

# Does a Base Tan Protect From Future Burns or Give a False Sense of Security?

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**Myth:** A base tan reduces cancer risk by protecting the skin from additional sun damage.

**Answer:** Redness, burning, pain, and peeling skin are obvious signs that sunburns are not desirable. However, pop culture continually reinforces the image of the healthy looking, golden tan that has become the symbol of youth and vigor. Because most people want to appear young and healthy, the popular belief in a base tan exists. A base tan is recommended by many tanning salons as a protective measure against sunburns before going on vacation to sunny destinations. Can a base tan truly prevent additional sun damage, or does it provide a false sense of security that puts people at risk for skin damage?

Rays from the sun or a sunlamp contain ultraviolet (UV) radiation. UVA causes premature aging, wrinkles, and tanning, whereas UVB, which is known as the “burning” ray, causes sunburns (American Academy of Dermatology, 2008). Tanning of the skin is caused by the release of the pigment melanin after exposure to UVA radiation. Melanocytes, neural crest-derived cells that migrate to the basal layer of the epidermis during embryogenesis, produce melanin, which is believed to protect the body from DNA damage by absorbing excess UV radiation (Bolognia & Orlow, 2009; Dana-Farber Cancer Institute, 2006). Aside from premature aging and skin damage, UV radiation also is believed to be responsible for the development of skin cancers, eye damage, and immune system suppression (U.S. Food and Drug Administration [FDA], 2007).

Evidence does show that tanning with a sunlamp provides sun protection equivalent to a sun protection factor (SPF) of four or lower (Levine, Sorace,

Spencer, & Siegel, 2005). However, according to the FDA (2007), no safe tan exists. The skin is damaged any time melanin increases; some researchers even have concluded that UV radiation is an environmental carcinogen and a major health concern (Matsumura & Ananthaswamy, 2004).

A contingency of opponents to artificial tanning is growing as a result of research on the harmful effects of UV radiation. To date, tanning facilities are regulated in at least four countries and 28 U.S. states (National Conference of State Legislatures, 2008). Ohio, for example, prohibits tanning facility operators from allowing any minor younger than 18 to use the facility without written consent from a parent or guardian unless prescribed by a physician for a skin condition, such as psoriasis (National Conference of State Legislatures).

Artificial tanning is a large business; the United States has about 50,000 tanning salons, and 5% of the population regularly visit the salons (Kwon et al., 2002) (see Figure 1). High-output UVA sources have induced cancer in the laboratory, and although a causal relationship has not been established yet, melanoma induction has been linked to tanning bed use (Kwon et al.). The Skin Cancer Foundation (2008) reported that exposure to tanning beds before the age of 35 increases melanoma risk by 75% and people who use tanning beds are 2.5 times more likely to develop squamous cell carcinoma and 1.5 times

more likely to develop basal cell carcinoma. Even occasional use of tanning beds can triple the risk for melanoma (Skin Cancer Foundation).

No matter how gradual, UV radiation exposure damages the skin. Sun exposure puts people at risk for premature aging, countering the popular notion that a person with a tan has a healthy, youthful appearance. Sun damage also is the leading cause of skin cancer, including melanoma. In addition, people who get base tans often overestimate the sun protection provided by the tans and use less sunscreen (Levine et al., 2005). Therefore, the health benefits of a base tan are nonexistent; the few levels of SPF a base tan provides are negligible, particularly when taking the harmful effects into consideration.

The American Cancer Society ([ACS], 2008) has recommended several ways to limit sun exposure, including covering up as much skin as possible. Long-sleeved shirts and pants along with darker and tightly woven fabrics provide the best sun protection. In addition, a hat with a 2–3-inch brim should be worn to provide shade to the face and ears. Several manufacturers have produced SPF clothing specifically designed to provide maximal sun protection when worn in warm weather; manufacturers include Sun Precautions ([www.sunprecautions.com](http://www.sunprecautions.com)), Coolibar ([www.coolibar.com](http://www.coolibar.com)), SunGrubbies ([www.sungrubbies.com](http://www.sungrubbies.com)), and Solartex ([www.solartex.com](http://www.solartex.com)). Wearing proper eye protection can prevent eye damage;

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