

Keratin on Nail and Hair Growth

Introduction:

A preferred source of keratinous material is human hair, although the keratin may be obtained from hair or fur of animals including any mammal, or from finger or toenail material or from hooves, feet, beaks, skin, feather or horns. Hair is a cylinder of keratinized cells protruding from a hair follicle that anchors the hair in the skin.

Fingernails and toenails in humans and primates and their corresponding claws, hooves, horns and antlers in animals are composed of differently keratinizing cells. Human nails have lost most of their functional significance but remain important for cosmetic reasons.

Nail disorders range from premature breakage or roughness of the portion of the nail extending from the tip of the digit to total loss or destruction of the nail plate. For example, nail breakage caused by the Splitting and resultant flaking of nails into layers horizontal to the longitudinal nail plate Surface, referred to as onychoschizia, and is caused by abnormal keratinization.

Keratin is a sclera protein or albuminoid found predominantly in epidermis cuticular structures such as hair, nails, and horns. Keratin to promote simultaneously the healing of damaged hair including hair follicles and generation of new hair growth.

Genes in the KRT family provide instructions for making proteins called keratins. Keratins are a group of tough, fibrous proteins that form the structural framework of epithelial cells, which are cells that line the surfaces and cavities of the body. Epithelial cells make up tissues such as the hair, skin, and nails. These cells also line the internal organs and are an important part of many glands.

Keratins are best known for providing strength and resilience to cells that form the hair, skin, and nails. These proteins allow tissues to resist damage from friction and minor trauma, such as rubbing and scratching. Keratins are also involved in several other critical cell functions, including cell movement (migration), regulation of cell size, cell growth and division (proliferation), wound healing, and transport of materials within cells.

Humans have at least 54 functional keratin genes, which are divided into type I and type II keratins. Most of the type I keratin genes, designated KRT9 through KRT20, are located in a cluster on chromosome 17. The type II keratin genes, designated KRT1 through KRT8, are found in another cluster on chromosome 12.

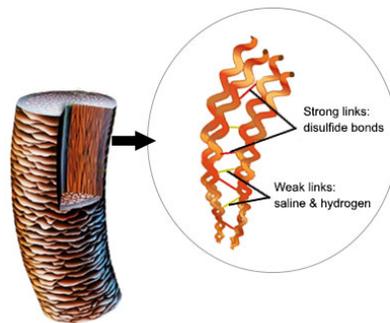
Mechanism:

Keratin is synthesized by keratinocytes and is insoluble in water, thus ensuring impermeability and protection for the hair.

Some 18 amino acids can be found in the hair, such as proline, threonine, leucine and arginine. Keratin is particularly rich in cysteine (a type of sulfurated amino acid), which forms disulfide bonds between molecules, adding rigidity and resistance to the entire structure.

Curly hair has more of these bonds, referred to as disulfide bonds, than straight hair because the follicle shape and angle allows different regions of the hair to come closer together making these bonds easier to form.

Hair structure, strong links and weak links



Studies:

A clinical trial to investigate the effect of Cynatine HNS on hair and nail parameters.

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Author information

Abstract

OBJECTIVE:

A new, novel product, Cynatine HNS, was evaluated for its effects as a supplement for improving various aspects of hair and nails in a randomized, double-blind, placebo-controlled clinical trial.

METHODS:

A total of 50 females were included and randomized into two groups. The active group (n = 25) received 2 capsules containing Cynatine HNS, comprised of Cynatine brand keratin (500 mg) plus vitamins and minerals, per day, and the placebo group (n = 25) received 2 identical capsules of maltodextrin per day for 90 days. End points for hair loss, hair growth, hair strength, amino acid composition, and hair luster were measured. End points were also measured for nail strength and the appearance of nails.

RESULTS:

The results show that subjects taking Cynatine HNS showed statistically significant improvements in their hair and nails when compared to placebo.

CONCLUSION:

Cynatine HNS is an effective supplement for improving hair and nails in 90 days or less. EudraCT number is 2014-002645-22.

Keratin protein – which plays an important structural role in hair, nails and skin.

Keratin protein has been shown to help increase hair shine and brightness, reduce hair loss during washing, and improve nail strength (reduce tendency to break) and luster.

Formulation:

Ingredient	Function	% weight
Water Phase		
Deionised water	Carrier	81.4%
Methyl paraben	Preservative	0.10%
Tetrasodium EDTA	Chelating Agent	0.10%
Stearalkonium Chloride	Conditioner/anti static	8.50%
Cetrimonium chloride	Conditioner	1.00%

Oil Phase		
Cetearyl Alcohol	Emulsifier	2.50%
Glyceryl Stearate	Emulsifier	3.50%
PEG-40 castor oil	Emulsifier	1.50%
Propyl paraben	Preservative	0.05%
Vitamin E Acetate	Antioxidant	0.05%
Panthenol	Vitamin	0.20%
Hydrolyzed Keratin Protein	Protein	0.30%
DMDM Hydantoin	Preservative	0.2%
Coconut Fragrance	Fragrance	0.50%
Pineapple Fragrance	Fragrance	--

Preparation:

A composition for rebuilding or repairing tissue, such as hair, skin or nails, or horse's hooves is prepared by mixing the following formulation which is created in two phases: oil and water, which are then combined to produce 250 gallons of liquid.

Conclusion:

Formulation composition and method for application to hair for repairing damage to skin, nails and hair.

Reference:

Composition for hair and body application – US Patent

Lane EB, McLean WH. Keratins and skin disorders. J Pathol. 2004 Nov;204(4):355-66. Review. PubMed: 15495218.

Magin TM, Vijayaraj P, Leube RE. Structural and regulatory functions of keratins. Exp Cell Res. 2007 Jun 10;313(10):2021-32. Epub 2007 Mar 15. Review. PubMed: 17434482.

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