



March 23, 2015

Office of Science Quality
Centers for Disease Control and Prevention
InfoQuality@cdc.gov

This is a submission of an information quality request for correction.

Detailed description of the specific information that needs to be corrected.

The information that needs to be corrected is the first and second bullet points under the heading "Statistics" appearing in the section of the CDC's website titled "Indoor Tanning is not Safe" at http://www.cdc.gov/cancer/skin/basic_info/indoor_tanning.htm, as follows:

“ -- A meta-analysis (<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3049418/>) (a research study that looks at data from other studies) by Boniol and colleagues in 2012. (<http://www.ncbi.nlm.nih.gov/pubmed/22833605>) combined findings from studies conducted in Europe, Australia, and the United States. The meta-analysis shows a link between indoor tanning and melanoma.

-- Another meta-analysis published in 2014 by Colantonio and colleagues (<http://www.ncbi.nlm.nih.gov/pubmed/24629998>) reconfirmed the association between indoor tanning and melanoma, and also found that newer tanning beds were not safer than older models.”

The specific reasons for believing the information does not comply with OMB, HHS or CDC guidelines and is in error.

The first bullet point contains a description of a meta-analysis (Boniol 2012) that has been superseded and discredited by a subsequent and more thorough meta-analysis (Colantonio 2014). Presenting Boniol 2012 on the website as current authority is misleading and therefore not compliant with CDC and HHS guidelines. This is an important point, since the Boniol 2012 finding that use of indoor tanning before age 35 was correlated to a 59% increase in risk of melanoma has been relied upon by state legislatures in enacting under-18 tanning bans. Colantonio 2014 negated this finding of Boniol 2012 by finding that there is no statistically significant correlation between use of indoor tanning at ages less than 25 years vs. more than 25 years and risk of melanoma (OR 1.35, 95% CI 0.99-1.84). Colantonio also negated other findings of Boniol 2012; Colantonio 2014 found a nonsignificant result for lifetime exposure of 1 to 10 tanning sessions (OR 1.07, 95% CI 0.90-1.26) negating Boniol 2012's finding that each annual

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session increased the risk of melanoma by 1.8%. The danger of continuing to mention Boniol 2012 on the CDC's website as a prominent study is exemplified by the incorrect testimony based on Boniol 2012 given to the Texas legislature by a prominent doctor from MD Anderson ("In fact each session in a tanning bed has been estimated to be associated with a 1.8% increased risk [of melanoma]"), which was crucial in convincing the Texas legislature to pass legislation banning under-18 tanning even though there was no evidence that such a ban was free of risk to persons aged 16-18. There are no scientific studies examining the risks of banning 16-18 year olds from regulated tanning salons, which risks may include increased risk of UV burns from use of sunlamps at home or from going to the beach or a swimming pool. Epidemiological studies have found a correlation between UV burns and a two-fold increase in the risk of melanoma (Gandini II 2005).

The second bullet point is also misleading since it does not include a description of Colantonio 2014's finding that there is no statistically significant correlation between use of indoor tanning salons at ages less than 25 years vs. more than 25 years and risk of melanoma. This is an important point because previous iterations of the CDC's website have stated that indoor tanning before age 35 increases the risk of melanoma by 75% (from prior to October 2, 2011 to October 30, 2013) and that indoor tanning before age 35 increases the risk of melanoma by 59% (October 31, 2013 to May 20, 2014), both of which statements have been shown by Colantonio 2014 to be incorrect. Failure to include this Colantonio 2014 correction of Boniol 2012 could mislead the public by making the public believe there is still some validity to Boniol 2012's finding that use of indoor tanning salons is particularly risky for younger persons. Misleading statements of science are not compliant with CDC and HHS guidelines.

The specific recommendation for correcting the information

We recommend deletion of the following language appearing in the section of the CDC's website titled "Indoor Tanning is not Safe" at

http://www.cdc.gov/cancer/skin/basic_info/indoor_tanning.htm:

" -- A meta-analysis (<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3049418/>) (a research study that looks at data from other studies) by Boniol and colleagues in 2012. (<http://www.ncbi.nlm.nih.gov/pubmed/22833605>) combined findings from studies conducted in Europe, Australia, and the United States. The meta-analysis shows a link between indoor tanning and melanoma.

-- Another meta-analysis published in 2014 by Colantonio and colleagues (<http://www.ncbi.nlm.nih.gov/pubmed/24629998>) reconfirmed the association between indoor tanning and melanoma, and also found that newer tanning beds were not safer than older models."

We recommend that the following language be inserted in place of the deleted language:

“ -- A meta-analysis (<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3049418/>) (a research study that looks at data from other studies) by Colantonio and colleagues in 2014. (<http://www.ncbi.nlm.nih.gov/pubmed/24629998>) combined findings from 31 studies conducted in Europe, Australia, and the United States. The meta-analysis shows a link between indoor tanning and melanoma, but negates previous studies that showed a greater risk for younger persons using indoor tanning than for older persons. It also found that newer tanning beds manufactured after the year 2000 were not safer than older models.”

Description of how the person submitting this complaint is affected by the information error

The American Suntanning Association represents the owners of approximately 1,000 indoor tanning salons in 31 states of the U.S. The information error harms the business of indoor tanning salons by disseminating incorrect or misleading information about the risks of tanning.

The name, mailing address, telephone number and e-mail address of the person making this complaint

The person making this complaint is the American Suntanning Association, which is a trade association of indoor tanning salon owners in the United States. The mailing address, telephone number and e-mail address of the American Suntanning Association is:

American Suntanning Association
Attn: Barton D. Bonn, President
PO Box 1907
Jackson, MI 49204
Telephone 402-968-6936
E-mail address bonnbart@gmail.com

Copy to: Allen Miller apmillerlaw@aol.com
Telephone 214-766-7283

Respectfully submitted,

American Suntanning Association

By: /S/
Barton D. Bonn, President

Attachments:

Exhibit A – Transcript of testimony of Dr. Jeffrey E. Gershenwald, MD Anderson Cancer Center, before the Texas Senate Committee on Health and Human Services, March 12, 2013, as recorded at www.senate.tx.us – News and Media; Archived Video; March 12, 2013, Part I.

Exhibit B – Webpages from CDC website at various dates.

References:

Boniol 2012. Boniol M, Autier P, Boyle P, Gandini S. Cutaneous melanoma attributable to sunbed use: systematic review and meta-analysis. *BMJ* 2012; 345:e4757; Correction in *BMJ* 2012; 345:e8503.

Colantonio 2014. Colantonio S, Bracken MB, Beecker J. The association of indoor tanning and melanoma in adults: Systematic review and meta-analysis. *J Am Acad Dermatol* 2014; 5:847-857.

Gandini II 2005. Gandini S, Sera F, Catturuzza MS, Pasquini P, Picconi O, Boyle P, Melchi CF. Meta-analysis of risk factors for cutaneous melanoma: II. Sun exposure. *Eur J Cancer* 2005; 41:45-60 (Fig. 1).

Jeffrey E. Gershenwald, M.D.
MD Anderson Cancer Center

Testimony before Texas Senate Committee on Health and Human Services, March 12, 2013, as recorded at www.senate.tx.us. - News and Media; Archived Video; March 12, 2013, Part I.

Senate Bill 329 Under-18 Tanning Ban

Transcript:

Madame Chairman and the Committee: My name is Jeff Gershenwald. I am a professor and certified oncologist at MD Anderson and also medical director of the melanoma and skin cancer and I am happy to entertain any questions and serve as a resource on senate bill 329.

Sure so I am a certified oncologist so I am a trained surgeon who then did additional fellowship training in cancer surgery and my specialty is melanoma. We see between melanoma and non-melanoma skin cancer and other dermalogic conditions over 5,000 new patients and consultations in our center. My particular focus is in melanoma.

Sure, so melanoma when caught early is very treatable and often curable but we learned as well that in its advanced stages it is very very difficult and challenging to cure. Unlike many cancers where there has been a decreased incidence in this country and in the state of Texas melanoma has been associated with an increased risk - about 3-4% a year.

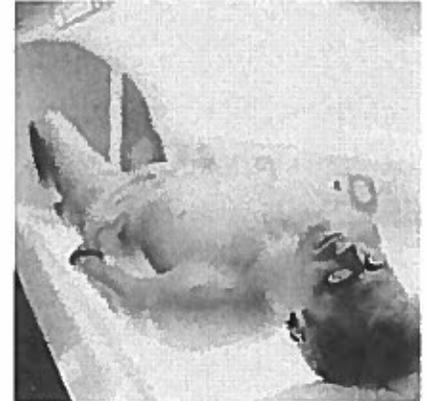
And we've learned as well over many years but in particular from the last couple of years when there have been several important studies that have demonstrated the significant risk associated with indoor tanning and the risk of melanoma. People who have ever used a tanning bed compared to people who have never used a tanning bed risk an increase of about 20%. In fact each session in a tanning bed has been estimated to be associated with a 1.8% increased risk. And if people used tanning beds before the age of 35 the risk has been estimated to be almost double by 87%. Being under 18 years of age when initiating indoor tanning compared to never tanning in another recent study that was well controlled it was associated with an increased melanoma risk of 85% and so there is really has become clear and compelling data of late that embraces a lot of modern approaches to these kinds of difficult analyses that have really provided a strong impetus for us to help to educate on the importance of minimizing tanning exposure.



2.18.15.
Exhibit B

Indoor Tanning Is Not Safe

Using a tanning bed, booth, or sunlamp to get tan is called indoor tanning. Indoor tanning can cause skin cancers including melanoma (the deadliest type of skin cancer), basal cell carcinoma, and squamous cell carcinoma. Exposure to ultraviolet (UV) radiation also can cause cataracts and cancers of the eye (ocular melanoma).



Dangers of Indoor Tanning

Indoor tanning exposes users to two types of UV rays, UVA and UVB, which damage the skin and can lead to cancer. Indoor tanning is particularly dangerous for younger users; people who begin indoor tanning during adolescence or early adulthood have a higher risk of getting melanoma. This may be due to greater use of indoor tanning among those who begin tanning at earlier ages.

Every time you tan you increase your risk of getting skin cancer, including melanoma. Indoor tanning also—

- Causes premature skin aging, like wrinkles and age spots.
- Changes your skin texture.
- Increases the risk of potentially blinding eye diseases, if eye protection is not used.

Facts About Indoor Tanning

Tanning indoors is not safer than tanning in the sun.

Indoor tanning and tanning outside are both dangerous. Although indoor tanning devices operate on a timer, the exposure to UV rays can vary based on the age and type of light bulbs. Indoor tanning is designed to give you high levels of UV radiation in a short time. You can get a burn from tanning indoors, and even a tan indicates damage to your skin.

A base tan is not a safe tan.

A tan is the body's response to injury from UV rays. A base tan does little to protect you from future damage to your skin caused by UV exposure. In fact, people who indoor tan are more likely to report getting sunburned.

The best way to protect your skin from the sun is by using these tips for skin cancer prevention.

Indoor tanning is not a safe way to get vitamin D.

Although it is important to get enough vitamin D, (<http://ods.od.nih.gov/factsheets/vitamind/>) the safest way to do so is through what you eat. Tanning harms your skin, and the amount of UV exposure you need to get enough vitamin D is hard to measure because it is different for every person and also varies with the weather, latitude, altitude, and more.

Statistics

Studies have shown consistently that indoor tanning increases a person's risk of getting skin cancer, including melanoma.

- A meta-analysis (<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3049418/>) (a research study that looks at data from other studies) by Boniol and colleagues in 2012 (<http://www.ncbi.nlm.nih.gov/pubmed/22833605>) combined findings from studies conducted in Europe, Australia, and the United States. The meta-analysis shows a link between indoor tanning and melanoma.
- Another meta-analysis published in 2014 by Colantonio and colleagues (<http://www.ncbi.nlm.nih.gov/pubmed/24629998>) reconfirmed the association between indoor tanning and melanoma, and also found that newer tanning beds were not safer than older models.
- A 2014 study by Wehner and colleagues (<http://www.ncbi.nlm.nih.gov/pubmed/24477278>) estimated that more than 400,000 cases of skin cancer may be related to indoor tanning in the United States each year—causing 245,000 basal cell carcinomas, 168,000 squamous cell carcinomas, and 6,000 melanomas.
- A 2010 study by Lazovich and colleagues (<http://www.ncbi.nlm.nih.gov/pubmed/20507845>) in the United States found that the risk of getting melanoma increased the more years, hours, or sessions spent indoor tanning.

According to the data from the 2011 Youth Risk Behavior Surveillance System, (<http://www.cdc.gov/yrbss/>) many teens are indoor tanning, including—

- 13% of all high school students.
- 21% of high school girls.
- 32% of girls in the 12th grade.
- 29% of white high school girls.

According to the 2010 National Health Interview Survey, (<http://www.cdc.gov/nchs/nhis.htm>) indoor tanners tended to be young, non-Hispanic white (NHW) women. A closer look at the data showed the following rates of indoor tanning among NHW women—

- 32% of those aged 18–21 years.
- 30% of those aged 22–25 years.

- 22% of those aged 26–29 years.
- 17% of those aged 30–34 years.

Healthy People 2020 Objectives for Indoor Tanning

Healthy People (<http://healthypeople.gov/2020/>) provides science-based, 10-year national objectives for improving the health of all Americans. Healthy People 2020 has 20 cancer objectives, (<http://healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicId=5>) including—

- Reduce the proportion of adolescents in grades 9 through 12 who report indoor tanning to 14.0%.
- Reduce the proportion of adults aged 18 years and older who report indoor tanning to 13.7%.

Indoor Tanning Policies

Indoor tanning is restricted in some areas, especially for minors.

United States

California, Delaware, Hawaii, Illinois, Louisiana, Minnesota, Nevada, Oregon,* Texas, Vermont, Washington,* and some cities and counties have banned indoor tanning by minors younger than 18 years. For the latest information, see the National Conference of State Legislatures' Tanning Restrictions for Minors: A State-by-State Comparison (<http://www.ncsl.org/IssuesResearch/Health/TanningRestrictionsforMinorsstatelawssummary/tabid/14394/>) and AIM at Melanoma's 2014 Indoor Tanning Legislation. (<http://www.aimatmelanoma.org/en/aim-for-a-cure/legislative-accomplishments-in-melanoma/2014-indoor-tanning.html>)

*The state laws in Oregon and Washington contain an exemption which allows people younger than age 18 to tan with a doctor's prescription.

CDC research (<http://www.ncbi.nlm.nih.gov/pubmed/24524515>) shows that states with indoor tanning laws that include age restrictions had lower rates of indoor tanning among minors.

International

- Brazil and five out of six states in Australia have banned indoor tanning.
- Austria, Belgium, Finland, France, Germany, Iceland, Italy, Norway, Portugal, Spain, and the United Kingdom have banned indoor tanning for people younger than age 18.

Page last reviewed: February 6, 2015

Page last updated: February 10, 2015

Content source: Division of Cancer Prevention and Control, (<http://www.cdc.gov/cancer/dcpc/about/>) Centers for Disease Control and Prevention (<http://www.cdc.gov/>)



Is Indoor Tanning Safe?



Using a tanning bed, booth, or sunlamp to get tan is called "indoor tanning." Indoor tanning has been linked with skin cancers including melanoma (the deadliest type of skin cancer), basal cell carcinoma, and squamous cell carcinoma, as well as cancers of the eye (ocular melanoma).

Dangers of Indoor Tanning

Indoor tanning exposes users to two types of ultraviolet (UV) rays, UV-A and UV-B, which damage the skin and can lead to cancer. Indoor tanning is particularly dangerous for younger users; people who begin indoor tanning during adolescence or early adulthood have a higher risk of getting melanoma, likely because of increased lifetime UV exposure. In fact, every time you tan you increase your risk of getting melanoma. Indoor tanning also can—

- Cause premature skin aging, like wrinkles and age spots.
- Change your skin texture.
- Increase the risk of potentially blinding eye diseases.

Myths About Indoor Tanning

"Tanning indoors is safer than tanning in the sun."

Indoor tanning and tanning outside are both dangerous. Although indoor tanning devices operate on a timer, the exposure to UV rays can vary based on the age and type of light bulbs. Indoor tanning is designed to give you high levels of UV radiation in a short time. You can get a burn from tanning indoors, and even a tan indicates damage to your skin.

"A base tan will protect me from getting a sunburn."

Indoor tanning does not protect against sunburn. In fact, a tan only provides a sun protection factor (SPF) of about 3 (CDC recommends sunscreen with an SPF of at least 15.), so a tan does not provide enough protection against the sun. The important thing to remember is that a tan is a response to injury: skin cells respond to damage from UV rays by producing more pigment.

The best way to protect your skin from the sun is by using [these tips for skin cancer prevention. \(prevention.htm\)](#)

"Indoor tanning is a safe way to get vitamin D, which prevents many health problems."

[Vitamin D \(/web/20140626031507/http://ods.od.nih.gov/factsheets/vitamind/\)](#) is important for bone health, but its effect on other health problems is less clear. Although it is important to get enough vitamin D, the safest way is through diet or supplements. Tanning harms your skin, and the amount of UV exposure you need to get enough vitamin D is hard to measure because it is different for every person.

Statistics

In the United States, indoor tanning is thought to cause about 419,000 cases of skin cancer every year. For comparison, smoking is thought to cause about 226,000 cases of lung cancer every year.

According to the 2011 [Youth Risk Behavior Surveillance System. \(/web/20140626031507/http://www.cdc.gov/yrbss/\)](#) the following proportions of youth report indoor tanning—

- 13% of all high school students.
- 21% of high school girls.
- 32% of girls in the 12th grade.
- 29% of white high school girls.

According to the 2010 [National Health Interview Survey](http://www.cdc.gov/nchs/nhis.htm), ([/web/20140626031507/http://www.cdc.gov/nchs/nhis.htm](http://www.cdc.gov/nchs/nhis.htm)) indoor tanners tended to be young, non-Hispanic white women.

- 32% of non-Hispanic white women aged 18–21 years reported indoor tanning. Those who reported indoor tanning device use reported an average of 28 sessions in the past year.
- Among non-Hispanic white adults who used an indoor tanning device in the past year, 58% of women and 40% of men used one 10 times or more in the past year.
- Non-Hispanic white women between the ages of 18 and 21 years residing in the Midwest (44%) and non-Hispanic white women between the ages of 22 and 25 old in the South (36%) were most likely to use indoor tanning devices.

Healthy People 2020 Goals for Indoor Tanning

[Healthy People](http://healthypeople.gov/2020/default.aspx) ([/web/20140626031507/http://healthypeople.gov/2020/default.aspx](http://healthypeople.gov/2020/default.aspx)) provides science-based, 10-year national objectives for improving the health of all Americans. Healthy People 2020 has 20 [cancer objectives](#), ([/web/20140626031507/http://healthypeople.gov/2020/topics/objectives2020/objectiveslist.aspx?topicId=5](http://healthypeople.gov/2020/topics/objectives2020/objectiveslist.aspx?topicId=5)) including—

- Reduce the proportion of adolescents in grades 9 through 12 who report using artificial sources of ultraviolet light for tanning to 14.0%.
- Reduce the proportion of adults aged 18 years and older who report using artificial sources of ultraviolet light for tanning to 13.7%.

Indoor Tanning Policies

Indoor tanning is restricted in some areas, especially for minors.

United States

California, Illinois, Nevada, Oregon, Texas, Vermont, and some cities and counties have banned indoor tanning by minors. For the latest information, see the National Conference of State Legislatures' [Tanning Restrictions for Minors: A State-by-State Comparison](http://www.ncsl.org/IssuesResearch/Health/TanningRestrictionsforMinorsstatelawsummary/tabid/14394/default.aspx), ([/web/20140626031507/http://www.ncsl.org/IssuesResearch/Health/TanningRestrictionsforMinorsstatelawsummary/tabid/14394/default.aspx](http://www.ncsl.org/IssuesResearch/Health/TanningRestrictionsforMinorsstatelawsummary/tabid/14394/default.aspx))

CDC research ([/web/20140626031507/http://www.ncbi.nlm.nih.gov/pubmed/24524515](http://www.ncbi.nlm.nih.gov/pubmed/24524515)) shows that states with indoor tanning laws that include age restrictions had lower rates of indoor tanning among minors.

International

- Brazil and one state in Australia (New South Wales) have banned indoor tanning.
- Austria, Belgium, Finland, France, Germany, Iceland, Italy, Norway, Portugal, Spain, and the United Kingdom have banned indoor tanning for people younger than age 18.

Related Links

- [Indoor Tanning](http://www.aad.org/media-resources/stats-and-facts/prevention-and-care/indoor-tanning) ([/web/20140626031507/http://www.aad.org/media-resources/stats-and-facts/prevention-and-care/indoor-tanning](http://www.aad.org/media-resources/stats-and-facts/prevention-and-care/indoor-tanning)) (American Academy of Dermatology)
- [Know the Risks of Indoor Tanning](http://www.fda.gov/ForConsumers/ConsumerUpdates/ucm350790.htm) ([/web/20140626031507/http://www.fda.gov/ForConsumers/ConsumerUpdates/ucm350790.htm](http://www.fda.gov/ForConsumers/ConsumerUpdates/ucm350790.htm)) (U.S. Food and Drug Administration)
- [Consumer Information: Indoor Tanning](http://www.consumer.ftc.gov/articles/0129-indoor-tanning) ([/web/20140626031507/http://www.consumer.ftc.gov/articles/0129-indoor-tanning](http://www.consumer.ftc.gov/articles/0129-indoor-tanning)) (Federal Trade Commission)
- [Artificial tanning sunbeds](http://www.who.int/uv/intersunprogramme/activities/uvartsunbeds/en/) ([/web/20140626031507/http://www.who.int/uv/intersunprogramme/activities/uvartsunbeds/en/](http://www.who.int/uv/intersunprogramme/activities/uvartsunbeds/en/)) (World Health Organization)

Podcasts

- [Indoor tanning teens](http://www.hhs.gov/news/healthbeat/2014/04/indoor-tanning-teens.html) ([/web/20140626031507/http://www.hhs.gov/news/healthbeat/2014/04/indoor-tanning-teens.html](http://www.hhs.gov/news/healthbeat/2014/04/indoor-tanning-teens.html))
- [International indoor tanning](http://www.hhs.gov/news/healthbeat/2014/03/international-indoor-tanning.html) ([/web/20140626031507/http://www.hhs.gov/news/healthbeat/2014/03/international-indoor-tanning.html](http://www.hhs.gov/news/healthbeat/2014/03/international-indoor-tanning.html))
- [Rising melanoma](http://www.hhs.gov/news/healthbeat/2014/02/rising-melanoma.html) ([/web/20140626031507/http://www.hhs.gov/news/healthbeat/2014/02/rising-melanoma.html](http://www.hhs.gov/news/healthbeat/2014/02/rising-melanoma.html))
- [Tans all over America](http://www.hhs.gov/news/healthbeat/2013/09/tans_all_over_america.html) ([/web/20140626031507/http://www.hhs.gov/news/healthbeat/2013/09/tans_all_over_america.html](http://www.hhs.gov/news/healthbeat/2013/09/tans_all_over_america.html))
- [More tanning bed cancers](http://www.hhs.gov/news/healthbeat/2012/10/20121031b.html) ([/web/20140626031507/http://www.hhs.gov/news/healthbeat/2012/10/20121031b.html](http://www.hhs.gov/news/healthbeat/2012/10/20121031b.html))

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([/web/20140626031507/http://www.cdc.gov/TemplatePackage/3.0/includes/email/email-link.html](http://www.cdc.gov/TemplatePackage/3.0/includes/email/email-link.html))

Page last reviewed: April 24, 2014

Page last updated: April 24, 2014

Content source: [Division of Cancer Prevention and Control, National Center for Chronic Disease Prevention and Health Promotion](#)

Centers for Disease Control and Prevention 1600 Clifton Rd. Atlanta, GA 30333, USA

http://web.archive.org/web/20140626031507/http://www.cdc.gov/cancer/skin/basic_info/indoor_tanning.htm

INTERNET ARCHIVE
http://www.cdc.gov/cancer/skin/basic_info/indoor_tanning.htm
 52 captures
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Is Indoor Tanning Safe?



Using a tanning bed, booth, or sunlamp to get tan is called "indoor tanning." Indoor tanning has been linked with skin cancers including melanoma (the deadliest type of skin cancer), squamous cell carcinoma, and cancers of the eye (ocular melanoma).

Dangers of Indoor Tanning

Indoor tanning exposes users to both UV-A and UV-B rays, which damage the skin and can lead to cancer. Using a tanning bed is particularly dangerous for younger users; people who begin tanning younger than age 35 have a 59% higher risk of melanoma. Using tanning beds also increases the risk of wrinkles and eye damage, and changes skin texture.

Myths About Indoor Tanning

"Tanning indoors is safer than tanning in the sun."

Indoor tanning and tanning outside are both dangerous. Although tanning beds operate on a timer, the exposure to ultraviolet (UV) rays can vary based on the age and type of light bulbs. You can still get a burn from tanning indoors, and even a tan indicates damage to your skin. Tanning beds cause about 1,800 injuries requiring visits to the emergency room every year.

"I can use a tanning bed to get a base tan, which will protect me from getting a sunburn."

A tan is a response to injury: skin cells respond to damage from UV rays by producing more pigment. The best way to protect your skin from the sun is by using [these tips for skin cancer prevention. \(prevention.htm\)](#)

"Indoor tanning is a safe way to get vitamin D, which prevents many health problems."

[Vitamin D \(/web/20140414123124/http://ods.od.nih.gov/factsheets/vitaminD/\)](#) is important for bone health, but studies showing links between vitamin D and other health conditions are inconsistent. Although it is important to get enough vitamin D, the safest way is through diet or supplements. Tanning harms your skin, and the amount of time spent tanning to get enough vitamin D varies from person to person.

Statistics

In the United States, indoor tanning is estimated to cause about 419,000 cases of skin cancer every year. For comparison, smoking is thought to cause about 226,000 cases of lung cancer every year.

According to the 2011 [Youth Risk Behavior Surveillance System. \(/web/20140414123124/http://www.cdc.gov/yrbss/\)](#) the following proportions of youth report indoor tanning—

- 13% of all high school students.
- 21% of high school girls.
- 32% of girls in the 12th grade.
- 29% of white high school girls.

According to the 2010 [National Health Interview Survey. \(/web/20140414123124/http://www.cdc.gov/nchs/nhis.htm\)](#) indoor tanners tended to be young, non-Hispanic white women.

- 32% of non-Hispanic white women aged 18–21 years reported indoor tanning. Those who reported indoor tanning device use reported an average of 28 sessions in the past year.
- Among non-Hispanic white adults who used an indoor tanning device in the past year, 58% of women and 40% of men used one 10 times or more in the past year.
- Non-Hispanic white women between the ages of 18 and 21 years residing in the Midwest (44%) and non-Hispanic white women between the ages of 22 and 25 old in the South (36%) were most likely to use indoor tanning devices.

Healthy People 2020 Goals for Indoor Tanning

[Healthy People \(/web/20140414123124/http://healthypeople.gov/2020/default.aspx\)](#) provides science-based, 10-year national objectives for

improving the health of all Americans. Healthy People 2020 has 20 [cancer objectives](#).

([/web/20140414123124/http://healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicId=5](#)) including—

- Reduce the proportion of adolescents in grades 9 through 12 who report using artificial sources of ultraviolet light for tanning to 14.0%.
- Reduce the proportion of adults aged 18 years and older who report using artificial sources of ultraviolet light for tanning to 13.7%.

Indoor Tanning Policies

Indoor tanning is restricted in some areas, especially for minors.

United States

- California, Illinois, Nevada, Oregon, Texas, and Vermont have banned the use of tanning beds by minors.
- Some local jurisdictions also have banned the use of tanning beds by minors.
- [Tanning Restrictions for Minors: A State-by-State Comparison](#) ([/web/20140414123124/http://www.ncsl.org/IssuesResearch/Health/TanningRestrictionsforMinorsstatelawsummary/tabid/14394/default.aspx](#)) (National Conference of State Legislatures)
- [Enforcement of State Indoor Tanning Laws in the United States](#) ([/web/20140414123124/http://www.cdc.gov/pcd/issues/2008/oct/07_0194.htm](#))

International

- Brazil and one state in Australia (New South Wales) have banned the use of tanning beds.
- The United Kingdom, Germany, Scotland, France, several Australian states, and several Canadian provinces have banned indoor tanning for people younger than age 18.

Related Links

- [Indoor Tanning](#) ([/web/20140414123124/http://www.aad.org/media-resources/stats-and-facts/prevention-and-care/indoor-tanning](#)) (American Academy of Dermatology)
- [Know the Risks of Indoor Tanning](#) ([/web/20140414123124/http://www.fda.gov/ForConsumers/ConsumerUpdates/ucm350790.htm](#)) (U.S. Food and Drug Administration)
- [Consumer Information: Indoor Tanning](#) ([/web/20140414123124/http://www.consumer.ftc.gov/articles/0129-indoor-tanning](#)) (Federal Trade Commission)
- [Artificial tanning sunbeds](#) ([/web/20140414123124/http://www.who.int/uv/intersunprogramme/activities/uvartsunbeds/en/](#)) (World Health Organization)

Podcasts

- [Indoor tanning teens](#) ([/web/20140414123124/http://www.hhs.gov/news/healthbeat/2014/04/indoor-tanning-teens.html](#))
- [International indoor tanning](#) ([/web/20140414123124/http://www.hhs.gov/news/healthbeat/2014/03/international-indoor-tanning.html](#))
- [Rising melanoma](#) ([/web/20140414123124/http://www.hhs.gov/news/healthbeat/2014/02/rising-melanoma.html](#))
- [Tans all over America](#) ([/web/20140414123124/http://www.hhs.gov/news/healthbeat/2013/09/tans_all_over_america.html](#))
- [More tanning bed cancers](#) ([/web/20140414123124/http://www.hhs.gov/news/healthbeat/2012/10/20121031b.html](#))

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Indoor Tanning

Using a tanning bed, booth, or sunlamp to get tan is called "indoor tanning." Indoor tanning has been linked with skin cancers including melanoma (the deadliest type of skin cancer), squamous cell carcinoma, and cancers of the eye (ocular melanoma).

Dangers of Indoor Tanning

Indoor tanning exposes users to both UV-A and UV-B rays, which damage the skin and can lead to cancer. Using a tanning bed is particularly dangerous for younger users; people who begin tanning younger than age 35 have a 59% higher risk of melanoma. Using tanning beds also increases the risk of wrinkles and eye damage, and changes skin texture.

Myths About Indoor Tanning

"Tanning indoors is safer than tanning in the sun."

Indoor tanning and tanning outside are both dangerous. Although tanning beds operate on a timer, the exposure to ultraviolet (UV) rays can vary based on the age and type of light bulbs. You can still get a burn from tanning indoors, and even a tan indicates damage to your skin. Tanning beds cause about 1,800 injuries requiring visits to the emergency room every year.

"I can use a tanning bed to get a base tan, which will protect me from getting a sunburn."

A tan is a response to injury: skin cells respond to damage from UV rays by producing more pigment. The best way to protect your skin from the sun is by using [these tips for skin cancer prevention](#). ([prevention.htm](#))

"Indoor tanning is a safe way to get vitamin D, which prevents many health problems."

[Vitamin D](#) ([/web/20131110184951/http://ods.od.nih.gov/factsheets/vitaminD/](#)) is important for bone health, but studies showing links between vitamin D and other health conditions are inconsistent. Although it is important to get enough vitamin D, the safest way is through diet or supplements. Tanning harms your skin, and the amount of time spent tanning to get enough vitamin D varies from person to person.

Statistics

According to the 2011 [Youth Risk Behavior Surveillance System](#). ([/web/20131110184951/http://www.cdc.gov/yrbss/](#)) the following proportions of youth report indoor tanning—

- 13% of all high school students.
- 21% of high school girls.
- 32% of girls in the 12th grade.
- 29% of white high school girls.

According to the 2010 [National Health Interview Survey](#). ([/web/20131110184951/http://www.cdc.gov/nchs/nhis.htm](#)) indoor tanners tended to be young, non-Hispanic white women.

- 32% of non-Hispanic white women aged 18–21 years reported indoor tanning. Those who reported indoor tanning device use reported an average of 28 sessions in the past year.
- Among non-Hispanic white adults who used an indoor tanning device in the past year, 58% of women and 40% of men used one 10 times or more in the past year.
- Non-Hispanic white women between the ages of 18 and 21 years residing in the Midwest (44%) and non-Hispanic white women between the ages of 22 and 25 old in the South (36%) were most likely to use indoor tanning devices.

Healthy People 2020 Goals for Indoor Tanning

[Healthy People](#) ([/web/20131110184951/http://healthypeople.gov/2020/default.aspx](#)) provides science-based, 10-year national objectives for improving the health of all Americans. Healthy People 2020 has 20 [cancer objectives](#). ([/web/20131110184951/http://healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicId=5](#)) including—

- Reduce the proportion of adolescents in grades 9 through 12 who report using artificial sources of ultraviolet light for tanning to 14.0%.
- Reduce the proportion of adults aged 18 years and older who report using artificial sources of ultraviolet light for tanning to 13.7%.

Indoor Tanning Policies

Indoor tanning is restricted in some areas, especially for minors.

United States

- California, Illinois, Nevada, Oregon, Texas, and Vermont have banned the use of tanning beds by minors.

- Some local jurisdictions also have banned the use of tanning beds by minors.
- **Tanning Restrictions for Minors: A State-by-State Comparison** ([/web/2013110184951/http://www.ncsl.org/IssuesResearch/Health/TanningRestrictionsforMinorsstatelawsummary/tabid/14394/default.aspx](http://www.ncsl.org/IssuesResearch/Health/TanningRestrictionsforMinorsstatelawsummary/tabid/14394/default.aspx)) (National Conference of State Legislatures)
- **Enforcement of State Indoor Tanning Laws in the United States** ([/web/2013110184951/http://www.cdc.gov/pcd/issues/2008/oct/07_0194.htm](http://www.cdc.gov/pcd/issues/2008/oct/07_0194.htm))

International

- Brazil and one state in Australia (New South Wales) have banned the use of tanning beds.
- The United Kingdom, Germany, Scotland, France, several Australian states, and several Canadian provinces have banned indoor tanning for people younger than age 18.

Related Links

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- **Cancer Trends Progress Report: 2009/2010 Update** ([/web/2013110184951/http://progressreport.cancer.gov/doc_detail.asp?pid=1&did=2007&chid=71&coid=711&mid=](http://progressreport.cancer.gov/doc_detail.asp?pid=1&did=2007&chid=71&coid=711&mid=)) (National Cancer Institute)
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Indoor Tanning

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Dangers of Indoor Tanning

Indoor tanning exposes users to both UV-A and UV-B rays, which damage the skin and can lead to cancer. Using a tanning bed is particularly dangerous for younger users; people who begin tanning younger than age 35 have a 75% higher risk of melanoma. Using tanning beds also increases the risk of wrinkles and eye damage, and changes skin texture.

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population. Additionally, we aimed to examine the influence of pigmentation on personal behaviour towards sunlight exposure and the effects of this behaviour on vitamin D.

Methods

We combined genetic variants strongly associated with skin colour, tanning or freckling to create genetic scores for each of these phenotypes. We examined the association of the scores with pigimentary traits, sun exposure and serum 25-hydroxyvitamin D (25(OH)D) levels among children of the Avon Longitudinal Study of Parents and Children (ALSPAC, N = 661 to 5649).

Results

We found that fairer-skinned children, i.e. those with higher pigmentation score values, had higher levels of 25(OH)D (0.6 nmol/l; 95% CI 0.2, 1.0; per unit increase in skin colour score; N = 5649). These children also used more protection against the damaging effects of UVR.

Conclusions

In this population taking protective measures against sunburn and skin cancer does not seem to remove the positive effect that having a less pigmented skin has on vitamin D production. Our findings require further replication as skin pigmentation showed only a small effect on circulating 25(OH)D.

Keywords: Pigmentation, Sun exposure, Vitamin D, ALSPAC, Genetic scores

Background

Go to:

Skin pigmentation is a complex phenotype that shows extensive variation between human populations. Evidence suggests that such variation was shaped by the action of natural selection at different latitudes, to prevent DNA damage by ultraviolet radiation (UVR) to the skin and to guarantee sufficient synthesis of vitamin D [1], although other hypotheses that explain its worldwide distribution have been proposed [2]. Among these are protection against light-induced folate deficiency, protection from cold injury, prevention of heat load, camouflage and resistance against infectious disease [2]. The vitamin D hypothesis posits that as human ancestors migrated out of the tropics and into areas with reduced sunlight there was a progressive depigmentation of the skin to allow for UVR-B (280–320 nm) induced vitamin D production [1].

Vitamin D synthesis is highly dependent on the concentration of melanin in the skin as melanin absorbs and scatters UVR-B, resulting in a less efficient conversion of 7-dehydrocholesterol to previtamin D₃ [3]. Therefore, dark-skinned individuals will

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