

keragen-IV®

Nutraceutical



kerageniv.com

What is keraGEN-IV®

Similar to collagen, keratin is a structural protein and essential constituent for healthy skin, hair and nails. Collagen is the dietary fuel providing correctly structured amino acids. keraGEN-IV® is the spark plug for this fuel, converting dietary collagen to the correct forms of collagen to enhance your inner beauty regime.

keragen-iv® works synergistically with dietary collagen to boost the body's ability to produce the right structural proteins to repair wrinkles and strengthen hair follicles and nails. This is achieved by activating skin cells that have the right nutritional input to specifically make collagen IV and collagen VII, the binding proteins that join the dermal and epidermal layers essential for smooth, wrinkle free skin as well as anchoring hair follicles into the scalp.

As a result of the highest natural abundance of sulfur amino acids keragen-iv® has also been shown to:

- Upregulate glutathione synthesis boosting antioxidant defence mechanisms
- Promote taurine synthesis supplementing anti-inflammatory response

Promotes & Protects Health Of Hair, Skin & Nails

keragen-iv® promotes

keragen-iv® protects from

1

- Stronger hair follicles by promoting anchoring of follicles in the scalp.

1

- Ageing stresses to hair, skin and nail tissue

2

- Wrinkle reduction by building the dermal epidermal junction.

2

- Radical induced damage

3

- Healthy nail growth by providing the right amino acid balance.

3

- Inflammation to skin

Mechanism Of Action

keraGEN-IV® affects metabolic pathways associated with hair, skin and nail health. A strong body of scientific data supports each component of the mechanisms of action.

1

Improve follicle health and hair anchoring

keraGEN-IV® promotes stronger hair follicles by boosting anchoring of follicles in the scalp. Analysis of hair follicles using an ex-vivo study has shown that keraGEN-IV® promotes increased expression of collagen IV, in particular in the hair follicle, strengthening the anchoring of the follicle into the skin, reducing hair fall and improving hair health.

2

Promote wrinkle reduction

keraGEN-IV® promotes wrinkle reduction by building the dermal epidermal junction. Collagens IV and VII are essential structural proteins that are the building blocks of the dermal-epidermal junction in the skin and hair follicle. Skin cells stimulated by keraGEN-IV® produced 3x more collagen IV than skin cells with no keraGEN-IV® present, and skin cells exposed to stress showed a 35% faster skin cell growth with keraGEN-IV® added as a nutrient. Production of collagen IV and collagen VII increased each day after introduction of the keraGEN-IV®.

3

Promote healthy nail growth

keraGEN-IV® is uniquely positioned to provide the right amount of cystine, and the right balance of the other amino acids required, to provide the body with what it needs for strong, healthy nail growth.

Clinical Research into keraGEN-IV® was conducted by Laboratoire BIO-EC to determine the effects of a nutritional supplement on hair and skin health.

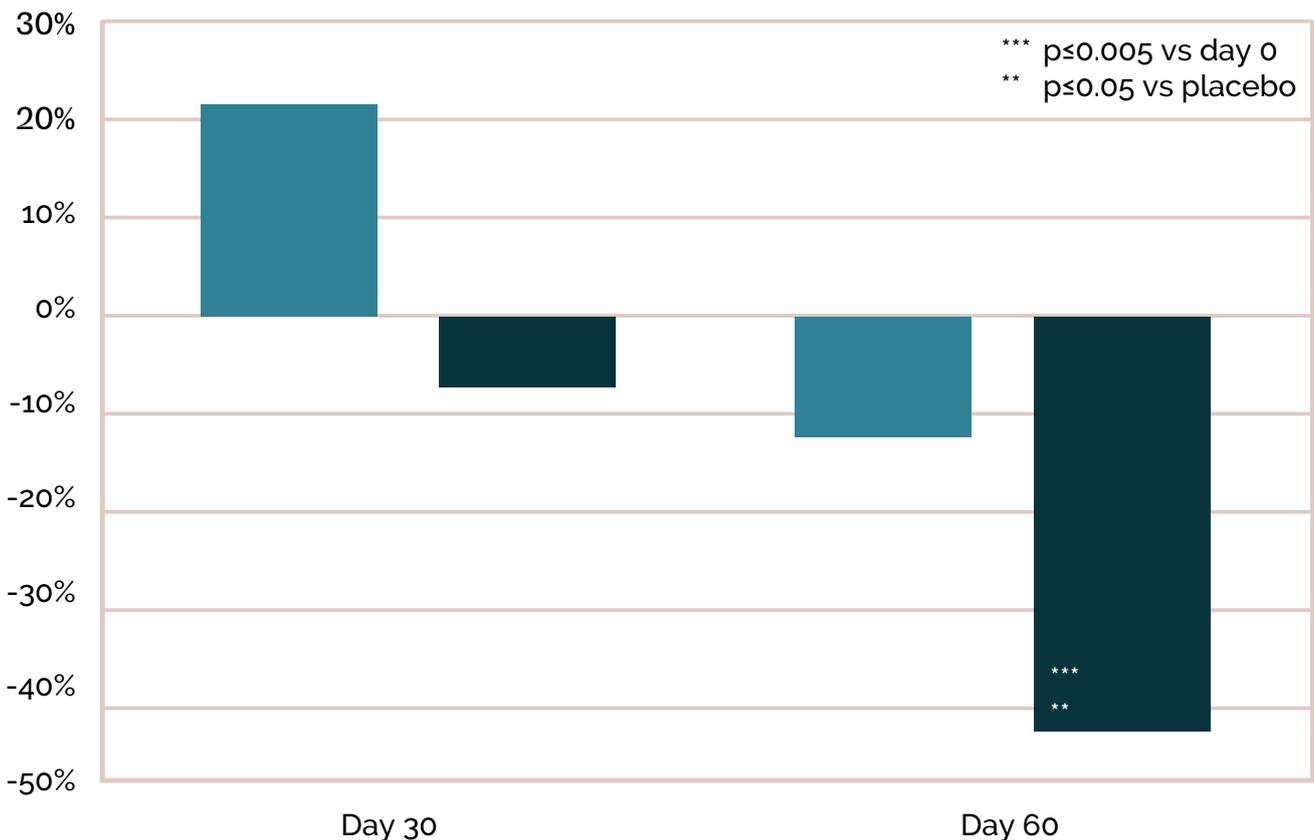
keraGEN-IV®
measurably reduces
hair fall by 43.1%.

Prior work on keraGEN-IV® identified using in vitro studies on human keratinocytes showed that increased collagen IV expression is induced by this keratin protein. The keraGEN-IV® action of inducing collagen IV expression translates to measurable improvement in hair anchoring, specifically a 43.1% reduction in hair loss in women aged 45-60 with stressed or damaged hair.

Volunteers taking the keraGEN-IV® supplement demonstrated a substantial and statistically significant reduction in hair pull scores on day 60. Reduction compared to day 0 was -43.1% ($p \leq 0.005$). The gentle pulling action triggering hair loss is typical of that experienced during combing or styling when hair is damaged through chemical treatments, colour, styling or during peri- or post-menopause.

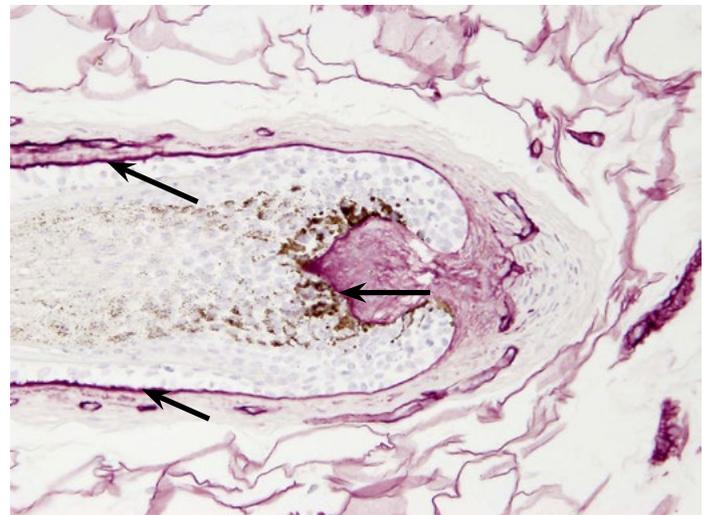
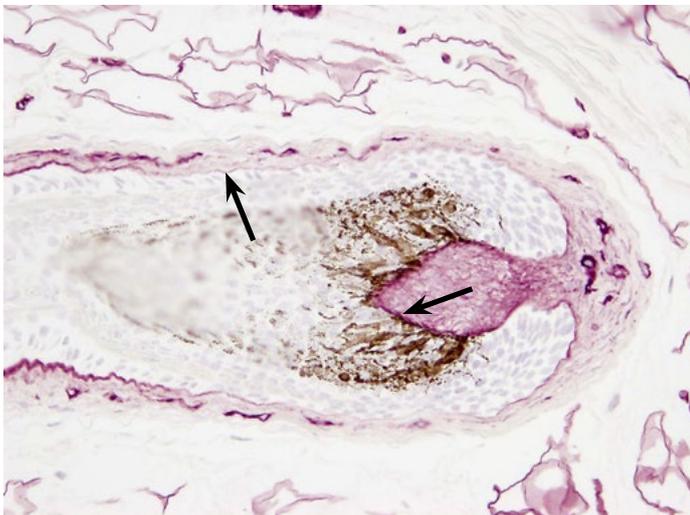
Hair Pull Test

■ Placebo
 ■ keraGEN-IV



Promotes stronger hair follicles by boosting anchoring of follicles in the scalp.

Analysis of hair follicles using an ex-vivo study has shown that keraGEN-IV® promotes increased expression of collagen IV in particular in the hair follicle, strengthening the anchoring of the follicle into the skin and improving hair health (Roddick- Lanzilotta et. al., 2019).



Histology of an ex-vivo explant of hair before keratin application (left) showing collagen IV (purple) at the follicle junction and anchoring of the bulb (arrows). Hair follicle 6 days after keratin treatment (right) shows thickening of collagen IV at the junction and greater anchoring in the bulb (arrows).

kerAGEN-IV® measurably improves skin structure.

Increases skin elasticity by 10.1%

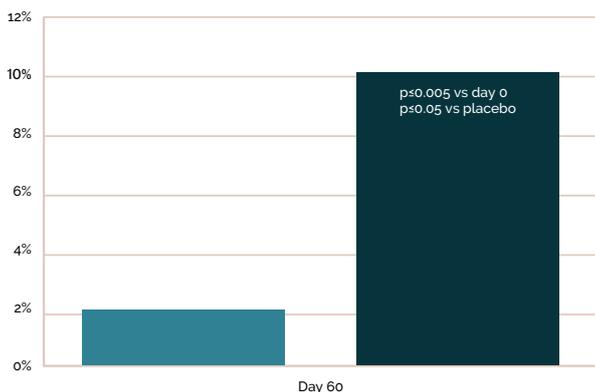
Skin elasticity measurements on day 30 for volunteers taking the kerAGEN-IV® were substantially higher on day 60 at 10.1% ($p \leq 0.005$) compared to day 0. kerAGEN-IV® compared to placebo showed a statistically significant improvement on day 60 ($p \leq 0.05$).

Reduces skin moisture loss by 12.5%

Skin barrier function is an important indicator of skin health. The trans epidermal water loss (TEWL) assessment evaluates the skin barrier function efficacy and is indicative of the skin structure and integrity of the to the stratum corneum. The TEWL value is inversely proportional to the barrier function. TEWL measurements on day 30 volunteers taking the kerAGEN-IV® supplement were lower at -12.5% less compared to day 0 ($p \leq 0.05$). The measured 12.5% reduction in TEWL may arise from the in improvement of skin structure due to collagen IV expression induced by kerAGEN-IV®.

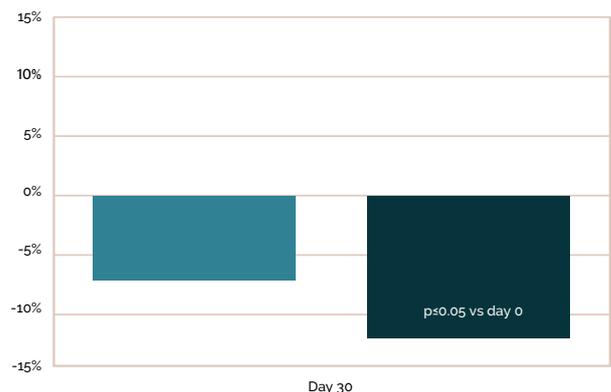
Skin Elasticity

■ Placebo
■ kerAGEN-IV



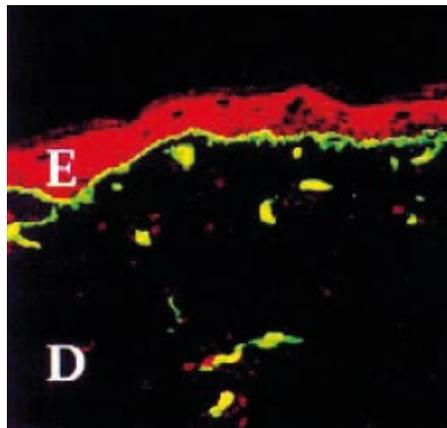
TEWL

■ Placebo
■ kerAGEN-IV

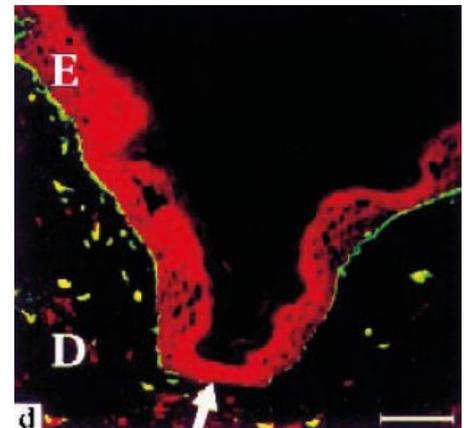


Promotes wrinkle reduction by building the dermal epidermal junction.

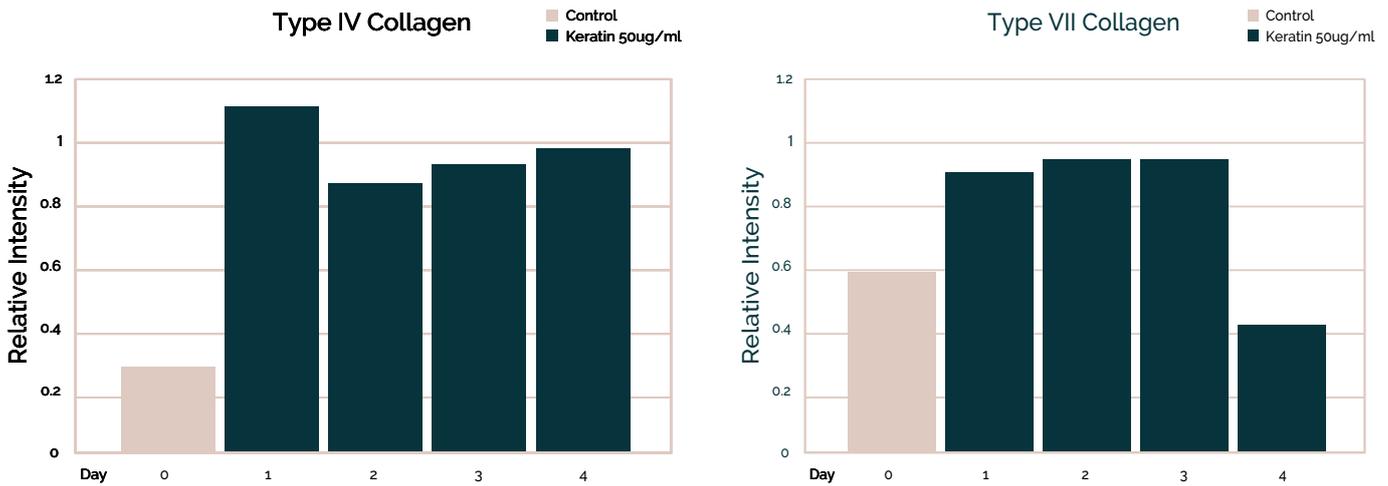
Collagens IV and VII are essential structural proteins that are the building blocks of the dermal-epidermal junction in the skin and hair follicle. Rebuilding the right type of collagen at the base of each wrinkle is an important approach to reversing wrinkle formation due to age associated collagen degradation (Contet-Audonneau et al., 1999)



Smooth skin showing the collagen IV (green) in the junction between the epidermis (E) and the dermis (D).



Wrinkled skin showing absence of collagen IV at the base of a wrinkle (arrow). The junction between epidermis



Comparison of daily expression of collagen IV (left) and collagen VII (right) in skin cells (keratinocytes), when keratin is provided as a cell nutrient.

Well nourished skin cells exposed to stress demonstrated a 35% faster skin cell growth with keraGEN-IV® added as a nutrient compared to standard cell nutrients, in particular increasing production of collagen IV and collagen VII each day after introduction of the keratin.



keraGEN-IV®

Promotes healthy nail growth by providing the right amino acid balance.

keraGEN-IV® is pure keratin protein, the same protein that nails are made from. Proteins common in nutrition and supplements, such as collagen (0g/100g), whey (2.1g/100g) or soy (1.1g/100g) have very low cystine contents compared to keratin (7-12g/100g).

keraGEN-IV® is uniquely positioned to provide the right amount of cystine, and the right balance of the other amino acids required, to provide the body with what it needs for strong, healthy nail growth.

keraGEN-IV® study demonstrating hair and skin improvements

- Randomised, double-blind, placebo controlled study conducted by independent test lab BIO-EC under the French Public Health Code.
- Volunteers identified as having damaged or stressed hair and healthy skin according to a dermatologist assessment were selected.

Method

- * Dermatological assessment of volunteers' hair and skin
- * Small area of scalp shaved for hair growth analysis and initial measurements made of hair and skin
- * Trial products were administered and consumed once a day for the 60 day study duration
 - * Placebo control: Microcrystalline cellulose, 750mg. Two capsules taken daily.
 - * Study Product: KeraGEN IV 200mg, Microcrystalline cellulose 550mg. Two capsules taken daily

Schedule

Tested on day 0, day 30 and day 60.

Endpoints

- Hair loss through hair pulling - indicative of follicle and scalp health
 - Trans epidermal water loss - indicative of skin structure and integrity
 - Cutometry - assesses the state of skin firmness/elasticity.
-

Side effects

No known side effects of ingestion of keraGEN-IV®.
For efficacy 400mg daily inclusion is recommended.

Applications

keraGEN-IV® is a free-flowing powder ideal for tableting and capsules, recommended as a dietary supplement for vegetarian formulations targeting collagen production, healing, stress recovery and injury recovery. As a dietary supplement, the recommended dosage of keraGEN-IV® is 400mg daily.

Stability

keraGEN-IV® is stable over a wide pH range and under conditions of elevated temperature.

Quality Assurance

- Halal certified
- Vegetarian certified
- Non-GMO
- Sustainable harvesting and production, full ingredient traceability.

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