New Findings Compare Frequent Tanning to Substance-Related Disorders

By Lauren Gibilisco

"Addiction." This word brings many images to mind: hypodermic needles, lines of white powder, cocktails, Las Vegas casinos, and Johnny Depp's performance in "Fear and Loathing in Las Vegas." Addiction and substance-related disorders are scary, and one does not typically associate them with a sunny day at the beach. Recent findings, however, show that maybe people should not be so quick to make this distinction.

It is often assumed that people go tanning in order to improve their appearance. Today, sun-kissed skin is considered sexually appealing, and people will spend hours on the beach or in tanning beds in an effort to achieve this look. However, it is also common knowledge that exposure to ultraviolet rays drastically increases the risk of developing skin cancer later in life. "Sun junkies" spend days at the beach and can't get enough of the sun, despite knowing the serious consequences. This leads to a conundrum that researchers are currently trying to explain: why do people who are aware of the risks associated with exposure to UV light continue to sunbathe? Is it merely to improve their appearance over the short term? Or is there more to the story? Recent studies suggest that extreme, hardcore sunbathers who know the risks of tanning yet continue to expose themselves to UV rays may be addicted to the sun, comparable to being addicted to drugs or alcohol.

▼ A tanning bed

credit: Jennifer Ang, HSR

Last year, it was discovered that there may be a physiologic effect of UV exposure that drives tanning behavior. Under blinded conditions, regular tanners could distinguish UV conditions from non-UV conditions and undertake further UV exposure. When the marked relaxing and reinforcing effects of UV exposure that factored into tanning behavior in regular tanners was explored in greater depth, interesting results arose (1).

Two written tools, the CAGE Questionnaire and the American Psychiatric Association's Diagnostic Criteria of Mental Disorders, which are used to screen for alcohol abuse/dependence and substance-related disorders, respectively, were tailored to asses people for a substance-related disorder involving UV light tanning. The results of this study showed that a significant percentage of beach-goers met diagnostic criteria for a substance-related disorder with regard to UV light and tanning (2). This explains the "reinforcing" effects of UV exposure; people who constantly and repeatedly go tanning may be victims of a UV light substance-related disorder.

Substance-related disorders are associated with a large amount dopamine in the nucleus accumbens, which is linked with a reinforcing affect. Substances, such as drugs, and possibly UV light, cause these large increases in dopamine levels, which are behind the reinforcing effects of drugs. To add UV light exposure to the "sub-

stances" of substance-related disorders is a breakthrough that brings forth many new implications for treatment.

Will skin cancer prevention steer away from educational methods and start incorporating completely different techniques to help individuals who tan dangerously often? There are medications that decrease the reward value of drugs by interfering with the drug's reinforcing effects or making the effects unpleasant (3). Can these types of medications be tailored to treat "addictions" to UV light? No drug of the sort has been invented yet, but treatments for substance-related disorders that may encompass those related to UV light include efforts to weakened conditioned behavior.

Finally, although the popularity of tanning is increasing among young individuals, behavioral interventions and raising awareness of the dangers of UV light exposure are not completely in vain. For example, educational interventions based on appearance have been shown to decrease indoor tanning by female college students; in other words, the threat of wrinkles is more effective than the threat of cancer in altering risky behavior (4). Other studies show that parental education of the risks of skin cancer help to foster sun-exposure behavior in their children (5).

Whatever the method, skin cancer is a serious threat to tanners, and this issue should be fully explored to help determine the most effective prevention strategies. H

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