

According to an article (summarized below) written by Elizabeth Carruth and published on Vanderbilt University's website:

What are the harmful effects of tanning beds?

Nearly every single article that was researched concluded that indoor tanning is directly linked to skin cancer, specifically malignant melanoma, and other numerous health problems. Although tanning industries claim that UVA radiation is safe, medical research disproves this theory. Researchers say that because UVA rays penetrate deep into the skin, they destroy skin fibers and damage elasticity. Long-term effects of UVA rays include premature aging and wrinkles. Scientists agree that UVA rays are less likely to cause burns, but that they are still linked to malignant melanoma, damage to the immune system, weakening of the skin's inner tissue, and other types of skin cancers. In fact, studies show that large doses of UVA lead to an increased risk of developing skin cancer. From his research, Dr. David Sidransky concluded that UVA radiation causes the same damage as UVB radiation to skin cells which leads to cancer. In cases where exposure to light was increased, it was more likely that the damage would exceed the constructive, cellular-repair mechanisms, and a tumor would be more likely to develop.

A study conducted in Sweden helps to prove that tanning beds are a major factor in the development of malignant melanoma. Different people, all under the age of 30, were included in the study. The data concluded that the people who used tanning beds more than 10 times a year were seven times more likely to develop malignant melanoma than those who did not use tanning beds as often. Researchers estimated that by the year 2000, the risk of developing skin cancer for those who did not use tanning beds would be one out of every 97 persons, and that the chances for those who did use tanning beds would be one out of every 13 persons. The study also concluded that melanoma risks are increased by 300% for those using tanning beds occasionally, and that the risks increase by 800% for those who use tanning beds more than 10 times a year.

Tanning is also skin damage. Although skin cancer has been associated with UVB radiation and sunburns, scientists say that even tanning in moderation produces the same harmful effects, as would a burn. Tanning causes premature aging, causing the skin to appear leathery and wrinkled, and also damages the immune system. Other sources reveal that tanning always damages the skin. Plastic surgeon Dr. Dean Johnson who treats skin cancer patients in 25% of his surgeries, declares "There is no safe tan".

A number of various authorities warn the public of the dangers of tanning devices. Dermatologists believe that tanning beds are a leading factor in skin cancer cases. The Food and Drug Administration (FDA) lists tanning beds as possible health hazards, and the FDA and the Centers for Disease Control (CDC) encourage people to avoid using tanning and sun lamps. Even the American Medical Association (AMA) and the American Academy of Dermatology (AAD) are fighting to ban the use of tanning equipment for non-medical purposes.

Both types of UV radiation can cause damage to blood vessels, photosensitivity (allergic) reactions, or even eye damage. According to the CDC, tanning beds create problems in the eyes such as conjunctivitis and corneal infections. Ultraviolet rays can cause serious damage to the cornea and retina.

What are people's motives for tanning?

Why do people desire a tan? In general, most people are concerned about their appearance. It can be assumed that people desire to be considered beautiful by others and to have more pleasant features. The stereotypical good-looking person is usually a thin female or muscular male with nice, clean hair and bronze or tan skin. In recent years there has been a tremendous amount of pressure placed upon females, especially teenagers, to become what the media considers to be a beautiful person. All this explains why more white female teens are using tanning equipment with disregard to medical warnings.

Why won't people listen?

Because of exposure to sun, tanning beds, and sun lamps, the number of skin cancer cases has increased dramatically. It has been predicted that this year, more than one million new skin cancer cases will be diagnosed. Also, malignant melanoma can be fatal if it is not detected early. This year in the United States, 38,000 cases

and 7,300 deaths are being anticipated. So, why are people not complying with the warnings? Why are people not changing poor skin care treatment? Perhaps the public is not fully aware of the harmful effects of UV radiation. Rex Amonett, M.D., Dermatologist, stated that most of his skin cancer patients are over 50. He also reported that lately more teenagers have become victims, and that this was probably due to the fact that now more than 2.5 million people are using tanning bed equipment daily (mostly teens).

What scientific research has been discovered on the effects of artificial tanning equipment?

Studies regulated by medical researchers consistently report a number of interesting facts about the relationships between artificial tanning equipment and skin cancers. Studies prove that exposure to UV radiation is a risk factor for cutaneous malignant melanoma. One study reviewed that approximately 80% of the radiation emitted by tanning lamps is in the UV range, proving tanning beds to be carcinogenic, and another study of Caucasian women with melanoma reported that women who had a history of sunburns had an increased melanoma risk, even if they also tanned. The reports also concluded that combined exposure to sunlight and tanning beds resulted in increased risks for developing melanoma.

Study of the UV radiation emitted by tanning beds:

A Dermatology Department in the United Kingdom conducted a study examining DNA damage in human fibroblasts, cells that give rise to connective tissue, after they were exposed to artificial tanning lamps. The harmful results caused by UVB radiation from tanning lamps were determined to include three types of damage to DNA. Cyclobutane pyrimidine dimers (CPDs) were included, oxidized and hydrated pyrimidines were distorted, and breaks were found in the single-strands. It was also discovered that the induction of these kinds of DNA damage occurred just before the development of skin tumors. The scientists who conducted the study agreed that although the amount of evidence regarding the harmful effects of tanning lamps has been limited, it has recently been increasing. They concluded that it is highly likely that the lamps cause DNA damage that is directly related to the development of skin cancers, cutaneous effects, and damage to the immune system. They believe that the public should be warned about the dangers of using tanning beds.

Ultraviolet radiation can cause damage to eyes:

Another study was completed, examining the effects of UV radiation from artificial sources on the cornea and studying the production of proinflammatory cytokines. Normal human corneas and stroma cells were obtained from eye banks, and keratocytes were grown in culture dishes. The corneas were placed in the dishes. Some were left alone as a control, and the remaining ones were exposed to UV radiation for three hours. The corneal stroma cells were cultured and analyzed to verify that they were not contaminated. The experiment proved that there was a 30-fold increase in radiation of the stroma cells compared to the cells that were not exposed to the radiation. This proved that UV-mediated corneal inflammation can be found in people who are exposed regularly to UV radiation.

Researchers report why people do not adhere to warnings:

A study of New Zealand residents was performed relating sun behaviors to the risks of acquiring melanoma. A group of 909 21-year olds answered questionnaires concerning how often they used sunscreen, how often they were sunburned, and what methods would be required to convince them to protect their skin. The consensus of surveys concluded that obtaining a good base tan would decrease their chances of developing melanoma. The report revealed that the public is unaware of the harmful and potentially deadly effects of UV radiation and skin damage, particularly when dealing with tanning beds.

Medical researchers agree that artificial tanning equipment emits predominantly UVA and some UVB radiation. UV rays cause sunburns, and sunburns increase the chances that one will develop skin cancers, including malignant melanoma. Therefore, the conclusion can be made that tanning beds can cause skin cancer. Scientists also agree that the best method of modification of potentially harmful sun behaviors is to educate people of the risks of acquiring melanoma.