

A Killer Tan

Burning issue: Are UV rays in tanning beds really safe?

by Hallie Levine

Michele Hoard has stayed away from tanning beds and out of the sun since she was diagnosed with malignant melanoma, a deadly form of skin cancer, in January 2003. But when she heard that a tanning salon near her home in Minneapolis was offering a sunless, spray-on self-tanner, she decided that it was worth finding out more about the tanning alternative.

"I walked in and asked the guy at the front desk about it, and he recommended instead that I go into one of the tanning beds for 10 minutes before trying the spray," recalls Hoard, 35. "I said, 'I can't tan; I'm a melanoma survivor.'"

His response floored her.

"He just waved his hand and said, 'No worries--the tanning beds are good for you because they contain mostly UVA rays, which reduce your risk of cancer.' I couldn't believe he was advocating tanning to someone who'd had skin cancer."

Lisa Whitehead, now 42, bought an indoor-tanning membership and started going every other day because "the manager told me that the beds were FDA-approved and that the indoor rays were safer than the sun because all the bad, cancer-causing agents were filtered out," she says. Four years later, she noticed a black spot on her upper arm and decided it had to be a beauty mark. "I didn't really think about it until a few months later, when I went to see my dermatologist and she told me I needed to have it biopsied," Whitehead recalls. Two days later, she learned that she had stage 1 melanoma--at age 27. "I went back into the tanning salon and screamed at them," says Whitehead, now married with two children. "I told them that they had lied and that their beds had given me cancer."

Hoard and Whitehead are not alone. In an investigation into the \$5 billion tanning salon industry, *Prevention* has found that hard-sell tactics and false assurances of safety are luring women into putting themselves at risk for cancer, disfigurement, and worse. Not only do some industry representatives claim that tanning is safe; they also insist that soaking up ultraviolet radiation from sunlamps is actually good for you. Read on for what you must know to protect yourself--or your teenage daughter--from this dangerous misinformation.

Booming Business

There's no doubt that the tanning business is booming. Sales figures for Hollywood Tans, the largest tanning salon chain in the country, have surged more than 450% since 2000, and industry numbers are up overall: 29 million people visited a tanning salon in 2003, compared with 27 million in 2000, reports the National Tanning Training Institute, an industry education group based in Phoenix. The group claims that of the 1 million-plus people who spend time and money in tanning salons each day, 70% are women, and 53% are between the ages of 20 and 39. And, reports the industry, the two fastest-growing categories of indoor-tanning-bed users are female teens between 16 and 19 and women between 40 and 49.

What may be drawing them, in part, are the tanning industry's unprecedented and aggressive new marketing tactics, which have confused consumers about the real risks of tanning beds. These started last fall, on the heels of a 2-day October summit in Washington, DC, where public health officials from the National Institutes of Health (NIH) reviewed evidence suggesting that certain groups of Americans don't get enough vitamin D in their diets. As remedies, experts recommended supplements, vitamin-fortified dairy products, and brief exposure to sunlight, because UV radiation helps the body manufacture vitamin D.

Indoor-tanning businesses took that baton and ran with it, boldly offering their services as a solution to what they've dubbed "a life-threatening epidemic of vitamin D deficiency."

"My wife uses tanning beds because she's concerned about vitamin D deficiency," says Michael Stepp, CEO of Wolff System Technologies, a major manufacturer of tanning lamps in Marietta, GA. "Sure, she's Norwegian with a lot of moles, but she knows that the health benefits of a small amount of sun exposure far outweigh the risks."

Such carefully crafted messages and testimonials extolling the benefits of tanning "are convincing women that tanning salons are safe," says Mark Naylor, MD, a dermatologist at the Oklahoma Medical Research Foundation, an independent biomedical research organization in Oklahoma City. The industry spin also has dermatologists scrambling to head off the public's misplaced concerns regarding the need for vitamin D. "These claims are ludicrous," says James Spencer, MD, professor of dermatology at New York's Mount Sinai School of Medicine and a spokesman for the American Academy of Dermatology. "The great majority of Americans get adequate amounts of vitamin D." In addition, the amount of sunlight a fair-skinned person needs to make a whole month's supply of vitamin D is about 5 to 10 minutes three

times a week--just on the face. "The same UVB rays that create vitamin D can destroy it in your skin," warns Robert Heaney, MD, John A. Creighton professor of medicine at Creighton University and a speaker at the NIH conference last fall. So with UVB, more exposure isn't better--even for synthesizing vitamin D. Indoor-tanning packages, however, are often sold in monthly units of unlimited tanning.

Tanning and Cancer

Murky science and controversial claims are nothing new for the indoor-tanning industry, which used to advertise its tanning devices as safer than the sun. Now, it employs marketing practices that are even more aggressive than the tobacco industry's methods prior to the antismoking backlash of the 1970s. "When the first research came out showing that smoking was dangerous, the tobacco industry's response was always, 'We don't know. There's just not enough science,'" says Spencer. "But here, the tanning industry is not just saying it's not dangerous; it's saying tanning is actually good for you. The tobacco industry never said that, to my recollection."

Even more worrisome than the tanning camp's assertions regarding vitamin D is its position on cancer, which it says can be caused by sun deprivation and prevented by tanning lamps. The claims--that brief exposure to tanning devices can ward off cancers of the colon, prostate, and breast, as well as a host of other debilitating diseases, including osteoporosis, arthritis, and depression--do contain a tiny kernel of truth. They're based on research conducted largely by Michael Holick, MD, director of the Vitamin D, Skin, and Bone Research Laboratory at Boston University, with partial funding from the tanning industry. But Holick concedes that the amount of sunshine you need is minimal, "and you don't need to go to tanning salons to get it."

Other experts are even more skeptical, pointing out that scientific evidence suggests only that vitamin D may help protect against colon cancer. "Even there, we're not sure if it's due to the vitamin alone or in combination with calcium," says dermatologist Martin Weinstock, MD, PhD, chair of the American Cancer Society's Skin Advisory Group.

The tanning industry's other major point--that avoiding the sun (or sunlamps) may put you at increased risk of prostate, lung, breast, colon, ovarian, and pancreatic cancers--is based on research conducted by William Grant, PhD, a NASA scientist. These claims, detailed in an October 2003 industry press release, have been dismissed by the dermatology community. "It is dangerous to mislead the public into thinking sunlight is a safe and effective 'cure' for other health conditions," says Raymond L. Cornelison Jr., MD, president of the American Academy of Dermatology.

For all the urgency the tanning salon industry places on cancer prevention and health, the one disease it downplays is skin cancer--especially melanoma.

"One of the more common beliefs offered as 'fact' by some members of the medical community and people opposed to tanning is the idea that natural or artificial sunlight can trigger melanoma," says Wolff System's Stepp. "The truth is, melanoma is believed to be genetically triggered." Weinstock vehemently disagrees, noting that although "genetic background plays a role, the biggest factor in melanoma is UV exposure." What's more, scientific evidence supports a link between tanning-bed use and skin cancer. A review study published last October in the *Journal of the National Cancer Institute* strengthened the evidence that tanning beds are helping drive up rates of melanoma, a cancer that kills one American every hour. (The lifetime risk of developing invasive melanoma has increased a whopping 2,000% since 1930.) The JNCI review noted that indoor tanning can increase a fair-skinned individual's risk of developing melanoma by 55%. And it can take a mere 10 indoor-tanning sessions to cause precancerous DNA damage, reports a recent review study by a Kings College London researcher.

Indoor tanning contributes to nonmelanoma skin cancers as well. A 2002 study in the JNCI found that tanning-bed enthusiasts have up to 2 1/2 times the risk of squamous cell carcinoma and 1 1/2 times the risk of basal cell carcinoma compared with nonusers.

Naylor, the Oklahoma dermatologist, has no doubt that indoor tanning is responsible for many new cases of skin cancer. "In the past few years, I've seen an increase in the number of tanning-bed users with skin cancers on parts of their bodies that don't get exposed to sunlight, such as their breasts and buttocks," he says. Kristi Hiltz, 24, of Baltimore, tanned topless 5 days a week for 4 years but stopped in 1999 when her dermatologist diagnosed melanoma in a mole on her left breast. "My doctor is convinced that my cancer is from indoor tanning, since the spot was always covered by a bikini top whenever I was outdoors," Hiltz says.

Questionable Assurances

That UVB and UVA radiation--whether from tanning bulbs or sunlight--can cause skin damage that can lead to cancer is as close to a hard-and-fast medical certainty as science can offer. Yet when *Prevention* sent a reporter to a tanning salon in the New York area with a question about skin cancer, the sales representative downplayed any link. When the reporter asked the rep what she should do if she had had a squamous cell carcinoma removed

from her back, the rep handed her a tube of zinc oxide and said, "If you're worried, just put this on; it'll block any suspicious areas." Medical experts counter that if you've had one squamous cell carcinoma, you're at increased risk for others anywhere on your body--for the rest of your life. At a different tanning salon, a salesperson told our reporter that squamous cell carcinoma had nothing to do with prior sun exposure. "Not true," says Rex Amonette, MD, past president of the American Dermatological Association and clinical professor of dermatology at the University of Tennessee in Memphis. "We know for sure that exposure to UV light contributes to all types of skin cancer."

Here are two more tanning-industry claims and the facts behind them:

Unlike the sun, tanning bulbs don't burn your skin

The industry did dial down the rays in the 1980s, after it was revealed that the first tanning beds, which emitted mostly UVB light, could cause serious burns and eye damage after less than 1 minute of exposure. In response, many tanning-bed manufacturers greatly reduced the amount of UVB light. That proved not as efficient at tanning, so they developed beds that contain about 94% UVA and 6% UVB rays--about the same ratio as what's in sunlight. The one crucial difference: Studies show that UVA energy levels in tanning beds are up to 15 times stronger than the sun's UVA rays--and therefore increase the risk of burning.

A "base tan" protects you against sunburn

Not likely. A 2002 study from the Technical University, Munich, Germany, found that tanning for at least 6 weeks in UVA beds did not offer any more UV protection than not tanning at all. Shannon Carlino, 32, of Bear, DE, learned the hard way what mounting evidence suggests: Tanning salon tans are probably useless for protecting you against future sun damage. Five years ago, she went to tanning salons three times a week for 2 months because--ironically--she didn't want to burn on her Cancun honeymoon. The move backfired. "I was so fried that I looked like I had raccoon eyes and had to cover them with makeup in all my wedding photos," says Carlino, who was diagnosed with a melanoma on her lower leg in August 2003.

Still, the flattering effects of deeply bronzed skin make tanning-bed use very tempting for millions of women like Melanie Mahaffey, a 23-year-old publicist in Houston who's been tanning indoors twice a week since age 15. "My mom, who also tans all the time, had a small skin cancer taken off her arm last year, so sometimes I worry. But I figure I'm still so young that my skin will automatically rejuvenate itself," she says. Not so, say dermatologists, who warn that the aging effects of tanning beds are irreversible and that indoor tanning ages skin faster than the sun because of the concentrated

levels of UVA. "People wrinkle a lot faster from UVA light because it penetrates more deeply and thins out skin's collagen, thus thinning out skin," says Bruce Katz, MD, director of the JUVA Skin and Laser Center in New York City. "When I see patients, I can tell right away if they've been to a tanning parlor; they've got this crepey look to their skin like they've baked in the sun all their lives. They will look old before their time."

Limited Government Protection

When asked about the industry's claims and assurances, Dan Humiston, president of the Indoor Tanning Association, replied that tanning beds are perfectly safe because the government regulates them. "The FDA has strict guidelines on equipment and on maximum exposure time in each bed, and we follow them," he says. Indeed, the FDA does regulate the amount of UV light that tanning lamps can emit. It also requires that each user wear goggles and that tanning beds carry a warning label stating that UV light may cause skin cancer. However, on visits to several tanning salons, *Prevention* found that many of these warnings are on top of the machines and thus out of view. Nonetheless, say salon owners such as David Kim, whose Hollywood Tans franchise is in New York City, if customers get burned, it's because they stay in the beds too long.

At best, consumers are getting mixed messages about the dangers of indoor tanning. Who will help keep them from becoming future cancer victims? The American Academy of Dermatology opposes indoor tanning and supports a ban on the production and sale of indoor-tanning equipment for nonmedical purposes. But "as much as we don't like to admit it, doctors are losing the battle with our public anti-tanning messages," says Amonette. So far, federal agencies seem concerned only in principle with the tanning industry's false claims and have no plans to step up regulation. "Our role is to prevent burns to the skin and eyes," says Howard Cyr, MD, PhD, chief of radiation biology at the FDA. "We regulate warning labels on the machines. We don't have the resources to inspect 25,000 salons, so we only crack down on tanning salons if we've had a complaint. We don't have any jurisdiction over claims the tanning salons may make."

The Federal Trade Commission, which has jurisdiction over these claims, says it's been a number of years since the tanning industry has been the target of an investigation. "In 1998, the FTC took action against tanning-bed manufacturers for falsely claiming that indoor tanning did not pose skin cancer and other risks," says Mamie Kresses, a senior attorney in advertising practices at the FTC. When *Prevention* filled her in on the industry's new pro-health campaign, she told us that the agency is particularly concerned with health-related claims and asked us to send more information.

Meanwhile, women who've been burned by tanning salons are furious enough to go public in the hope that their experiences will serve as a warning to others. Roxanne Smith, 44, of Hanover, PA, stopped using tanning salons in 1999 after a severe burn on her back and buttocks made sitting painful. Then she learned she had melanoma on her lower back. "I know why women go to tanning salons. You go in there and you're lulled into this false sense of security," she says. "The salons say, 'Don't worry, you're safe, you won't burn,' even as they get you to sign a release absolving them of all responsibility. Well, I've had four biopsies and 12 moles removed since I was diagnosed with melanoma in 2002. My 4 years of tanning in a salon mean a lifetime of disfigurement for me."

The ABCs of UV Rays

UVA: Relatively weak but long rays that penetrate deep into the skin. Considered a contributing factor in skin aging, wrinkling, brown spots, and blotching. Both the sun and sunlamps contain a mixture of UVA and UVB.

UVB: Shorter, more intense rays that cause burning, tanning, damage, and skin cancer.

UVC: Superintense rays that you don't have to worry about because they are absorbed by the earth's atmosphere and aren't used in sunlamps.

Some skin types burn more easily than others when exposed to UV rays from the sun or tanning lamps. Skin burns are a sign of cell damage that can lead to premature aging and cancer. If your skin type is 1, 2, or 3, dermatologists say you should never attempt to tan.

1. Porcelain (pale skin) Always burns within minutes of UV exposure; never tans

2. White Burns easily; tans minimally

3. Medium white Burns moderately; tans gradually to a light brown

4. Beige or lightly tanned Burns minimally; tans easily to a moderate brown

5. Moderate brown or tanned Rarely burns; tans to a dark brown

6. Dark brown or black Never burns; deeply pigmented

Source American Academy of Dermatology

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