Dynamic Chiropractic

NUTRITION / DETOXIFICATION

Beautiful Skin From Within

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In a single lifetime, numerous environmental insults work to damage and alter our sheath. Indeed, more than 80 percent of visible changes that age the skin come from outside factors like the sun, detergents and pollutants. Besides minimizing such exposure, we may be able to prevent and reverse some of the visible signs by fighting chronic inflammation and maintaining skin barrier function.

Scientists recognize that many natural foods have anti-inflammatory function, some via healthy fats and some via numerous antioxidants. Skin-healthy fats include avocado, fish oil, flax seed and olive oil. Avocado and olive oil provide barrier-supporting nutrients (sterols) and anti-inflammatory monounsaturated fats, while flax is a rich source of omega-3 fatty acids and estrogenic antioxidants (lignans).[1] Other important skin-protecting antioxidants include vitamins E and C, selenium and carotenoids (leutein and zeaxanthin, lycopene and betacarotene); foods like soy (isoflavones); polyphenols from green and white teas, apples, cocoa and berries; and glutathione.[2-5] Even probiotics (friendly bacteria in our diets) help protect the skin.6 Conversely, some experts suggest we avoid red meat (especially well-done red meat), fried foods, excess salt, and sugar and white flour.[7,8]

Nutracosmetics: Promoting Skin Health

As the name implies, nutracosmetics are supplements that produce a cosmetic benefit. Interest is growing rapidly with companies shifting focus to promote the "beauty from within" value of their ingredients. Various studies have reported the nutracosmetic value of ingredients such as those mentioned above, as well as collagen extracts and peptides and growth factors from colostrum and whey.

In one case study, researchers used omega-3 fatty acids to rehydrate skin via nutrition. Dry and sensitive skin affects 50 percent of women and is related to both inadequate hydration and inadequate nutritional status of fatty acids. They found that supplementation with omega-3 fatty acids (flaxseed and borage oil) increased the omega-3 status in the epidermis from 2 percent to 24 percent in three months.[9]

Conversely, overconsumption of omega-6 fatty acids relative to omega-3 fatty acids in the typical Western diet favors the production of pro-inflammatory molecules. Efforts should be made to correct this imbalance because increasing the omega-3 to omega-6 ratio in the skin reduces the concentration of pro-inflammatory molecules (prostaglandins E2) and improves the overall health of the skin. These effects cannot be achieved by topical application; they can only be achieved by nutritional intervention.

Antioxidants for Skin Defense

The other major defense against environmental skin damage is the antioxidant capacity of the skin. Bolstering the antioxidant defense system of the skin is an important strategy for reducing

environmentally induced skin damage. Recent clinical trials have underscored the efficacy of two carotenoids, lutein and zeaxanthin, antioxidants found naturally in human skin. These xanthophyllic carotenoids, abundant in green leafy vegetables and egg yolks, but most especially in marigold flowers, were administered orally, topically, or both orally and topically. Study results indicate that the combined oral and topical administration of lutein and zeaxanthin provides the highest degree of antioxidant protection. Oral and topical administration of these antioxidants individually also provides significant activity in the skin, although oral was more powerful than topical.[10]

Collagen Maintenance and Peptides

As we age, the essential mesh-like collagen structure of the skin's layers breaks down, causing skin to lose its elasticity. Also with aging, certain sugar-protein complexes called glyco-amino-glycans (GAGs) in the skin decline. GAGs help the skin, nails and joints retain moisture. As GAG levels and collagen quality decline, skin dries and loses its elasticity. Lines and wrinkles become visible.

Gelatin is a form of hydrolyzed collagen commonly used in foods. It has long been reported that consuming gelatin can improve the structure and health of the skin, hair and nails. Indeed, proline, glycine and hydroxproline are the main amino acids in gelatin and collagen *and* the skin, hair and nails. However, certain simple chains of amino acids called collagen peptides, sourced from gelatin, appear even more promising.[11] Collagen and elastin are often incorporated into cosmetics, but neither the collagen nor elastin present in the cosmetics is able to penetrate the skin.

Because of the importance of the special sugar-protein-sugar complexes in GAGs, nutrient supplements are often used to provide a more concentrated source of GAGs.[12] A typical daily formula might contain one or more of the following: N-acetyl-D-glucosamine: 250-500 mg; D-glucosamine hydrochloride: 250-750 mg; and D-glucosamine sulfate: 100-300 mg.

Nutritional science suggests it is possible to reverse some of the damage and to repair the mesh-like structure of the skin and promote cell rejuvenation.[13-16] Some peptides regulate cell function and maximize collagen and GAG production by stimulating the growth of collagen cells. These peptides are usually sourced from colostrum, the first "milk" of neonate mammals. Fibroblast growth factor, IGF-1 and epithelial growth factor are all important peptides that may influence skin growth directly. All are found in bovine colostrum. Indeed, a natural liquid colostrum extract of proline-rich polypeptides (PRPs) with skin and connective tissue growth factors has been shown to improve wound healing in an-induced dermal injury by 22 percent.[17] Such peptides may be taken orally, especially if protected in liposomes (naturally tiny lipid vesicles). Topical liposomal peptides are able to penetrate the skin.

A Natural Healthy-Skin Regimen

To summarize, the best proactive approach to a lifetime of healthy skin may be staying well-hydrated, avoiding excess drying via detergent cleanser, minimizing oxidation via UV exposure and minimizing inflammation via unhealthy fats and sugars; consuming a variety of antioxidants and omega-3 fats through a varied diet and supplementation program; and simultaneously applying topical moisturizers containing antioxidants, sterols and healing peptides.

References

1. Thornfeldt C. "Proactive Protection for the Skin." Editorial, *Healthy Aging Age Management for Physicians*.
2. Heinrich U, Tronnier H, Stahl W et al. Antioxidant supplements improve parameters related

to skin structure in humans. *Skin Pharmacol Physiol*, 2006;19(4):224-31.
3. Katiyar SK, Afaq F, Perez A et al. Green tea polyphenol (-)-epigallocatechin-3-gallate treatment of human skin inhibits ultraviolet radiation-induced oxidative stress *Carcinogenesis*, Feb. 2001;22(2):287-94.
4. Lopez-Torres M, Shindo Y, Packer L. Effect of age on antioxidants and molecular markers of oxidative damage in murine epidermis and dermis. *Journal of Investigative Dermatology,* 1994;102:476-80.
5. Van Der Pols JC, Heinen MM, Hughes MC et al. Serum antioxidants and skin cancer risk: an 8-year community-based follow-up study. *Cancer Epidemiology, Biomarkers & Prevention*, 2009;18(4):1167-1173.
6. Niers L, Martin R, Rijkers G, Sengers F, Timmerman H, van Uden N, et al. The effects of selected probiotic strains on the development of eczema (The PandA Study). *Allergy*; published online ahead of print. doi: 10.1111/j.1398-9995.2009.02021.x
7. Grieger L. "Eat for Wellness: Better Skin Diet." www.yourtotalhealth.ivillage.com.
8. Bouchez C. "Foods for Healthy Skin: You Are What You Eat." WebMD.com.
9. De Spirt S, Stahl W, Tronnier H, Sies H, Bejot M, Maurette JM, Heinrich U. Intervention with flaxseed and borage oil supplements modulates skin condition in women. *British Journal of Nutrition*, February 2009;101(3):440-445.
10. Palombo P, Fabrizi G, Ruocco V, Ruocco E, Fluhr J, Roberts R, Morganti P. Beneficial long-term effects of combined oral/topical antioxidant treatment with the carotenoids lutein and zeaxanthin on human skin: a double-blind, placebo-controlled study. *Skin Pharmacol Physiol,* 2007;20(4):199-210.
11. Shin'ichiro N, Nozomi H, Ryoichi S, Kazuyuki S, Ryuji A. Effect of oral administration of gelatin and collagen peptides on the hydroxyproline content of rats. *Journal of the Japanese Society for Food Science and Technology*, 2002;49(3):199-202.
12. Pickart L. The Biology of Skin and Aging Damage. www.skinbiology.com/skinhealth&aging.html.
13. Watson RE, Long SP, Bowden JJ, Bastrilles JY, Barton SP, and Griffiths CE. Repair of photoaged dermal matrix by topical application of a cosmetic "antiageing" product. *Br J Dermatol, March 2008;158(3):472-7.*
14. *Bhora F, Dunkin, B, Batzri S, Aly HM, Bass BL, Sidawy AN, Harmon JW. Effect of growth factors on cell proliferation and epithelialization in human skin. Journal of Surgery Res*, 1995;59:236-244.
15. Tavakkol A, Elder JT, Griffiths CE, Cooper KD, Talwar H, Fisher GJ, Keane KM, Foltin SK, Voorhees JJ. Expression of growth hormone receptor, insulin-like growth factor 1 (IGF-1) and IGF-1 receptor mRNA and proteins in human skin. *Journal of Investigative Dermatology, 1992;99(3):343-349.*
16. *Tsang MW, Tsang KY, and Wong WK. The use of recombinant human epidermal growth factor (rhEGF) in a gentleman with drug-induced Steven Johnson syndrome. Dermatology Online Journal*;10(1):25.
17. Krylov, A. "The Effects of Liquid Colostrum Extract (PRP) Treatment on Wound Healing in a Murine Skin Injury Model and Assessment of Its Anti-Allergic Properties on System Anaphylaxis in Guinea Pigs." Poster presentation at the Fourth International Conference on Mechanisms of Action of Nutraceuticals, "The Science Behind Nutraceuticals: Medical and Dietary Opportunities." Tel-Aviv, Oct. 21-24, 2007.

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