

## BEAUTY CARE and amino acids

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Amino acids contribute to your "beauty"  
in terms of fitness and moist skin.

Recently, amino acids are applied to many shampoos, rinses, and body soaps. These amino acid-containing products possess various merits. Amino acids are also used for improving fitness, so they become increasingly important to women.

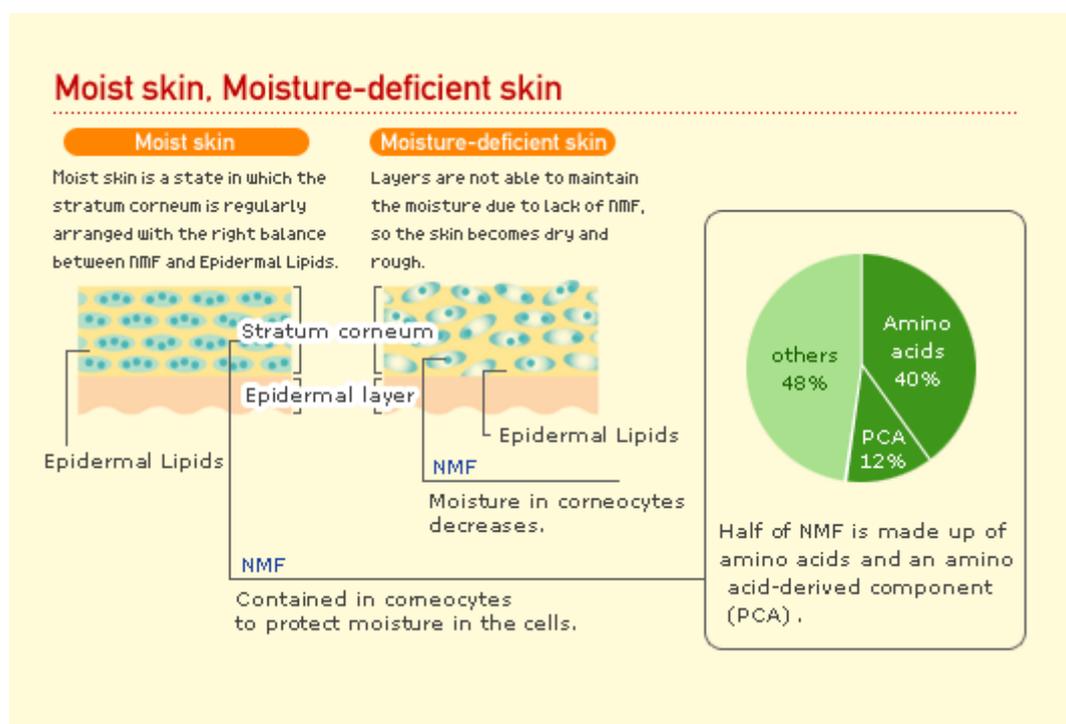


### ■ The skin's natural moisturizing factors are amino acids.

As water accounts for 60-70% of our body weight, a person weighing 50 kg contains about 30-35 kg of water. The skin plays an important role in holding the water content. It consists of 4 layers: the subcutaneous fat layer, the dermis about 2-3 mm in thickness, the epidermis about 0.1 mm in thickness, and the stratum corneum just 0.01 mm in thickness covering the surface.

The inner 3 layers are made up of living cells. The epidermal cells keratinize in about 2 weeks, then move upward to the surface to form the stratum corneum, and come off in scales after a while (turnover). A moist feel of the skin depends largely on the water content in this stratum corneum.

Amino acids are important natural moisturizing factors (NMF) in the stratum corneum (Figure). When epidermal cells die and turn into the stratum corneum, proteins in the cells are degraded to amino acids and transported to the stratum corneum. About half of the NMF in the skin is made up of amino acids and pyrrolidone carboxylic acid (PCA) derived from glutamate, an amino acid (Figure).



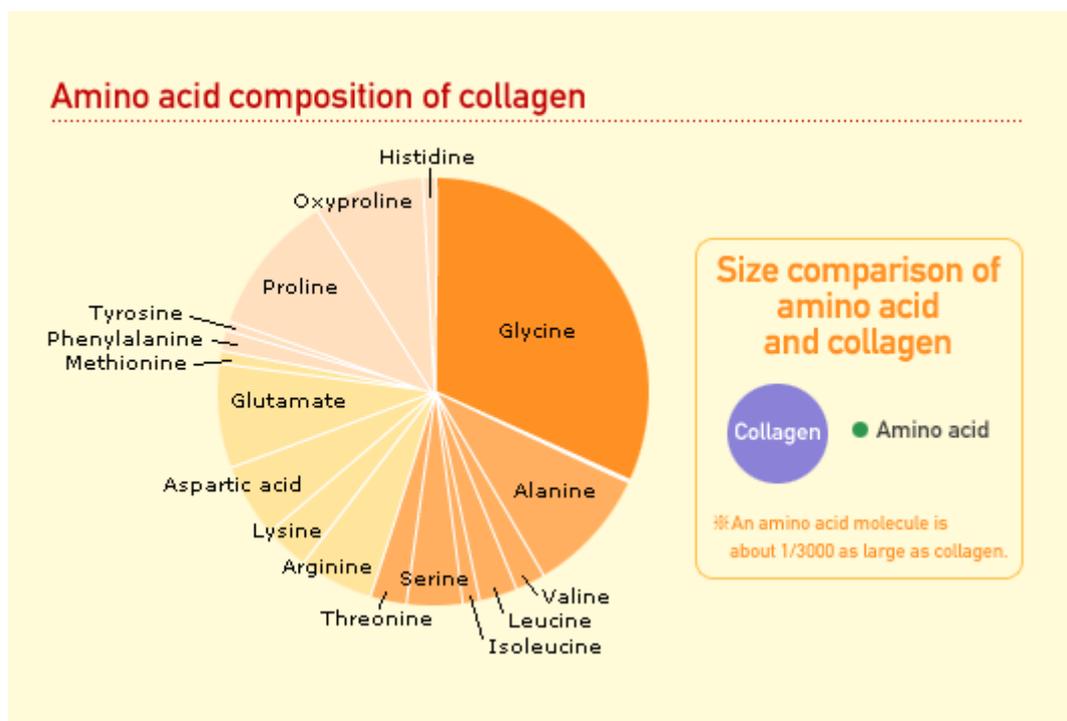
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**Collagen, a cosmetic ingredient, also consists of amino acids.**

Collagen, a cosmetic ingredient known to keep the skin supple, actually consists of various amino acids (Figure).

Many troubles such as roughness and darkish color of the skin are largely related to lack of amino acids.

There is the possibility that the stratum corneum of patients with atopic dermatitis or pollinosis is also deficient in amino acids compared to healthy persons. A certain case study shows that: when an amino acid-mixed ointment was used in the treatment of skin burn, the affected area did not turn keloid but returned to the normal state.



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### ■ For care of damaged cuticles

Water content is an important factor for hair as well as the skin. A tissue called cuticle on the surface of a strand of hair plays an important role in holding water in the hair, and amino acids are moisturizing ingredients of the cuticle.

Lackluster and dry hair indicates that its cuticles are heavily damaged due to a decreased amino acid amount. Recently many people dye their hair, but hair dyes and bleach cause damage to hair, making the cuticles tattered. It has been demonstrated that shampoos, rinses, treatment agents containing certain kinds of amino acids make hair less breakable by increasing water holding capacity.

Care with amino acids turns hair "smooth" and "moist".

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### ■ Amino acids are mild on the skin and body.

Amino acid-based soaps, cosmetics, and hair care products cause little irritation and are mild on the skin and hair.

If you wash your hands with an ordinary soap about 10 times at 20-min intervals, they begin to turn dry and rough. However, amino acid-based surfactants are not likely to leave this effect. The pH of the skin is an important reason for this fact. The skin under normal conditions is weakly acidic with a pH of 5 to 6. After repeated washing with a strongly alkaline soap, the skin turns alkaline. This is one of the causes of rough skin. Amino acid-based soaps(Amisoft) and detergents exert their cleansing power under pH conditions as close to the natural pH of the skin as possible.

Bile acid, which decomposes the micelle of fats in the intestine, plays a similar role to detergents. This substance also conjugates to amino acids.

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### ■ Amino acids burn body fat efficiently.

Amino acids currently gain attention in the world of fitness since they help "the body burn fats efficiently".

Tissues are augmented by accelerating the regeneration of muscles after doing aerobic exercise such as running and long-distance swimming while replenishing BCAAs; amino acids, raw materials for muscles. The augmentation of muscles, a fat burning factory, boosts the basal metabolism and increases the consumption of energy, thus making it less likely for the body to get overweight.

To burn fats, 30 min or more of walking, for example, is necessary. However, intake of amino acids makes it possible to do exercise more efficiently, namely, do heavier exercise for a longer time than usual, thus supporting fat burning.

An increasingly growing number of people, including fashion models, are using amino acids to maintain a good figure. This underscores the vast potential of amino acids for fitness.

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**Amino acids are also easy on the environment.**

Things discharged with sewage, like soaps and detergents, must be biodegradable. Even if they are discharged into water in rivers lakes or sea, this will not lead to environmental destruction as long as microorganisms "eat" and degrade them to carbon dioxide and water. Amino acids, components of living things, readily return to nature. Recently, detergents manufactured by conjugating fatty acids to amino acids such as glutamate and glycine have been developed and are widely used.

Now, amino acid-derived materials are penetrating fast into everyday life.

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