

# Self Tanners



**Beeson Cosmetic Surgery**

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## Introduction

Do you suffer from “tanorexia”, a compulsive need to be tan?

If you do, you are not alone. It’s estimated that 30 million Americans visit tanning salons each year, many of them because they are addicted to the need to be tan. Hollywood’s obsession with tanning doesn’t help. Kim Kardashian, George Hamilton, Paris Hilton, and Victoria Beckham are perpetually bronzed.



People like tans. In fact, a recent study of Indiana University students published in the *Journal of Dermatologic Science* noted that 83.6% of student surveyed felt that a tan made them feel more attractive. The study noted that indoor tanning exposed users to ultraviolet radiation, which is a known risk factor for both premature skin aging and skin cancers.

Nevertheless, the report noted that indoor tanning is extremely popular in the United States with at least one report noting the prevalence of indoor tanning to be highest in the Midwest.

The researchers in the *Journal of Dermatological Science* report surveyed college students regarding their attitudes towards indoor tanning. According to their survey:

- 99.4% agreed that tanning can cause skin problems such as premature aging and skin cancer
- 78.7% disagreed that indoor tanning is safe or at least safer than outdoor tanning
- 69.1% agreed that they still like to get a tan even though they know tanning may be bad for their skin
- 83% agreed that, compared to how they feel before tanning, they feel more relaxed and pleasant during tanning.

But indoor tanning can be hazardous to your health. The US Center for Disease Control and Prevention (CDC) reports that indoor tanning is not safe and that tanning beds, tanning booths, and sun lamps can all cause skin cancer, cataracts, and premature skin aging.

A recent medical study conducted in Europe, Australia, and the United States and published in the British Medical Journal noted a link between indoor tanning and melanoma—the deadliest type of skin cancer. In addition, a recent report published in the medical journal JAMA Dermatology estimated that one third of Americans indoor tan during their lifetimes and that more than 400,000 cases of skin cancer could be related to indoor tanning in the United States each year.

### **What Actually is a Tan?**

Sunlight is beneficial and life giving. It has always been advocated and recognized as a tonic for the psyche. A "healthy-looking tan" has long been considered aesthetically pleasing. In addition, sunlight stimulates the body to manufacture vitamin D. While we cannot avoid the sun, we must realize that exposure can be damaging to our skin. The damaging effects of sunlight are cumulative. The early effects are sunburns. The later effects can be advanced skin aging and skin cancer. Recent medical studies have shown an alarming increase in the number of skin cancers in young adults.



Sunlight consists of two types of harmful ultraviolet rays: ultraviolet A (UVA) and ultraviolet B (UVB). UVA rays can pass through window glass and are able to penetrate deep into the dermis. UVA rays can cause suppression of the immune system, which interferes with the immune system's ability to protect you against the development and spread of skin cancer.

UVA exposure also is known to lead to signs of premature aging of the skin such as wrinkling and age spots. The UVB rays are the sun's burning rays and are the primary cause of sunburn. They can be blocked by window glass. A good way to remember it is that UVA rays are the aging rays and UVB rays are the burning rays. Excessive exposure to both forms can lead to the development of skin cancer. The Food and Drug Administration [FDA] has declared ultraviolet (UV) radiation from the sun and artificial sources, such as tanning beds and sun lamps, as a known carcinogen (cancer-causing substance).

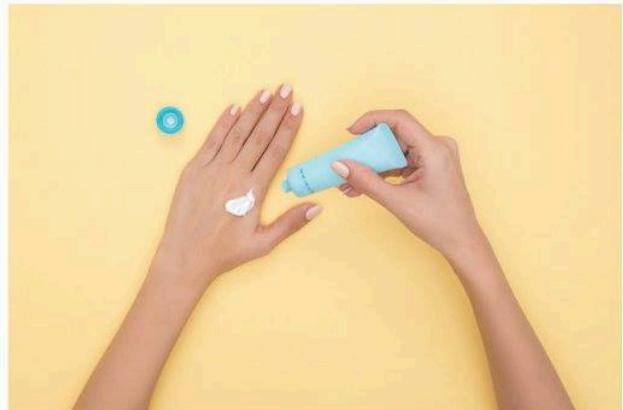
## Natural Defenses of Skin Against Sunlight

One of the important functions of our skin is to protect internal organs and the inner layers of the skin itself from damaging solar radiation. The skin has five defense mechanisms, which it uses. Three are biological and consist of complex chemical reactions in the dermis, which protect skin from radiation damage, and two have to do with the skin texture and appearance. With increased sun exposure (or the UVA and UVB rays from the artificial light indoor tanning machines), the top layer of the skin [stratum corneum] thickens. Sometimes this results in the buildup of scaly, crusting areas called keratosis or "age spots". The most important defense mechanism of the skin is a buildup of melanin pigment, which absorbs and filters ultraviolet radiation, i.e. "a tan". Thus, a "tan" is actually a response to and an indication of "injury" to our skin.

## What are Our Safe Options for a Tan?

Faced with the fact that indoor tanning is associated with significant risk for advanced skin aging and development of skin cancer and realizing that many people enjoy and even relish ("tanorexia") a tan—what are one's "options"? Fortunately, there are good alternatives to indoor tanning (and its associated risks). New refinements in self-tanning lotions and spray tans make them both safe and "attractive" alternatives to tanning booths, tanning beds, and sun-lamps.

*Tanning Lotion:* Many people feel that a tan is attractive and conveys a "healthy" appearance. In reality, a tan actually reflects injury to the skin and is the body's response to ultraviolet skin damage. Those who desire a "cosmetic" tan can obtain one by using "sunless" or "self-tanning" lotions. However, it is important to remember that self-tanning lotions do not protect the skin, so you can burn just as easily.



While there are a variety of products available, only two types of tanning lotions—"Bronzers" and "Self-tanning" lotions—should be used.

Tan accelerators are a group of products, which contain a natural enzyme that stimulates production of melanin, the body's natural pigment. They are not effective. Tanning promoters are groups of products, which contain 5-Methoxypsorsalen. These products have been reported to cause cancer in mice and severe skin reactions in humans. Tanning promoters are not available in the United States. Tanning pills have been banned by the FDA because of life threatening side effects and blindness. They contain the drug canthaxanthin and promote deposition of carotenoid in the skin.

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Bronzers are gel formulations that produce a darker skin color by means of water-soluble dyes. Bronzers color the skin immediately, but the color fades with the first wash.

Sunless or self-tanning lotions were approved by the FDA in 1997 and can produce an aesthetically pleasing tan. The active ingredient in these products is dihydroxyacetone (DHA), which interacts with the dead surface cells in the outermost layer of the skin to darken the skin. DHA gives color to the skin through a "browning reaction". When applied to the skin, DHA changes into a sugar that combines with amino acids in the skin to form chemical compounds known as known "melaninoids" which are brown in color.



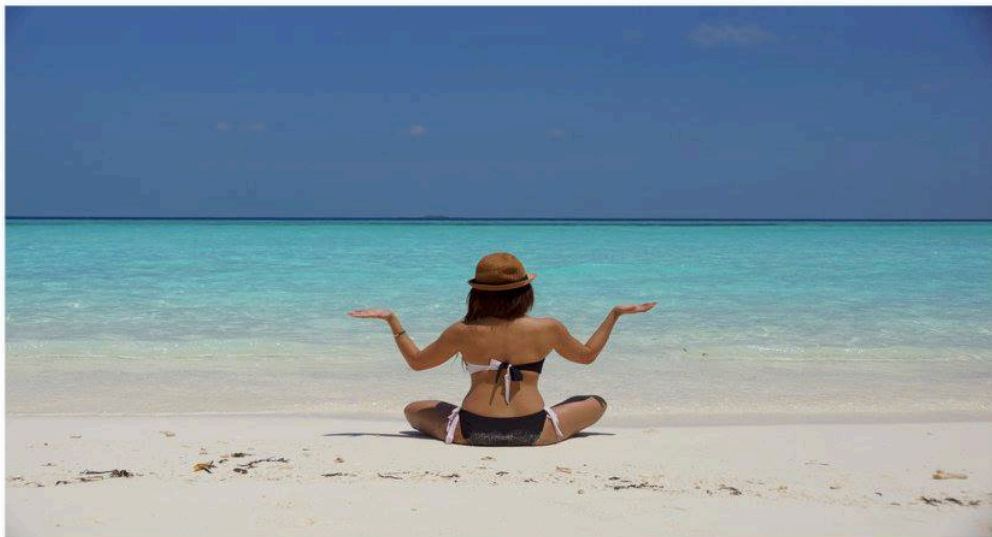
Application of self-tanning lotions is fairly simple. It is best to look for products that have a DHA concentration of 3% to 5%. These will give slower "tans", but will not cause the skin to turn an orange shade as some stronger products do. Self-tanning lotions work best for people with medium complexions.

They are less effective in people with very fair or very dark skin. For those with sun damaged skin, self-tanning lotions produce an uneven color-so do not use if you have a sunburn! Also, in people with older skin or mottled or freckled skin, these lotions can produce an uneven effect. Hair and nails may color, but not lips. Scars will color poorly.

You can improve the tan by buffing or rubbing the skin lightly with a towel, then showering immediately before applying. Be sure to wash your hands immediately after applying to avoid staining your palms. Self-tanning lotions produce a color change within an hour. Best results are obtained with 2-4 applications several hours apart on the same day, with repeated use every few days. The face usually requires fewer initial applications, but more frequent re-applications to achieve the desired appearance.

### **Beware of Illegal Tanning Medications**

Some patients have asked about a medication called “Melanotan” being used in Europe and by some people on the West Coast to obtain a quick tan. Melanotan II was developed in Australia about 6-7 years ago and has been used frequently in Europe where it is not legal, but is readily available on the “black market”. The short-term side effects appear to be only facial flushing and nausea and vomiting. The long-term side effects are not known. There are reports in the July 2009 British Journal of Dermatology regarding the fact that the drug stimulates melanocytic nevi and some that are “dysplastic”, which means they are starting to form skin cancers such as Melanoma, which is the deadliest form of skin cancer.





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