxidant Benefits

- Oxidative stress directly affects the cell membrane and facilitates entry of DHT, DHEAS and other damaging factors into the cell. Reactive oxygen species (ROS) cause sebaceous gland hyperplasia, promote increased type I 5-AR enzyme activity and higher DHT formation
Provides Anti-inflammatory benefits Increases SHBG levels Hair Growth Stimulators
- Epigallocatechin-3-gallate, the main polyphenol in green tea, stimulates human hair growth and prolongs the anagen phase through proliferative and anti-apoptotic effects on human dermal papilla cells

14. Kwon OS, Han JH, Yoo HG, Chung JH, Cho KH, Eun HC, Kim KH. Human hair growth enhancement in vitro by green tea epigallocatechin-3-gallate (EGCG). *Phytomedicine*. 2007 Aug;14(7-8):551-5

Omega 3 & Omega 6

- provide potent anti-inflammatory properties
- Inflammation is commonly associated with androgenetic alopecia and other scalp disorders
- Inflammatory cytokines induce telogen and can accelerate progression of androgenetic alopecia

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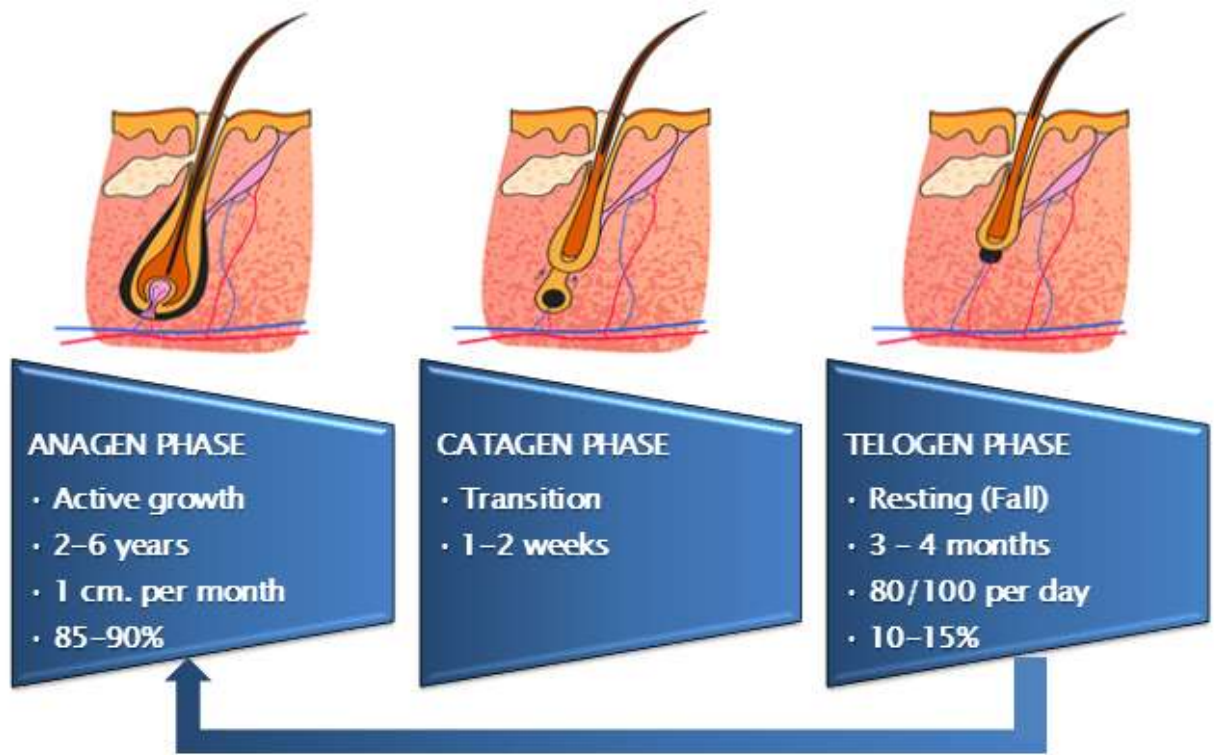
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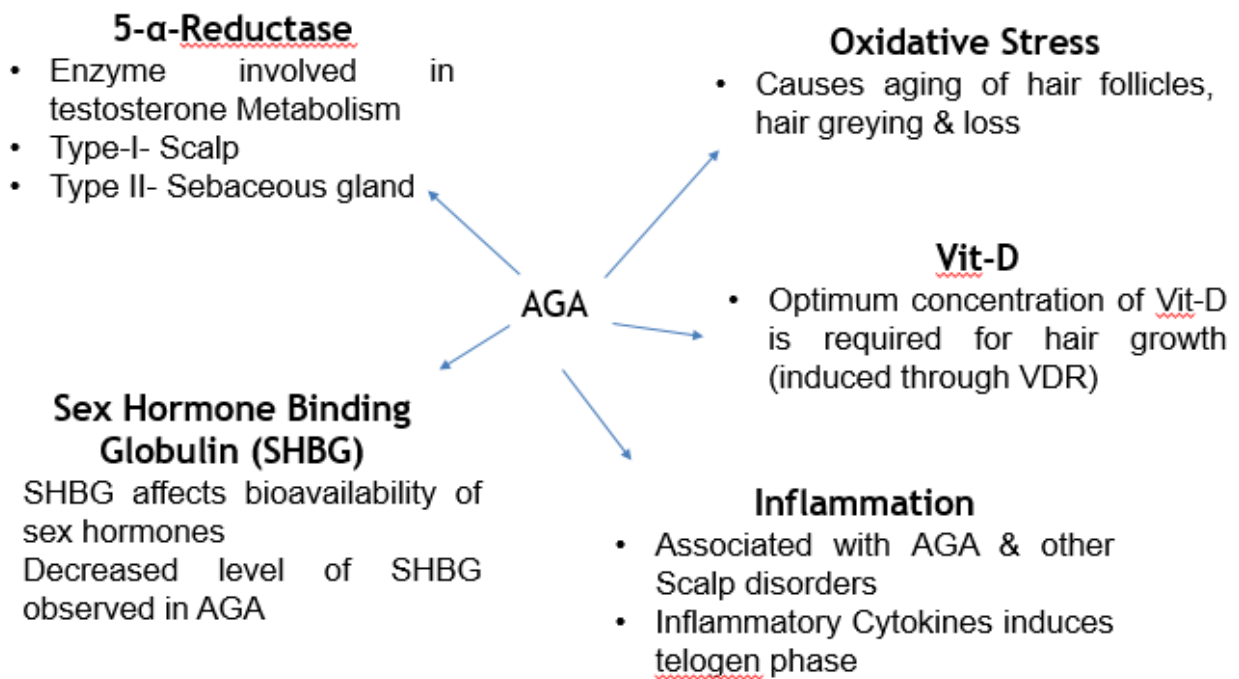
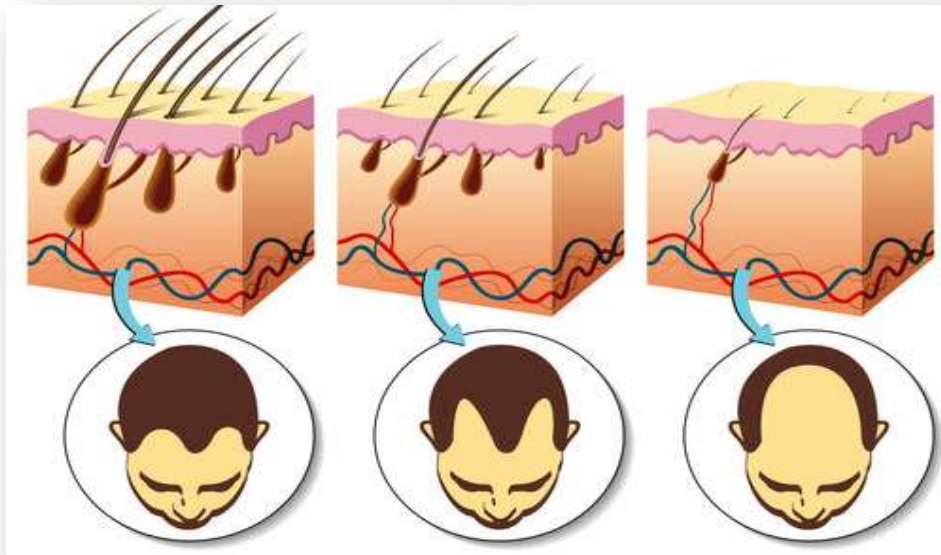
17. Bezzola P, Sorbellini E, The role of microinflammation and apoptosis in Androgenic Alopecia: new therapeutical strategies, *Journal of Plastic Dermatology* 2009, 5,1-11

18. Nicolaou A. Eicosanoids in skin inflammation. *Prostaglandins Leukot Essent Fatty Acids*. 2012 Apr 20. PubMed PMID: 22521864

FORTIS NUTRITIONAL HAIR RECOVERY SUPPLEMENT (Each Capsule)

Melatonin.....1.5 mg
Soy Isoflavones (seed) Extract.....150 mg
Green Tea (leaf) Extract (Camellia Sinensis)..... 125 mg
Omega 3 & Omega 6 FA.....75 mg
Beta Sitosterol Complex.....50 mg
Vitamin D (as cholecalciferol).....100 I.U.





Causes of Hair Fall & Hair Loss:



FORTI5
Capsules

