

Sun tanning

From Wikipedia, the free encyclopedia

Some information in this article or section has **not** been **verified** and may not be reliable. Please **check for inaccuracies**, and modify and **cite sources** as needed.

Sun tanning describes a darkening of the skin (especially of fair-skinned individuals) in a natural physiological response stimulated by exposure to ultraviolet radiation from sunshine (or a sunbed). With excess exposure to the sun, a suntanned area can also develop sunburn.



Despite the risks, many female teens said in a survey with *Seventeen* that they "look better with a tan and feel healthier, more sophisticated"

Contents

- 1 Cause and effect
- 2 Cultural history
- 3 Health risks
- 4 Health benefits
- 5 Prevention
- 6 See also
- 7 External links
- 8 References

Cause and effect

Darkening of the skin is caused by an increase or release of the pigment melanin into the skin's cells after exposure to ultraviolet radiation. Melanin is produced by cells called melanocytes and protects the body from absorbing an excess of solar radiation, which can be harmful. Depending on their genes some people can sundarken very fast and very much whereas other people do not.

The ultraviolet frequencies responsible for tanning are often divided into the UVA (315 to 400nm wavelength) and UVB (280 to 315nm wavelength) ranges. UVB have higher energy than UVA waves and are therefore more damaging and more carcinogenic.

UVB

- triggers creation and secretion of new melanin into the skin
- is thought to cause the formation of moles and some types of skin cancer (but not melanoma)
- causes skin aging (but at a *far* slower rate than UVA.)
- stimulates the production of Vitamin D, which promotes lower rates of disease, and ironically lower rates of skin and other types of cancer
- is more likely to cause a sunburn than UVA as a result of overexposure, however moderate exposure can be healthy
- is almost completely blocked by virtually all sunscreens

UVA

- causes release of preexisting melanin from the melanocytes
- causes the melanin to combine with oxygen (oxidize), which creates the actual tan color in the skin
- seems to cause cancer less than UVB, but causes melanoma, a far more dangerous type of skin cancer than other types
- is not blocked by many sunscreens but is blocked to some degree by clothing
- is present more uniformly throughout the day, and throughout the seasons than UVB

Cultural history

Culturally, a suntan may be regarded as attractive, although this is susceptible to the whims of fashion. In ancient Rome, women deliberately lightened their skin with lead based cosmetics. At the time of Shakespeare, before the industrial revolution, untanned skin signified higher status; in *Much Ado About Nothing*, Act II, Scene I, Beatrice observes of her self-perceived unattractiveness and her consequent lack of marriage prospects:

Thus goes every one to the world but I, and I am sunburnt; I may sit in a corner and cry heigh-ho for a husband!



Sunbathing nude on a clothing-optional beach; many people do so to prevent tan lines.

In Europe, during much of the 18th and 19th centuries, fair, freckleless skin was considered attractive, especially in women, since tanned skin was associated with manual labour such as on a farm or in the outdoor employ of a wealthier person. Having fair skin signified that one was wealthy enough to hire other people to do manual labour. In 18th-century France, members of the royal court emphasised this point by powdering their faces to look as white as possible. As labour patterns shifted during the early 20th century, with indoor work becoming the norm, tanned skin came to be seen as a credential for membership of the leisured classes. When famous fashion designer Coco Chanel accidentally acquired a dark tan during a vacation on the French Riviera in the 1920's, she ignited a fad among whites for tanned skin. By the 1960s, a tan's earlier social significance had been reversed and bronzed skin among whites often signified social status, wealth and health, possibly for the opposite reason. Now that most jobs are done inside, tans among whites signify the wealth required to have the leisure time to acquire one.

In 1985, however, the American Academy of Dermatology (AAD) launched a public education program warning about the risks of overexposure to the sun and in 1988, modeling agency director Eileen Ford said, "The tanned look is dead". 72.3% of the white skinned population admits to tanning at least once a year either in the sun or in tanning beds. By 1990, 600,000 new cases of skin cancer had been diagnosed and 27,600 of these involved malignant melanoma. That year, there were 8,800 deaths from melanoma or squamous cell carcinoma and the incidence of these skin diseases continued to rise. Although these risks were widely publicised, in a 1997 *Seventeen* magazine survey, two thirds of teens responding said they "look better with a tan and feel healthier, more sophisticated," and half said they looked "more athletic." In fact many white bodybuilders use to darken their skin at very high level.

Health risks

Sunburns are a symptom of skin damage and are associated with skin cancer. Overexposure to the sun has been linked to melanoma. Too much sun can also lead to eye problems if UV Protected sun-glasses aren't worn, along with damage to the immune system.

Concerns about skin damage due to UV exposure have resulted in the development of products which give the appearance of a suntan without exposure to the sun (see sunless tanning).

A study by Mandeep Kaur, M.D., and others, published in the July 2004 issue of the *Journal of the American Academy of Dermatology, Part 1*, suggests that indoor sun tanning may be addictive. Ultraviolet light stimulates the production of endorphins (through the production of Vitamin D), resulting in a natural sensation of well-being.

Health benefits

In 2002, Dr. William B. Grant published an article in the claiming that 23,800 premature deaths occur in the US annually from cancer due to insufficient UVB exposures (apparently via vitamin D deficiency). [1] This is much higher than 8,800 deaths occurred from melanoma or squamous cell carcinoma, so the overall effect of sun tanning might be beneficial. Another effect of vitamin D deficiency is osteomalacia, which can result in bone pain, difficulty in weight bearing and sometimes fractures. This work has been updated in Grant et al. 2005 [2] and Grant and Garland, 2006 [3] In

addition, it was reported that in Spain, risk of non-melanoma skin cancer is balanced by reduced risk of 16 types of cancer [Grant, 2006] [4]

Ultraviolet radiation has other medical applications, in the treatment of skin conditions such as psoriasis and vitiligo. Sunshine is informally used as a short term way to treat or hide acne, but research shows that in the long term, acne worsens with sunlight exposure and safer treatments now exists (see phototherapy.)

In 2004 iBooks published "The UV Advantage" written by Michael F. Holick, Ph.D.,MD. Dr. Holick at this time was professor of Medicine, Dermatology, Physiology and Biophysics at Boston University Medical Center.

A new book on UVB and vitamin D was published in August 2006: Solar Power for Optimal Health by Marc Sorenson, Dr.Ed.

Prevention

To avoid sunburn or excess tanning, covering up skin, wearing hats and staying out of direct sunlight is the primary defense.

If long sun exposure cannot be avoided or is desired one may use sunscreen, tanning oil or various over-the-counter creams to reduce sun exposure. The SPF (Sun Protection Factor) number on a sunscreen product shows its rated effectiveness. Products with a higher SPF number are those designed to provide more defense for the skin against the effects of solar radiation. However in 1998, the Annual Meeting of the American Association for the Advancement of Science reported that some sunscreens advertising UVA and UVB protection do not provide adequate safety from UVA radiation and could give sun tanners a false sense of protection.

Tanning oils or creams, when applied, are usually thicker on some parts of skin than on others. This causes some parts of skin to get more UVA and UVB than others and thus get sunburns. For this reason, tanning oils or creams may increase the occurrence of skin cancer and other skin diseases.

For those who choose to tan, some dermatologists recommend the following preventative measures:

- Make sure the sunscreen blocks both UVA and UVB rays. These types of sunscreens, called *broad-spectrum sunscreens*, contain more active ingredients. Ideally a sunscreen should also be hypoallergenic and noncomedogenic so it doesn't cause a rash or clog the pores, which can cause acne.
- Sunscreen needs to be applied thickly enough to make a difference. People often do not put on enough sunscreen to get the full SPF protection. In case of uncertainty about how much product to use, or discomfort with the amount applied, switching to a sunscreen with a higher SPF may help.
- Reapply sunscreen every 2 to 3 hours and after swimming or sweating. In direct sun, wear a sunscreen with a higher SPF (such as SPF 30). For playing sports the sunscreen should also be waterproof and sweatproof.
- The rays of the sun are strongest between 10:00 AM and 4:00 PM, so frequent shade breaks are recommended during these hours. Sun rays are stronger at higher elevations (mountains) and lower latitudes (near the equator). One way to deal with time zones, daylight savings (summer time) and latitude is to check shadow length. If a person's shadow is shorter than their actual height, the risk of sunburn is much higher.
- Wear a hat with a brim and anti-UV sunglasses which can provide almost 100% protection against ultraviolet radiation entering the eyes.
- Be aware that reflective surfaces like snow and water can greatly increase the amount of UV radiation to which the skin is exposed.



Protection of the skin through use of a beach umbrella

The American Academy of Dermatology recommends the use of sunscreens, wearing sun protective clothing and avoiding the sun altogether.

See also

- Skin whitening
- Skin cancer
- Ganguro
- Freckles
- Social nudity
- Melanotan (Injection Tanning)
- Tanning bed
- Tanning lamp
- Sun protective clothing

External links

- History of Suntanning
- BBC info page on tanning
- Calculate how long sunscreen protects you
- Research on the benefits of UV exposure

References

- Grant, William B. (2002). An estimate of premature cancer mortality in the US due to inadequate doses of solar ultraviolet-B radiation. *Cancer* **94** (6), 1867–1875.
- Matsumura Y, Ananthaswamy HN (2004). Toxic effects of UV radiation on the skin. *Toxicol. Appl. Pharmacol.* **195** (3), 298-308.
- Hu S, *et al.* (2004). UV radiation and melanoma in US Hispanics & blacks. *Arch Dermatol.* **140** (7), 819-824.
- Bhatia, Suruchi, MD. , (2002). Increase of rickets in young tracked in Bay Area
- Bouillon, Roger, Ph.D, (2006).

Over One Billion People May Suffer From Vitamin D Deficiency

Retrieved from "http://en.wikipedia.org/wiki/Sun_tanning"

Categories: Wikipedia articles needing factual verification | Limited geographic scope | Articles with unsourced statements | Sun tanning | Dermatology | Human appearance | Massage | Summer

- This page was last modified 08:30, 11 January 2007.
- All text is available under the terms of the GNU Free Documentation License. (See **Copyrights** for details.)

Wikipedia® is a registered trademark of the Wikimedia Foundation, Inc., a US-registered 501(c)(3) tax-deductible nonprofit charity.