Understanding a teenager’s perception of a tan and photoprotection will aid you in sun safety education. Two experts share how they reach their teenage patients and how they get parents involved.

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Sun Safety Education

In the United States, an estimated 1.3 million Americans were diagnosed with skin cancer in 2004, representing more than half of all cancers in the US. There is no evidence that this epidemic is slowing. Sun exposure and ultraviolet (UV) radiation are responsible for 90 percent of all skin cancers and 65 percent of melanomas worldwide. Sunscreen remains the most widely used form of sun protection. However, only an estimated one-third of US teens and adults routinely use sunscreens despite their known efficacy in reducing sunburns, decreasing rates of squamous cell cancer and actinic keratoses in adults, and preventing new moles in children. A recent survey conducted in 2002 by the American Academy of Dermatology found that 81 percent of Americans agreed that they looked better after being out in the sun, and half of respondents reported tanning in the past year.

Of additional concern is the growing popularity of indoor tanning, with approximately one million visits to tanning parlors each day. Indoor tanning is common among teenagers, with 36.8 percent of white female adolescents (often those with fair skin who are at the greatest risk for skin cancer) and 11.2 percent of white males visiting indoor tanning parlors at least once in their lives. In one community, the lifetime prevalence of tanning bed use among female teenagers was 51 percent.

As dermatologists, we recognize we have an unrelenting epidemic in skin cancer, less-than-ideal sunscreen use, and people of all ages seeking the “tan.” We can’t help but wonder at times whether educating teenagers on the risks of prolonged sun exposure or indoor tanning is making a difference. If it does, how do we effectively educate our teenage patients? If not, what can we do?

Impact of Sun Protection Information

Over the past decade, health officials have advised the public to avoid midday sun, wear sun protective clothing, use a broad-spectrum sunscreen with a minimum SPF of 15, and abstain from indoor tanning. Health organizations have also disseminated a considerable amount of information on the dangers of prolonged sun exposure and sunburns to the public; and the American Academy of Dermatology, the American Cancer Society, the American Pediatric Association, and the Centers for Disease Control have issued several policy statements on sun protection. Sadly, despite these multiple recommendations by health officials, inadequate sun protection has continued, resulting in a high incidence of sunburn among children.

Furthermore, among youth, those who knew someone with skin cancer or had received daily messages of sun protection were found to be at greater risk for sunburn than those who did not. In other reports, knowledge that sunlight caused sunburns and skin cancer did not positively influence teenagers’ sun protection practices. Studies then postulated an association between high-risk behavior and lack of sun protection among teenagers, and not surprisingly, they found there are negative associations of smoking, alcohol, and marijuana use with sunscreen use among US adolescents. Thus, intentional tanning appears to align with other health-risk behaviors.

Among adults, national surveys suggest that despite decades of comprehensive sun protection programs, sun burning rates actually increased among adults surveyed in 1986 and 1996. Researchers have shown that comprehensive sun protection begins to decline at a much earlier age than previously reported. Despite tailored sun protection education, in the first summer of life, 22 percent of children received a sunburn or tan as compared with 54 percent during the second summer (P<.001). Thus, to date, studies have not been able to prove that knowledge of the health risks associated with sunburn positively influences sun protective behaviors, in children, teenagers, or adults.

Dangers of Indoor Tanning

The popularity of indoor tanning represents a major health risk. Many teenagers use indoor tanning to get a base tan prior to going on a holiday or will go to an indoor tanning parlor in addition to going to the beach. Indoor tanning has many health risks, including severe skin or corneal burns, cataract formation, skin infections, photoaging, exacerbation of photosensitive disorders, and skin cancer. Melanomas and nonmelanomas (basal cell carcinomas and squamous cell carcinomas) are the most serious of these after-effects. While older studies did not convincingly show a link, recent studies have demonstrated positive associations between indoor tanning and melanoma. Regular use by women, regardless of age, was associated with a statistically-significant increase in risk of melanoma (after adjustment for sun sensitivity). Another study indicated a greater risk of melanoma with sun-bed use for young subjects (< 45 years of age) with fair skin. Previous studies have also shown an association between indoor tanning and nonmelanomas skin cancers.

Despite these risks, the popularity of indoor tanning continues to increase. Would knowledge of the risks of indoor tanning impact practice? Among adolescents, a large study indicated that those who currently use indoor tanning facilities and those likely to use them were less knowledgeable about skin cancer risks. On the other hand, among college students, awareness of the risks of tanning lamps did not influence behavior.

Why Teens Tan: More than Image

The “tan” is still “in.” A national survey has indicated that there is a significant association between outdoor sunbathing and indoor tanning. Tanning is a socially determined behavior. In two national surveys of US adolescents, the probability of tanning indoors was much higher among adolescents whose friends or parents also tanned. Social relationships also influ-
enced the likelihood of sunbathing among adolescents.25-26 Friends, parents, and social norms are all important for encouraging adolescent sunscreen use27 or intention to protect oneself from the sun.28 It is clear that the perception of being surrounded by friends and adults who tan and believing that the behavior is “okay” as per parents promotes tanning.

The question also arises of whether tanning is addictive. Anecdotal reports have suggested that some adolescents may be “addicted” to indoor tanning.29 The large Minnesota Massachusetts Indoor Tanning study (MMITS) found that tanners at risk of continuing tanning indoors were much more likely to report difficulty giving up indoor tanning compared with low-risk tanners.22

Besides the social benefits of tanning, what other factors motivate teens to tan? In addition to appearance,30-31 one of the most common reasons for tanning indoors is relaxation.30,32-33

### Ways Parents Can Help

**Find out About Your Teenager's Friends.** First, keep in close touch with your teenager. Who are his/her peers and with whom is he or she “hanging out”? Does this peer group engage in risky behaviors: smoking, drinking, tanning/burning, etc.? Do these friends regularly use tanning salons? Try to stay in close contact with your teenager. Don’t back off just because of separation behavior. They need you more than ever to give them strong health messages. Peers have been shown to be critically important in influencing a teenager's behavior. Get to know your teenager’s friends and provide a positive influence for them, too.

**Dispel Vitamin D Myths.** Tell your teenager that while the sun has health benefits, such as promoting vitamin D formation, individuals do not need to tan to get vitamin D. Most people will get adequate vitamin D levels with typical daily activities (e.g. walking to school). Adequate vitamin D levels can be achieved in the spring and summer by incidental sun exposure to the face, arms, and hands. Exposure time of as little as five minutes of sunlight most spring and summer days is adequate for vitamin D metabolism.

**Provide Positive Examples.** Give the example of how to best protect oneself from the sun. Inform your teenager of the usefulness of the UV index (above). Teach your children that UV intensity is highest in the spring and summer and between the hours of 10 a.m. and 4 p.m. Instruct them to limit prolonged sun exposure during these times and to be particularly careful with reflective surfaces (sand, water, snow, etc.). Emphasize use of hats to protect the face, sun-glasses to protect the eyes, and tightly woven clothing to protect the skin. Use adequate amounts of sunscreen with a minimum SPF of 15 on the skin that is not covered by clothing.

**Offer Tanning Alternatives.** Your teenager will probably still want to have a tan nevertheless. Inform him/her of the alternatives: the cosmetically acceptable self-tanning lotions. This is a tan without the risks associated with UV exposure. Self-tanning lotions are safe to use. The spray-on tans will give a color as good as that of tanning beds, without the risks of photodamage. However, the color alone will NOT protect from sunburn. Emphasize the use of a sunscreen SPF 15 or greater before going outside, which should be reapplied every 2 hours when outside.

**Encourage Healthy Relaxation.** Relaxation is very important for teenagers. Discuss with your teenager hobbies that will help him or her to relax. Teenagers often lead a stressful life with demands from school, peers, and sports. Recommend alternatives to indoor tanning (e.g. whirlpool baths, massages) that will help with relaxation. Give your teenager a membership or coupon to a health club or salon. Physical activity will also promote health and relaxation. Offer to go to the gym with your teenager.

**Stay Connected.** Ultimately, staying connected to your teenager and interested in his or her life is incredibly important at this stage of development. This may provide the only way to identify problems or issues that your teenager is confronted with during these years. Separation is the developmental work of adolescents, and parents are responsible for providing direction during this period. Help your teenager to make good choices.

### Global UV Index & Appropriate Sun Precautions

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<th>UV Index</th>
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<tbody>
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<tr>
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Relaxation could be more important in older teens in that among college students, the pleasure of relaxing on a tanning bed was one of the most common reasons given in a survey. Overall, in teenagers, appearance appears to remain most relevant, with appearance-related motives known to represent strong psychosocial indicators of intentional sun exposure. Since appearance-related behaviors are associated with both positive (e.g. exercise) and negative behaviors (e.g. dieting, smoking), researchers have suggested that presenting alternatives that promote healthy appearance (e.g. physical activity, good nutrition) may be helpful. Presenting these and other alternatives is particularly important since both sunbathing and indoor tanning appear to align with other health-risk behaviors.

The question, however, remains: Can informing teenagers of the dangers of tanning make a difference? Possibly. To date, results from the MMITS indicated that teenagers who believed that tanning beds were safe were more likely to be current users. Teenagers less knowledgeable about skin cancers risks were also more likely to be current users. These data suggest that properly informing teenagers of the skin cancer risks and lack of safety associated with indoor tanning may help. However, health promotion by other means will also be important.

Parents as Role Models
Rather than simply educating your teenage patients on sun safety, it may be equally beneficial to educate your teenage patients' parents on their role in sun safety. (The reproducible handout on page 41 may help.) As parents and role models, a major challenge will be to do as we say. The data in sun protection clearly indicates that if parents tan, kids will tan. If parents protect themselves, kids are more likely to do the same. Studies in indoor tanning indicate that it is most prevalent among youths whose caregivers used indoor tanning lamps in the preceding year. In the MMITS, the correlation between parent indoor tanning use and teen use was also noted. Parents serve as role models, and parental influence on their children’s tanning behavior is important, as it is with other youth high-risk behaviors. We must do our best as role models.

Key Education Tips for Teenagers
Teenagers need to know the harsh realities of skin cancer. Estimates of between three and five percent of melanomas occurring in adolescents and one person dying every hour from this most fatal skin cancer are quite staggering for even the most omnipotent teenager. Emphasize to teenagers that anyone can get skin cancer and that teens are not immune from developing the disease. And take time to talk with them about inherent and acquired risk factors (e.g. family history of melanoma, tendency to freckle and to sunburn, presence of many moles or large moles) and warning signs (changing mole, new irregular mole). In addition, stress to teenagers the effects of both natural and artificial light in initiating and promoting skin cancer. Explaining the differences between tanning rays and burning rays may be helpful in teaching teenagers about the risks associated with cumulative and sporadic exposures.

The association of sunburns and excessive tanning with skin cancer incidence, photodamage, and even death are important messages. Informing your teens that freckles and moles will be “promoted” by sun exposure and that wrinkles and skin discoloration are signs of photodamage is relevant. Teaching adolescents about the relationship between UV exposure patterns and the development of common moles and freckles are important steps in communicating the impact of excessive sun exposure on the skin. A current area of sun protection education, sponsored by the Sun Protection Foundation (Hingham, MA), involves the use of a UV reflectance camera that demonstrates the extent of sun damage and sun sensitivity. It is very effective in raising a teenager’s consciousness regarding sun damage, allowing teens to “see” some of the immediate effects of excessive sun exposure on their face.

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Teaching teens about regular moles versus abnormal changes may be helpful in promoting the recognition of malignant changes later. Teens should also understand that there are different types of skin cancer and that some are more serious than others.

Pointing out to male teenagers that males have a survival disadvantage as compared to females with the same level and thickness of melanoma can also be another topic to discuss. Ultimately, emphasizing to all teenagers that prevention and early detection of skin cancer is imperative to reduce morbidity and mortality of this disease is critical. Take time to review common sense approaches to sun protection along with warning signs of skin cancer, and advise them to seek evaluation by their physician or mid-level practitioner if they develop a new, persistent, or changing growth. Also, counsel teens on the proper use of sunscreen including spectrum of protection, SPF, quantity for proper coverage, reapplication recommendations, and substan-
tivity (waterproof factor). Recommending daily use of sunglasses, hats, sun protective clothing, and portable or stationary shade are also important elements of a sun protection plan.

Encourage Parents, Too

Teenagers require constant reinforcement. Never give up on providing them with proper health messages and reinforcements, and encourage parents to do likewise. In addition, suggest to parents that they provide their teenagers with sunscreen, hats, and sunglasses, and suggest that they use laundry additives that boost the SPF in their teen's clothing for added protection.

11. Association AP. Ultraviolet light: a hazard to children. Available at www.aapolicy.aapublications.org/cgi/content/full/pediatrics;104/2/328.