

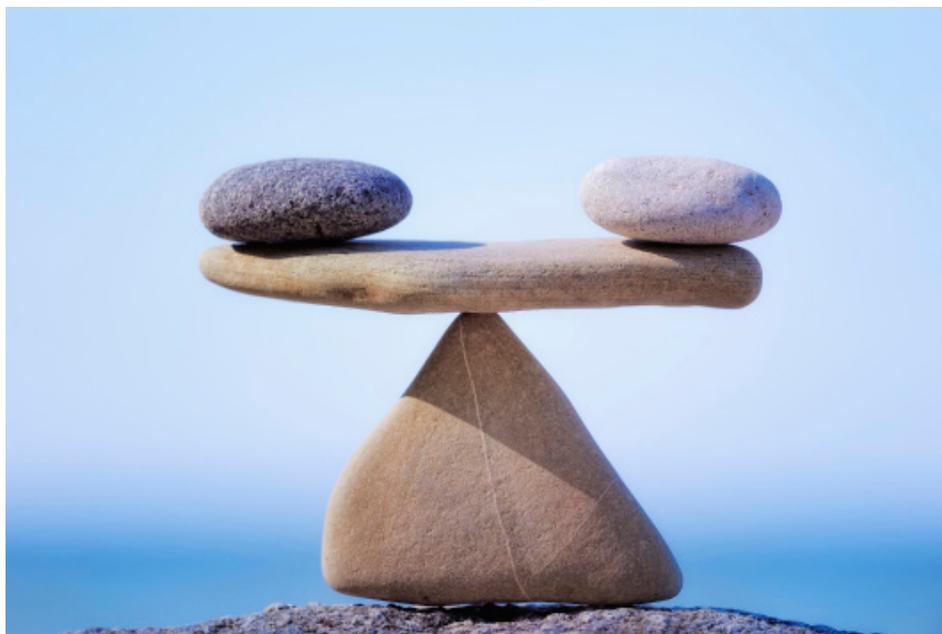


MCCORD SUPPLEMENTS

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Antioxidants and Skin Health



The skin is the largest organ of the body and is the first line of defense against various external threats including temperature changes, dehydration, invading microbes, harmful chemicals, pollution, and ionizing radiation. These threats are potentially damaging because they can alter biological homeostasis (or the maintenance and regulation of stability required for proper functioning).

One very important aspect of skin homeostasis involves maintaining the balance between the production of free radicals, known as reactive oxygen species (ROS), and the skin's oxidative defense system. Toxic chemicals, pollution (including cigarette smoke), ionizing radiation (including UV),

and extreme temperature change can all cause elevated ROS that may disrupt this balance, potentially leading to oxidative stress, skin inflammation, increased aging and disease.

The natural mechanisms that protect skin from oxidative stress include the production of protective molecules such as melanin and vitamin D, and antioxidant enzymes such as superoxide dismutase (SOD) and glutathione peroxidase. However, when these defense mechanisms are overwhelmed, oxidative stress can occur. Oxidative stress is associated with inflammation and is thought to play an important role in skin disorders including atopic dermatitis, eczema, and psoriasis, as

well as in impaired wound healing.

McCord Supplements skin and wound care products contain potent antioxidants that help prevent or decrease oxidative stress including resveratrol from grapevine extract, EGCG from green tea extract, and oleuropein from olive leaf extract.

The polyphenol, resveratrol, protects against oxidative damage by enhancing the expression of antioxidant genes including heme oxygenase-1 and glutamate-cysteine ligase. Resveratrol has also been shown to stimulate the antioxidant Nrf2 pathway. In fact, studies have demonstrated protective effects of resveratrol against



UV radiation-mediated oxidative stress. In addition, resveratrol has been shown to be anti-inflammatory and capable of promoting diabetic wound healing.

Epigallocatechin-3-gallate (EGCG), a polyphenol from green tea, is thought to scavenge free radicals and is protective against UV-induced oxidative stress and damage. In addition, EGCG is anti-inflammatory and evidence suggests that EGCG is beneficial in wound healing.

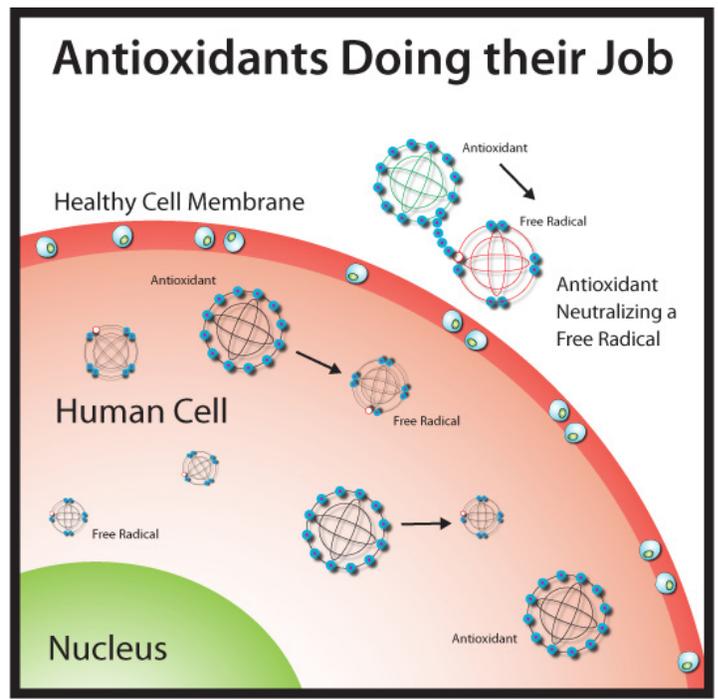
The olive polyphenol, oleuropein, has free radical scavenging activities and inhibits increases in ROS induced by UVB irradiation. Oleuropein is also an anti-inflammatory agent, and has been reported to reduce irradiation-induced erythema. Furthermore, evidence suggests that oleuropein accelerates wound healing.

References

1. Antioxid Redox Signal 2014; 20: 2982-2996.
2. J Clin Diagn Res 2013; 7: 2683-2685.
3. Ind J Clin Biochem 2010; 25: 388-392.
4. Free Rad Biol Med 2014; 69: 50-57.
5. Free Rad Biol Med 2015; 78: 213-223.
6. ISRN Endocrinol 2014; ID816307.
7. Mini Rev Med Chem 2011; 1200-1215.
8. J Am Acad Dermatol 2005; 52: 1049-1059.
9. Int J Cosmet Sci 2008; 30: 113-120.
10. Phytother Res 2010; 24: 995-1003.
11. Cell J 2014; 16: 25-30.
12. Invest Ophthalmol Vis Sci 2011; 52: 4395-4401.
13. Aging Cell 2013; 12: 1041-1049.

All three of these natural polyphenols activate FOXO3a, a protein that turns on cellular oxidative defense enzymes that are part of the body's intrinsic protective mechanisms.

In addition, McCord Supplements skin and wound care products contain other powerful antioxidants including methylsulfonylmethane melatonin and L-glutathione that also enhance skin protection against oxidative stress to help skin maintain homeostasis. McCord Sup-



plements skin and wound care products include these amazingly beneficial and powerful antioxidants to help skin, the first line of the body's defense, function at its best.

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