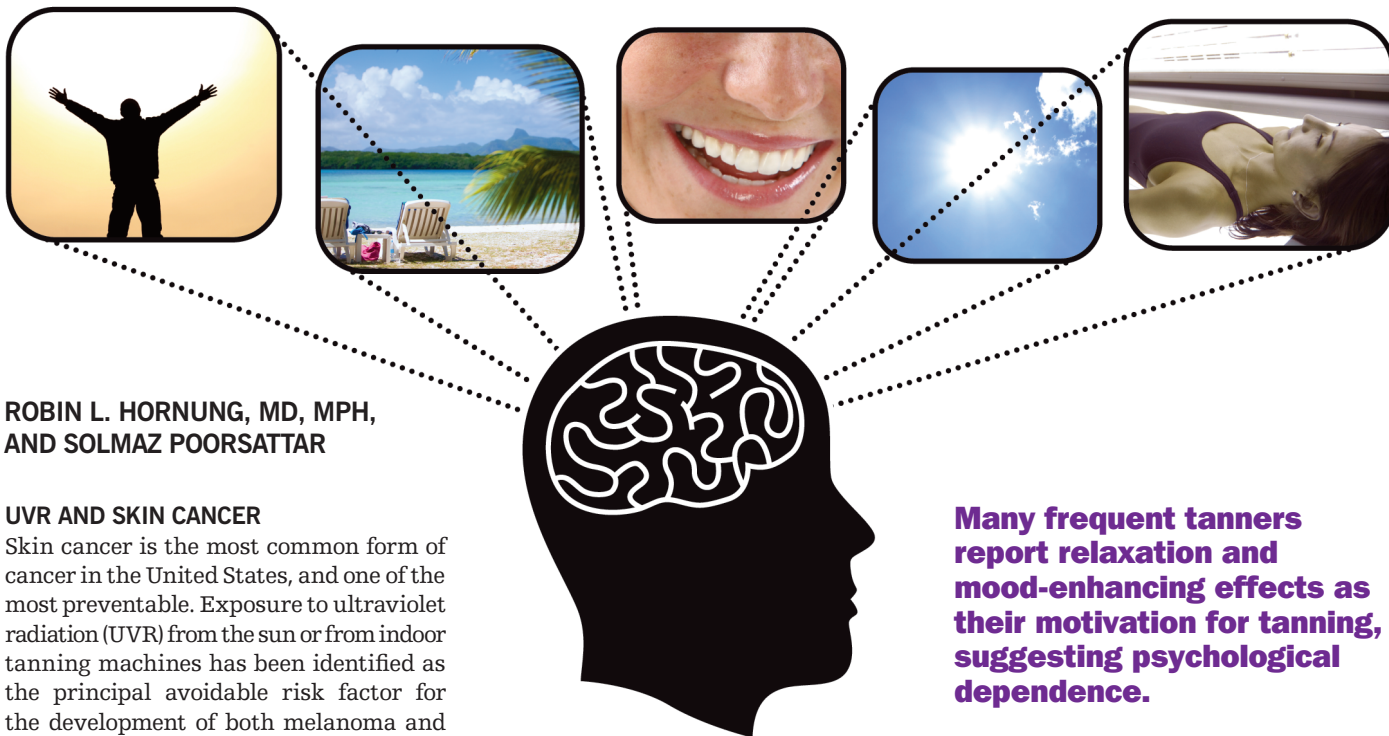




TANNING ADDICTION

The New Form of Substance Abuse



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UVR AND SKIN CANCER

Skin cancer is the most common form of cancer in the United States, and one of the most preventable. Exposure to ultraviolet radiation (UVR) from the sun or from indoor tanning machines has been identified as the principal avoidable risk factor for the development of both melanoma and nonmelanoma skin cancers (NMSC).¹

Despite overwhelming evidence linking UVR to skin cancer, exposure to the sun and indoor tanning machines continues to increase.^{2,3} Multiple studies show that despite repeated health warnings and increased knowledge about the dangers of excessive UVR exposure, many individuals, particularly adolescents and young adults, still use little or no skin protection outdoors and when visiting tanning salons.⁴

This continued, purposeful exposure to a known cancer-causing agent suggests

that factors besides lack of knowledge are driving individuals to tan. While many report that the desire for a tanned appearance is the strongest motivation for sunbathing and tanning bed use,⁴ tanners also report mood enhancement, relaxation, and socialization.⁵ It has been suggested by the popular media and suspected by dermatologists for years that one reason tanning is so popular is that UV light is addictive.

It's easy to see why tanning would be

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compared to other substance dependencies. Common behaviors involved in abuse and addiction, like cigarette smoking and heavy drinking, are prevalent among adolescents and young adults. They are often initially perceived as image-enhancing, and practiced despite knowledge of their dangers. Some of the reported benefits of frequent tanning — mood enhancement and relaxation — are also consistent with addiction. Furthermore, many frequent tanners report difficulty quitting.

WHAT WE KNOW ABOUT TANNING ADDICTION

Frequent tanners exhibit signs of both physical and psychological dependence. When a substance causes *physical dependency*, repeated use of that substance causes symptoms of increased tolerance, craving, and withdrawal.⁶ UV light has been shown to increase release of opioid-like endorphins, feel-good chemicals that relieve pain and generate feelings of well-being, potentially leading to dependency.

A 2006 study used naltrexone, a drug that blocks the endorphins produced in the skin while tanning, to induce symptoms of withdrawal in frequent tanners. In this study, 50 percent of frequent tanners given naltrexone before UVR exposure exhibited withdrawal symptoms, including nausea and jitteriness. These symptoms were not observed in any of the *infrequent* tanners given naltrexone in the study.⁷

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Another study found that frequent tanners were able to distinguish between otherwise identical UV and non-UV light-emitting tanning beds.⁸ Tanners in this study showed an overwhelming preference (95 percent) to tan in the UV light-emitting bed. Participants suggested that UV tanning created a more relaxed mood and even relieved pain, possibly due to endorphin release.⁹

Psychological dependence refers to the effect of a substance on the brain's reward system and its memory of rewards. The production of sensations of pleasure or well-being encourages repeated use.⁶ Many frequent tanners report relaxation and mood-enhancing effects as their motivation for tanning, suggesting psychological dependence.

Also supporting this idea of psychological dependence is a recent study in which 21 percent of 14–17-year-old indoor tanners reported difficulty quitting. Quitting was most difficult for those who started tanning at age 13 or younger,¹⁰ and those who tanned more frequently.

THE CAGE QUESTIONNAIRE

The American Psychiatric Association's

Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (a.k.a. the *DSM-IV*) defines substance dependency as having three or more of the following use-related symptoms over a 12-month period: tolerance, withdrawal, difficulty controlling use, negative consequences, significant time or emotional energy spent, putting off or neglecting other activities, and desire to cut down.¹¹

The CAGE questionnaire is a clinical tool used to diagnose substance-related disorders. A version of it modified to measure tanning addiction includes four questions: Have you ever felt you needed to **C**ut down on your tanning? Have people **A**nnoyed you by criticizing your tanning? Have you ever felt **G**uilty about tanning? Have you ever felt you needed to tan first thing in the morning (**E**ye-opener)?

Many recent studies show that a number of frequent tanners score positive on the

CAGE, meeting criteria for a UV light substance-related disorder.¹² In one survey, 18 percent of undergraduate students in Washington State who acknowledged purposely tanning their skin scored positive on the CAGE.⁵ These students also demonstrated difficulty in controlling use — they admitted continuing high-risk tanning behavior despite adverse personal experiences, such as blistering sunburns or a family history of skin cancer.

A survey of beachgoers in Texas found that 26 percent of sunbathers met tanning-modified CAGE criteria and 53 percent met a tanning-modified *DSM-IV-TR* (Text Revision) diagnosis for a UV light tanning dependency.¹³

WHAT WE CAN DO

Indoor tanning is also associated with other behavioral health risk factors, such as smoking, alcohol, recreational drug use, and eating disorders.¹⁴ All these findings warn us that frequent tanning can lead to unhealthy dependence or addiction in some individuals.

Preventing an addiction is far better than trying to treat one. Early primary prevention should include public education

targeting young children, adolescents, their parents and caregivers. Preventive behaviors learned early in life will more typically be practiced later in adulthood.¹⁵ Seatbelt use in automobiles is a good example of this.

Since tanning in childhood and adolescence is linked to more difficulty in quitting, banning indoor tanning in children may help prevent the habit from developing. Thirty-one states currently have some form of legislation in place.¹⁶

We can also learn from those who have studied addictive behaviors and their treatment. Human behaviorists have developed the Stages of Change model, where the stage of addiction is first identified in order to find an intervention that will be most effective.¹⁷ As patients are then treated for their addiction, they go through different stages of change, from Precontemplation (not yet acknowledging their behavior problem) to Maintenance (maintaining positive behavioral changes). Future research on behavior change models will help us better target optimal interventions.

In the meantime, simple measures can be effective. For those who seek the golden look, self-tanning creams and sprays, which use non-UV chemicals to tint the skin, have never been associated with increased skin cancer risk. For an endorphin boost (which self-tanners do not supply), exercise could be a competing — and healthy — coping response. Finally, tanners should avoid high-risk relapse situations, such as tanning environments and associating with other tanners. Of course, it always helps to solicit support from family and friends. ■

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