

The Power of Antioxidants and Their Effect on the Skin

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Until the past decade, “antioxidant” was an unfamiliar term. Today, however, we discover through media and advertising that antioxidants are important for our health. Yet, do we know why? In this article, we will uncover the mystery behind antioxidants and learn why they are important, particularly as they relate to skin health. First, it is important to understand a little bit about our skin.

Healthy skin has a brick and mortar type structure that acts like protective armor for our bodies. It allows healthy nutrients to pass into our bodies, yet also protects our bodies from damaging external elements like bacteria, viruses, fungi, pollutants and ultraviolet radiation. When skin is damaged, it loses its ability to function properly, leading to problems like severely dry skin, eczema, infection, or skin cancer.

Skin cancer is the leading cause of cancer in the United States. More than two million Americans are diagnosed with basal cell carcinoma or squamous cell carcinoma annually, and one in five Americans will develop either of these forms of skin cancer over their lifetimes. While most of these skin cancers are not fatal, melanoma is a potentially fatal form of skin cancer, the incidence of which is on the rise. Currently, 120,000 Americans are diagnosed with melanoma every year, which translates into a 1 in 55 chance that you, the reader, will get melanoma, the deadliest form of skin cancer, over your lifetime. In fact, melanoma is the most common form of skin cancer among Americans ages 25-29, as well as the fifth most common form of cancer overall for men and sixth most common form of cancer overall for women.

The cause of skin cancer is multifactorial—genetic predisposition, complexion and skin type, certain diseases, exposure to toxic elements like pollution and cigarette smoke, and exposure to ultraviolet radiation—all of which can cause genetic mutations that signal skin cancer cells to develop and multiply. Free radicals are a key ingredient in this process. They are highly reactive compounds that destroy not only proteins and fats within our bodies, but also DNA, the structure in our cells that contains the genetic material that tells our cells what to do and how to behave. Once DNA is damaged, our cells no longer follow instruction. They lose control and multiply irresponsibly, the hallmark of cancerous cells.

Enter antioxidants. Antioxidants combat free radicals by combining with them to neutralize their force, thereby squelching free radicals of their power. While our bodies produce some antioxidants naturally, there are many alternative sources of supplemental antioxidants to help in the free radical fight. Familiar sources of antioxidants include colorful fruits and vegetables, as well as orally-ingested or topically-applied vitamin supplements like vitamins A, C and E, as well as minerals like copper. However, there are many other noteworthy ingestible and topically-

applied sources of antioxidants to consider incorporating into your daily routine to help prevent skin cancer and decrease the risk of premature skin wrinkling due to damage caused by free radicals.

The most potent antioxidants are phytochemicals, or plant-derived nutrients, which makes sense. Day in and day out, plants are exposed to harsh environmental factors like ultraviolet radiation and pollution without the ability to protect themselves via any mechanism other than that which the plant can produce itself. These plant-derived antioxidants include carotenoids and polyphenols.

Carotenoids are natural, plant-derived antioxidants, the most important which are beta-carotene, alpha-carotene, lutein, zeaxanthin and lycopene. The most common sources of Beta-carotene are colored fruits and vegetables such as mango, apricot, carrots, kale, broccoli, spinach, squash and sweet potatoes. Lutein is found in red peppers, broccoli, corn peas, spinach, kale and leek. Lycopene is the red pigment in tomatoes, but can also be found in pink grapefruit, watermelon and guava. One proposed way beta-carotene works is to improve the cell-to-cell communication that may be lost when DNA is damaged and cells stop following instructions. Specifically in the skin, beta-carotene seems to decrease redness that occurs following sun exposure and lutein blocks the damage due to UV-B radiation. Retinoids serve as an example of carotenoids that are found in many topically-applied cosmeceuticals.

Polyphenols are a very large group of natural compounds that are found in a wide variety of fruits, vegetables, berries and leaves. Included within this group are tea, coffee, cocoa, red wine, grape seed extract, various spices, onions, soy, and flax. An example of a polyphenol that is important to skin health is ferulic acid, which is a potent antioxidant and key ingredient in a cosmeceutical skin care product that protects against ultraviolet radiation and provides anti-aging benefits. Coffee berry is another example of a powerful polyphenolic antioxidant included in a select line of cosmeceuticals also intended to retard the aging process. In fact, within the past decade or so, antioxidants have become popular additions to the list of ingredients in various cosmeceutical products.

One particularly interesting polyphenol is polypodium leucotomos extract, which is a key ingredient in an oral supplement intended to protect the skin in all individuals during periods of prolonged sun exposure and in individuals who are sensitive to sunlight. Not only does it possess powerful antioxidant capabilities, but also anti-inflammatory properties that make it a stalwart tool in the fight to protect the skin from cancer-causing ultraviolet radiation.

The study and understanding of antioxidants and their potential far-reaching health benefits is growing exponentially. They not only help prevent disease, but may actually reverse disease while seemingly slowing the aging process. This very exciting field of study deserves the attention it gets and reminds us to return to our roots—literally.

