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**Melanin: Aging of the Skin and Skin Cancer**

**By Diana Clarke**

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"Ultraviolet (UV) radiation is responsible for 90% of the visible signs of aging on the skin of whites," says Dr. Michael J. Martin, former Assistant Clinical Professor in the Dept. of Epidemiology and Biostatistics at University of California, San Francisco.

Blacks' skin, however, ages much slower.

Why are most dark-skinned blacks protected from harmful UV rays? Because compared to whites, blacks possess more melanin, the pigment that gives skin its color.

Melanin

Melanin offers protection against UV rays for blacks and other dark-skinned people. Conversely, fair-skinned people are much less protected and more susceptible to skin cancer. Furthermore, albinos' skin offers no protection.

Although blacks' skin produces more melanin than whites', all skin has the same number of melanocytes, the cells that manufacture the melanin.

Melanocytes manufacture melanin from an amino acid, tyrosin, with the help of an enzyme, tyrosinase. In the bottom layer of the epidermis above the dermis, UV light stimulates the production of melanin in the form of insoluble melanosomes. These surround the epidermal cells, which move up to the surface of the skin. The result is a tan.

Blacks' skin produce more melanin, even in the absence of sunlight, and their type of melanin, eumelanin, is more effective at blocking solar rays. However, white skin produces melanin only in the presence of sunlight and after the UV rays have penetrated the lower portion of the epidermis and have caused skin damage.

## Melanin: Aging of the Skin and Skin Cancer

"Melanin also functions as an excellent free radical scavenger. It affects the delicately designed lipids that hold moisture in the stratum corneum (the outermost layer of the epidermis). If the skin loses its moisture, it becomes rigid and cracks," says Sergio Nacht, PhD., Senior Vice-President of Enhanced Derm Technologies, Inc. in Redwood City.

### UV Radiation and Skin

UV-A has the longest wavelength, is not filtered by the ozone and passes through glass. It reaches the earth all year long and the amount is comparatively stable. It can penetrate the skin down to the dermis, beneath the four layers of epidermis. It is responsible for most of the visible signs of aging, due to damage to collagen and elastic fibers of the connective tissue of the dermis.

UV-A radiation also plays a role in the development of sunburns and skin cancer. Tanning salon lamps emit a large amount of UV-A rays to generate tans, so the American Academy of Dermatology does not recommend their use.

UV-B radiation, which is partially filtered by the ozone, penetrates the skin to the bottom layer of the epidermis where the basal cells are produced. UV-B can break the molecular bonds, disturbing the dividing cells and altering their structure. Compared with UV-A, UV-B is responsible for most of DNAs damage. It also causes most sunburns. During a sunburn the reddening of the skin, erythema, is caused by dilation of capillaries.

More UV-B is present during summer months between 10 a.m. and 4 p.m. and at latitudes closer to the equator. Furthermore, at high altitudes the air is thinner and cleaner, so UV-B radiation is more abundant.

UV-C, which is generally filtered by the ozone, has the shortest wavelength and the most energy, or intensity. It can sterilize hospital equipment and kill bacteria.

In addition, UV light that reaches the earth is scattered in all directions, and up to 85% is reflected from surfaces.

### The Theory of Melanin for Environmental Adaptation

Originally, people of a particular race resided in a particular area. As time went on, their skin adapted to the environment. For instance, people who lived geographically close to the equator had darker skin, and people who lived far from the equator had lighter skin.

In Scotland, which lies at a northern latitude, descendants of the Britons have white skin. When their skin is exposed to the meager sunlight, the scant amount of melanin their skin produces is unable to block the sunlight. Therefore, their bodies are able to make Vitamin D with the help of sunlight. Vitamin D, a vitamin found in fish oil, is necessary to prevent rickets, a bone disease caused by too little calcium.

In contrast, in Africa, which is near the equator, blacks require intense sunlight to penetrate their dark skin to make Vitamin D. This is all well and good. However, when blacks lived in England during the Industrial Revolution, they were the first to develop symptoms of rickets, such as retarded growth, bowed legs and fractures because not enough sunlight was available.

Fortunately, in 1930, Vitamin D was discovered and dispensed as a supplement to add to the diet.

On the other hand, the skin of whites in Australia are in complete opposition to their climate. Consequently, intense UV radiation has been the major cause of skin damage and skin cancer Down Under.

Diana Clarke is a teacher, freelance writer and founder of The Sun and Your Skin, a website on life and light at

### **Anti Aging Skin Care Popular Methods**

**By Oliver Turner**

While exploring the scope of anti-aging skin care treatment, the most commonly asked question is 'What skin renovation medicines have so far proved to be effective'? Collecting right information regarding the anti aging treatments flooding the marketplace is the best strategy to adopt anti aging skin care techniques that suit your aging skin.

To regain your eternal beauty and to get back your youth, go with the anti aging skin care supplements. Anti aging cosmetic products can dramatically improve your look by nourishing you from inside. And that is a natural procedure. No need to go for a painful surgery. Anti aging skin care products can drastically change the way you look and can make you feel young. You can challenge the aging process with anti aging skin care medicines that provide life to your dry or oily skin. You can really stall the ageing process for a few more years with anti aging skin care treatments and enjoy the excitements of youthful life. Try to select anti aging products that will alleviate your rough and dry skin and provide sufficient hydration. Make sure that your anti aging skin products get promptly absorbed into your skin and produce immediate results. Check out whether your anti aging product is hypoallergenic and non-photo toxic. Be careful about damaging your skin instead of repairing it.

Anti aging supplements will rectify the health of your internal system as well as take proper care of your sensitive and wrinkle prone skin. Anti-aging skin care cosmetics usually contain active anti aging components that support the skin's natural ability to remove free radicals, age spots, and chemical toxins that obstruct healthy skin, and improve your skin agility and elasticity. A good quality anti aging product can reduce skin drooping and wrinkling. Anti aging skin care supplements works in complete harmony with the body, supplying and balancing the necessary anti aging dietary requirements thus making your skin glow and look young for a long period of time.

We have made the most comprehensive research on the subject of anti aging skin care products. Find

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