

# Just the Facts: Indoor Tanning

## *Evaluating the Claims of the Indoor Tanning Industry*



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 use of indoor tanning devices remains common among high school aged girls. This document clarifies the facts related to many of the most egregious claims made by the indoor tanning industry.

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

**FACT:** Meta-analysis 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> Similarly, indoor tanning was associated with a six-fold increase in melanoma risk among women younger than age 30.<sup>5</sup> In the U.S., more than 6,000 cases of melanoma can be attributed to indoor tanning annually.<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), 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 exposures 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>

### **False Claim: Tanning devices are sometimes used for medical purposes.**

**FACT:** Phototherapy, a U.S. Food and Drug Administration (FDA)-approved medical device often used for medical skin conditions (e.g. psoriasis and atopic dermatitis), emits concentrated UV radiation in different ratios than tanning devices. The ratio of UVA (long-wave) and UVB (short-wave) rays are closely monitored by a medical professional and change depending on the skin condition being treated.<sup>11,12</sup> The rays are often applied directly to the area needing treatment - rather than the entire body as a tanning device would cover - and are often used either after a medication has been shown to be ineffective at treating the condition, or in conjunction with a medication.<sup>13</sup>

Medical conditions should only be treated under the supervision of medical professionals using medically recognized treatments. This allows for discussions about the potential benefits, harms, and risks associated with a procedure, as well as close monitoring for abnormal side effects from treatment. The American Academy of Dermatologists has concluded that indoor tanning devices should not be considered a substitute for physician-directed and supervised phototherapy in these adult, adolescent, and pediatric populations.<sup>14</sup> The American Cancer

Society Cancer Action Network (ACS CAN) and nearly two dozen of its health partners, including the American Society of Clinical Oncology, the American Academy of Pediatrics, and the American Association of Cancer Research, concluded “there is no medical indication for the use of tanning devices in the diagnosis or treatment of a disease.”<sup>15</sup>

### **False Claim: UV rays are vital for producing Vitamin D, an essential nutrient for good health.**

**FACT:** Vitamin D is important for bone health. It can be obtained through many different sources including foods, supplements, and even exposure to UV light.<sup>9</sup> However, the amount of UV light needed to produce enough vitamin D puts a person at risk for skin cancer, making supplements and food the preferable sources for vitamin D over UV radiation.<sup>9,16</sup>

### **False Claim: Indoor tanning is no different than 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>17</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>18</sup>

### **False Claim: A base tan provides an SPF effect that protects against sunburn, which is the real threat.**

**FACT:** There is no such thing as a safe tan. Tanned skin is the body’s response to harmful UV radiation and indicates damage to the skin.<sup>19</sup> A “base tan” only provides an SPF of approximately 3,<sup>16</sup> far from the SPF 30 sunscreens recommended by the American Cancer Society. Exposure to UV radiation, in any form, can lead to DNA damage to skin, resulting in short-term adverse effects such as sunburn, eye damage, fainting, and suppression of the immune system<sup>7,9,10</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>

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

**FACT:** Since UV radiation is cumulative, it can take 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>9,16</sup> Therefore, preventing exposure to UV radiation as early as possible in a person’s life is critical.

Melanoma is currently the second most common cancer among females aged 15-29 and the third most common cancer among females aged 25-29 in the U.S.<sup>20</sup> Reducing exposure to UV radiation, both through indoor and outdoor tanning, is a critical step to reduce these rates.

### **False 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 third most common cancer among females aged 25-29 in the U.S.<sup>20</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>

Though indoor tanning use has declined in the past several years, in 2017, about 8 percent of high school girls (nearly 13 percent by their senior year) reported recent indoor tanning use.<sup>21</sup> Just over 57 percent of teens

reported getting a burn from a tanning device or sun within the past year.<sup>21</sup> Additionally, multiple studies have shown use of indoor tanning devices remain common among adolescents, particularly non-Hispanic white females.<sup>5,22,23,24</sup> Risk for melanoma increases with the number of total hours, sessions, and years that indoor tanning devices are used.<sup>9,25</sup> A Centers for Disease Control and Prevention (CDC) study predicts that prohibiting indoor tanning among minors younger than 18 years could prevent 61,839 melanoma cases, prevent 6,725 melanoma deaths, and save the U.S. \$342.9 million in treatment costs over the group's lifetime.<sup>26</sup> As mentioned earlier, 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>

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

**FACT:** Data shows that older teens are actually more at risk for exposure to the dangers of indoor tanning due to increased use.<sup>10,22</sup> Female adolescents aged 17-18 are at least twice as likely to tan indoors as female adolescents aged 14-15.<sup>22</sup>

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

**FACT:** Parental consent laws are not adequate for effectively deterring minors from using tanning devices. Studies show that many youth are able to purchase a tanning session even if parental permission is required by law.<sup>27,28,29,30,31,32,33</sup> Multiple studies have found that parental permission laws without age restrictions do not reduce adolescent use of indoor tanning, whereas age restriction laws do.<sup>31,33</sup> Additionally, literature shows that when children perceive their parents as accepting indoor tanning as safe (as either they themselves use tanning devices or give consent for their child to do so), they are more likely to frequent indoor tanning salons.<sup>25,29,30,34,35</sup> Additionally, when public policy implies that parents have a right to choose a product for their child, parents perceive the product as safe.<sup>28</sup>

Laws that prohibit the use of indoor tanning devices for those under 18 successfully reduce the use of these devices by youth. A 2018 study found that indoor tanning prevalence among female high school students in states with age restriction laws was 47 percent lower than among those not affected by such laws.<sup>33</sup> A recent Minnesota Department of Health survey found that, since the state's law prohibiting youth under the age of 18 from using indoor tanning devices was passed, the number of 11<sup>th</sup> grade white females using indoor tanning devices decreased over 70 percent – from 33 percent in 2013 to 9 percent in 2016.<sup>36</sup> Additionally, a Centers for Disease Control and Prevention (CDC) study predicts that prohibiting indoor tanning among minors younger than 18 years could prevent 61,839 melanoma cases, prevent 6,725 melanoma deaths, and save the U.S. \$342.9 million in treatment costs over the group's lifetime.<sup>37</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>38</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 prohibiting the use of tanning devices for individuals under 18, as well as proper enforcement of state laws.<sup>16</sup>

The use of other harmful consumer products and services (e.g., tobacco) – also deemed harmful by WHO and the FDA – are not left to similar discretionary decision-making. To protect youth from the harmful effects of artificial UV

radiation age restriction laws that prohibit the use of tanning devices for 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.

## **False Claim: Because indoor tanning device operators go through training and follow certain procedures, salons are safer than home tanning.**

**FACT:** Many tanning salon employees and operators are teenagers, and while they may be taught how to use and operate tanning devices, they are not provided with sufficient information to educate users about the short- and long-term consequences of using indoor tanning devices. There is no guarantee that these operators follow recommended safety procedures, such as time or frequency limits. The mere existence of safety procedures does not make indoor tanning salons safe. An indoor tanning device emits carcinogenic UV radiation whether in a salon or in a person's home, so neither are safe.

The indoor tanning industry misleads the public by promoting tanning beds as a safer alternative to sunbathing outdoors, citing the fact that some beds can be controlled and moderated by skin type and operated on a timer.<sup>2,39</sup> However, tanning beds have been estimated to deliver UVA radiation 5-15 times higher than what is delivered by the summer midday sun.<sup>17</sup> In 2010, the Indoor Tanning Association settled out of court with the Federal Trade Commission (FTC) regarding false health and safety claims about indoor tanning.<sup>2</sup> Additionally, congressional investigators contacted 300 indoor tanning facilities in 2012 and determined that 78 percent were claiming that indoor tanning was beneficial to the health of fair-skinned teenagers.<sup>1</sup> A recent study involving research assistants disguised as minors found that tanning facilities frequently stated benefits of tanning devices, including vitamin D uptake, social/cosmetic, and treatment of skin diseases.<sup>39</sup> The public cannot rely on the indoor tanning industry to protect its safety. Prohibiting minors from using indoor tanning devices is a proven, public health intervention that reduces indoor tanning among youth and can prevent skin cancer for future generations.

<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.

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<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 Prevention & Early Detection Facts & Figures 2017-2018*. Atlanta, GA: American Cancer Society; 2017.

<sup>10</sup> Eller MS, Maeda T, Magnoni C, Atwal D, Gilchrest 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> American Academy of Dermatology. Phototherapy versus indoor tanning.

<sup>12</sup> National Institute of Arthritis and Musculoskeletal and Skin Diseases. Questions and answers about psoriasis. Updated March 30, 2017. Accessed January 2019. [http://www.niams.nih.gov/Health\\_Info/Psoriasis/default.asp](http://www.niams.nih.gov/Health_Info/Psoriasis/default.asp).

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