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Mature and Aging Skin

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Preview **Evidence**

Evidence rating

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Overview

As life expectancy increases, concerns surrounding skin and its integrity while aging increase. Dermal changes are to be expected with age, as a variety of factors contribute to cutaneous health. Environmental factors such as sun exposure, air pollution, and lifestyle choices all play a role in eliciting premature aging and damaging skin cells. (13) Genetic factors such as ethnicity and gender also play a role. (5)

Hydration levels in skin are found to inversely correlate with age. Elasticity determined by collagen production also decreases. Texture may also change with age as the dermis thins and roughness increases. Increased depth and number of sulci (wrinkles) occur as well. (5) Addressing these common hallmarks of aging skin may help preserve youthfulness and prevent further damage to the skin barrier.

The ingredients presented below help address a variety of common factors in skin aging such as transepidermal water loss and elasticity.

Collagen

Collagen

Total of 2.5-10 g per day, minimum 8 weeks (2)(4)

- Type I collagen hydrolysate derived from fish has been shown to improve wrinkles and roughness, as well as increase collagen density, skin firmness, skin moisture, and skin elasticity (3)(10)
- A systematic review of 11 studies found both short and long term collagen supplementation improved wound healing and skin aging factors like elasticity, hydration, and dermal collagen density (4)
- BioCell Collagen, collagen from chicken sternal cartilage, improved skin appearance and dryness shown by decreases in facial lines, wrinkles, and crows feet and a 12% increase in skin elasticity and cutaneous collagen content (17)
- Skin hydration, collagen density in dermis, and dermal collagen network integrity all improved when given Peptan®F and Peptan®P; additionally ex vivo experiments found supplementation to induce collagen and glycosaminoglycan production (2)
- Low-molecular weight collagen improved skin hydration, elasticity and visual assessment of skin wrinkling when compared to placebo (10)

Hyaluronic Acid

Hyaluronic Acid

Oral: 120 mg, once per day, minimum 6 weeks (9)(15)
Topical: Apply 0.1% hyaluronan formulations, twice per day, minimum 2 months (16)

- Oral hyaluronic acid has been shown to increase skin moisture content and skin elasticity (7)(9)
- Compared to placebo, greater improvements in wrinkle volume ratio, wrinkle area ratio, and whole sulcus volume ratio were observed when oral hyaluronic acid was administered (15)
- High (800k) and low (300k) molecular weight oral hyaluronan supplementation both improved skin moisture content and subjective facial aging symptoms compared to placebo; low molecular weight hyaluronan improved moisture content as early as 2 weeks compared to placebo (9)

- When using hyaluronic acid in topical form, twice daily application found all tested molecular weights (50, 130, 300, 800, and 2000 kDa) to improve skin hydration and overall elasticity; additionally, 130 and 50 kDa improved mean and max roughness as well as wrinkle depth (16)

Pycnogenol

Pycnogenol

75-100 mg, total per day, minimum 30 days (6)(14)

- Postmenopausal women experienced improved skin hydration, skin elasticity, and increased mRNA expression of hyaluronic acid synthase-1 (HAS-1); a more pronounced effect was found for those suffering from dry skin conditions (11)
- Clinical grading of skin photoaging scores and age spot pigmentation decreased in women with mild to moderate photoaging (6)
- Women with melasma experienced a decrease in average area affected and pigmentary intensity when supplemented with pycnogenol; additionally, a general effectiveness rate of 80% was found (14)

Turmeric

Turmeric

Variable based on form (follow manufacturer's dose instructions)

- A systematic review of 18 studies found that skin disease severity improved compared to control in a variety of skin conditions including facial photoaging when using topical and/or ingested turmeric (19)
- Herbal combination containing turmeric (but not turmeric extract on its own) decreased transepidermal water loss in skin compared to placebo after four weeks (20)
- Hot water extract of *curcuma longa* improved skin hydration as shown by increased hyaluronan production; additionally, UVB-induced tumor necrosis factor-α and interleukin-1β were inhibited at the mRNA and protein levels (1)
- A systematic review of 11 studies found turmeric to improve a variety of skin conditions including facial redness (12)

Astaxanthin

Astaxanthin

2-6 mg, total per day, minimum 8 weeks (8)(18)(21)

- Male and female subjects experienced improved skin wrinkle and elasticity on crows feet, as well as skin texture, moisture content of corneocyte layer, and corneocyte condition on cheeks; male subjects had improved skin wrinkles, elasticity, and transepidermal water loss on crows feet, as well as moisture content and sebum levels on cheeks (18)
- When given in conjunction with 3 g of collagen, 2 mg of astaxanthin per day improved skin elasticity, skin barrier integrity, and transepidermal water loss in photoaged facial skin; gene expression improved as shown by an increase in procollagen type I mRNA expression and a decrease in MMP-1 and -12 mRNA expression (21)
- Moisture loss in skin decreased in irradiated skin, while roughness and texture of skin improved in non-irradiated areas when healthy subjects were supplemented with 4 mg of astaxanthin and exposed to UV induced skin deterioration (8)

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