

# Just the Facts: Teens and the Dangers of Indoor Tanning



Despite reputable scientific studies showing that tanning devices can cause skin cancer, misconceptions about the risks and dangers of indoor tanning persist. This is due, in part, to misleading advertising and health claims by the tanning industry.<sup>1,2</sup> Youth are especially susceptible to the industry's misleading claims and are frequent targets of marketing promotions (i.e. back-to-school, prom, and homecoming specials).<sup>1</sup> This is cause for concern, because teens are using indoor tanning devices at increasingly higher rates. This fact sheet debunks many of the most egregious claims made by the industry.

## **Claim: The dangers of ultraviolet radiation from tanning beds are not scientifically proven.**

**FACT:** Research shows that indoor tanning use before the age of 35 increases melanoma risk by 59 percent, squamous cell carcinoma by 67 percent, and basal cell carcinoma by 29 percent.<sup>3,4</sup> A 2016 study found that indoor tanning was associated with a six-fold increase in melanoma risk among women younger than age 30.<sup>5</sup> A 2014 systematic review and meta-analysis estimated that over 400,000 cases of skin cancer may be attributable to indoor tanning in the U.S.<sup>6</sup> Of those 400,000 cases, approximately 6,200 cases of melanoma have been attributed to indoor tanning.<sup>6</sup> Additionally, over 3,200 indoor tanning-related acute injuries are treated in U.S. hospital emergency departments each year, with over 400 of those injuries affecting individuals under the age of 18.<sup>7</sup>

In 2009, the World Health Organization's (WHO) International Agency for Research on Cancer increased the classification of UV emitting indoor tanning devices to the highest level of cancer risk – Group 1 – “carcinogenic to humans.” This classification places tanning devices in the same category as other known carcinogens such as tobacco, benzene, and asbestos.<sup>8</sup>

Other well-established dangers of exposure to UV radiation include short-term adverse effects such as sunburn, eye damage (i.e., keratitis and corneal burns), syncope (fainting), and suppression of the immune system.<sup>7,9,10</sup> The damage of UV radiation is cumulative over an individual's lifetime.<sup>9</sup> Repeated exposure can result in long-term effects, such as premature aging of the skin, wrinkles, solar keratosis, permanent eye damage, and skin and ocular cancers.<sup>7,9</sup>

## **Claim: Indoor tanning is no different from being outside in the sun.**

**FACT:** Tanning devices deliver UVA (long-wave) dosages 5-15 times higher than delivered by the summer midday sun on a Mediterranean beach.<sup>11</sup> UVA is the main UV wavelength individuals are exposed to in tanning devices and frequent exposure to UVA increases the risk of melanoma.<sup>12</sup>

## **Claim: Melanoma is not an issue for young people.**

**FACT:** Since UV radiation is cumulative, it can take a significant amount of time before UV exposure develops into melanoma, which is why higher rates of melanoma are often seen in late adulthood. The current increase in melanoma in older populations is the result of exposure to UV radiation starting in childhood and young adult years.<sup>9,13</sup> Therefore, preventing exposure to UV radiation as early as possible in a person's life is critical.

Today melanoma is the fourth most common cancer in individuals aged 15-29 years, and the third most common cancer in individuals aged 25-29.<sup>14</sup> Reducing exposure to UV radiation, both through indoor and outdoor tanning, is an important way of reducing these rates.

### **Claim: Tanning bed use by teens is not a big problem.**

**FACT:** Melanoma is currently the second most common cancer among females aged 15-29 and the second most common cancer among females aged 25-29.<sup>14</sup> Studies show using an indoor tanning device before the age of 35 increases the risk of melanoma by 59 percent, squamous cell carcinoma by 67 percent, and basal cell carcinoma by 29 percent.<sup>3,4</sup>

Of the estimated 11.3 million Americans who tan indoors every year, approximately 1.6 million are adolescents.<sup>15,16</sup> The most recent data indicates that one in nine high school girls have used a tanning device, with numbers increasing to nearly one in six high school girls by their senior year.<sup>17</sup> Among teens who tan, 56 percent reported getting a burn from a tanning device within the past year.<sup>17,18</sup> Additionally, multiple studies have shown frequent use of indoor tanning among adolescents.<sup>5,19,20</sup> Risk for melanoma increases with the number of total hours, sessions, and years that indoor tanning devices are used.<sup>18,21,22</sup> A recent Centers for Disease Control and Prevention (CDC) study found that 16.7 percent of non-Hispanic white female high school students engaged in frequent indoor tanning (10 times or greater) in the past year.<sup>19</sup> Moreover, melanoma incidence rates are steadily increasing, largely among youth non-Hispanic white females, and, in part, due to indoor tanning.<sup>5,19,23</sup>

Youth are especially susceptible to the industry's misleading claims and are frequently the targets of industry marketing promotions (i.e. back-to-school, prom, and homecoming specials).<sup>1</sup>

### **Claim: Tanning bed restrictions don't need to pertain to older teens.**

**FACT:** Data shows that older teens are more at risk for exposure to the dangers of indoor tanning due to increased use.<sup>17,19</sup> Female adolescents aged 17-18 are approximately twice as likely to tan indoors as female adolescents aged 14-15.<sup>15,17</sup>

### **Claim: Parents should be allowed to decide whether youth can use tanning devices.**

**FACT:** Parental consent laws are not adequate in effectively deterring minors from using tanning devices. Studies show that many youth are able to purchase a tanning session without parental permission, even if it is required by law.<sup>24,25,26,27,28</sup> A CDC study found that parental permission laws without age restriction were not associated with a reduction in adolescent use of indoor tanning, whereas age restriction laws were successful.<sup>28</sup> Additionally, literature shows that parental permission and parental tanning bed use are strongly associated with the use of indoor tanning among youth.<sup>18,27,29,30</sup>

Products or devices deemed to be harmful are often regulated to protect consumers. WHO's International Agency for Research on Cancer categorizes tanning devices as its highest cancer risk category (Class 1) – "carcinogenic to humans" – and recommends that minors not be allowed to use them.<sup>8</sup> In 2014, the United States Food and Drug Administration (FDA) reclassified tanning devices to a class II device, which requires greater regulatory safety controls. In addition, the FDA recommended the devices should not be used on individuals under 18 years of age.<sup>31</sup> The U.S. Surgeon General released a call to action to prevent skin cancer, naming tanning beds as a risk factor for skin cancer and encouraged the restriction of tanning beds to

individuals under 18, as well as proper enforcement of state laws.<sup>13</sup> Finally, In December 2015, the FDA issued two proposed rules on indoor tanning devices to protect public health through prohibiting the use of tanning devices by minors, raising awareness of the health risks of these devices for adults, and requiring sunlamp manufacturers and tanning facilities to take additional safety measures for these devices.

The use of other harmful consumer products and services (e.g., tobacco) are not left to similar discretionary decision-making. To protect youth from the harmful effects of artificial UV radiation age restrictions laws that prohibit the use of tanning devices to individuals under 18 should be required, **without exceptions**. In addition, proper enforcement measures and oversight mechanisms should be in place to guarantee that youth are not gaining access to these harmful devices.

<sup>1</sup> U.S. House of Representatives Committee on Energy and Commerce Minority Staff. (2012, February 1). False and Misleading Information Provided to Teens by the Indoor Tanning Industry – Investigative Report.

<sup>2</sup> United States of America Federal Trade Commission. (2010, May 13). In the Matter of Indoor Tanning Association, a corporation - Docket Number C-4290 Decision and Order. Available at [ftc.gov/os/caselist/0823159/100519tanningdo.pdf](http://ftc.gov/os/caselist/0823159/100519tanningdo.pdf).

<sup>3</sup> The 59% increased risk is cited here: Boniol B., Autier P., Boyle P., Gandini S. Corrections: Cutaneous melanoma attributable to sunbed use: systematic review and meta-analysis. *BMJ*. 2012; 345:e8503. Published December 2012; which is a correction of the original article cited here: Boniol B., Autier P., Boyle P., Gandini S. Cutaneous melanoma attributable to sunbed use: systematic review and meta-analysis. *British Medical Journal*. 2012; 345:e4757. Correction published December 2012; 345:e8503.

<sup>4</sup> Wehner MR, Shive ML, Chren MM, Han J, Qureshi AA, Linos E. Indoor tanning and non-melanoma skin cancer: systematic review and meta-analysis. *BMJ*. 2012, 345:35909. doi: <http://dx.doi.org/10.1136/bmj.e5909>.

<sup>5</sup> Lazovich D, Vogel RI, Weinstock MA, Nelson HH, Ahmed RL, Berwick M. Association between indoor tanning and melanoma in younger men and women. *JAMA Dermatol*. 2016; doi: 10.1001/jamadermatol.2015.2938.

<sup>6</sup> Wehner MR, Chren MM, Nameth D, Choudhry A, Gaskins M, Nead KT, et al. International prevalence of indoor tanning: a systematic review and meta-analysis. *JAMA Dermatol*. 2014; 150(4): 390-400. doi: 10.1001/jamadermatol.2013.6896.

<sup>7</sup> Guy GP, Watson M, Haileyesus T, Annet JL. Indoor tanning-related injuries treated in a national sample of US hospital emergency departments. *JAMA Internal Medicine*. 2015; 175(2): 309-311.

<sup>8</sup> El Ghissassi F, Bann R, Straif K, Grosse Y, Secretan B, Bouvard V, et al. A review of human carcinogens – part D: radiation. *Lancet Oncol*. 2009; 10(8):751-2.

<sup>9</sup> American Cancer Society. *Cancer Facts & Figures 2016*. Atlanta, GA: American Cancer Society; 2016.

<sup>10</sup> Eller MS, Maeda T, Magnoni C, Atwal D, Gilchrist BA. Enhancement of DNA repair in human skin cells by thymidine dinucleotides: evidence for a p53-mediated mammalian SOS response. *Proc Natl Acad Sci U S A*. 1997;94(23):12627-12632.

<sup>11</sup> Dore JF, Chignol MC. Tanning salons and skin cancer. *Photobiol. Sci*. 2012; 11, 30-7.

<sup>12</sup> National Toxicology Program U.S. Department of Health and Human Services. Scientific review of ultraviolet (UV) radiation, broad spectrum and UVA, UVB, and UVC. Updated November 5, 2014. Accessed May 13, 2016. <http://ntp.niehs.nih.gov/ntp/roc/content/profiles/ultravioletradiationrelatedexposures.pdf>.

<sup>13</sup> U.S. Department of Health and Human Services. The Surgeon General's call to action to prevent skin cancer. Washington, D.C.: U.S. Dept of Health and Human Services, Office of the Surgeon General; 2014.

<sup>14</sup> NAACCR Fast Stats: An interactive tool for quick access to key NAACCR cancer statistics. North American Association of Central Cancer Registries. <http://www.naacr.org/>. (Accessed on 5-5-2016).

<sup>15</sup> Guy GP, Berkowitz Z, Everett JS, Holman DM, Garnett E, Watson M. Trends in indoor tanning among US high school students, 2009-2013. *JAMA Dermatol*. 2015; 151(4):448-50.

<sup>16</sup> Guy GP, Berkowitz Z, Holman DM, Hartman AM. Recent changes in the prevalence of and factors associated with frequency of indoor tanning among US adults. *JAMA Dermatol*. 2015; 151(11):1256-59.

<sup>17</sup> Centers for Disease Control and Prevention. Youth Risk Behavior Surveillance-United States, 2015. *MMWR*. 2016; 65(6).

<sup>18</sup> Cokkinides V., Weinstock M., Lazovich D., Ward E., Thun M. Indoor tanning use among adolescents in the U.S., 1998-2004. *Cancer*. 2009; 115: 190-198.

<sup>19</sup> Guy GP, Berkowitz Z, Watson M, Holman DM, Richardson LC. Indoor tanning among young non-Hispanic white females. *JAMA Intern Med*. 2013; 173(20):1920-22. doi: 10.1001/jamainternmed.2013.10013.

<sup>20</sup> Hartman AM, Guy GP, Holman DM, Saraiya M, Plescia M. Use of indoor tanning devices by adults – United States, 2010. *MMWR*. 2012; 61(18):323-6.

<sup>21</sup> American Cancer Society. *Cancer Prevention and Early Detection Facts and Figures 2015*. Atlanta: American Cancer Society; 2015.

<sup>22</sup> Lazovich D, Vogel RI, Berwick M, Weinstock MA, Anderson KE, Warshaw EM. Indoor tanning and risk of melanoma: a case-control study in a highly exposed population. *Cancer Epidemiol Biomarkers Prev*. 2010;19: 1557-1568.

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- <sup>29</sup> Hoerster KD, Mayer JA, Woodruff SI, Malcarne V, Roesch SC, Clapp E. The influence of parents and peers on adolescent indoor tanning behavior: findings from a multi-city sample. *J Am Acad Dermatol.* 2007; 57(6):990-7.
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