American Suntanning Association

February 3, 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 following heading and paragraph: "***A Base Tan Is Not a Safe Tan. (base tan is not safe tan.htm)*** *There is a common misconception that a tan acts as the body's natural protection against sunburn. The Burning Truth: A tan is the body's response to injury from UV rays, showing that damage has been done. A 'base tan' only provides a sun protection factor (SPF) of about 3 or less, which does little to protect you from future UV exposure."* This heading and paragraph appear in the section of the CDC's website titled "The Burning Truth" at http://www.cdc.gov/cancer/skin/burningtruth/.

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

The first sentence "*There is a common misconception that a tan acts as the body's natural protection against sunburn.*" implies that a tan does not protect against sunburn, which is scientifically incorrect. The science shows that a tan does protect against sunburn. The second sentence "*The Burning Truth: A tan is the body's response to injury from UV rays, showing that damage has been done.*" is also scientifically incorrect. A tan is the result of increased melanin pigmentation produced by UVR, not evidence of damage. The third sentence "*A 'base tan' only provides a sun protection factor (SPF) of about 3 or less, which does little to protect you from future UV exposure.*" is misleading or incorrect insofar as it implies or states that an SPF of "about 3 or less" does not provide significant protection against future UV exposure. It is also misleading or incorrect insofar as it implies or states that a tan has no protective effect against UV other than providing increased melanin production. It is also misleading in that it fails to disclose that the term "base tan" as used in this sentence means a light tan produced by a small dose of UV whereas a moderate dose of UV in accordance with the FDA exposure schedule regulations produces a moderate tan with an SPF higher than 3.

Section 5.4.2 of IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, Volume 55 Solar and Ultraviolet Radiation (1992) states: "UVR produces … melanin pigmentation…. In humans, pigmentation protects against erythema…." [underlining added]. An SPF of 3 means that it takes three times as much sun exposure to cause redness in the skin of a tanned person as it does to cause redness in the skin of an untanned person. We suggest that this is a significant amount of protection from future UV exposure.

Photoadaptation to UV radiation is a well-known phenomenon that involves increased melanisation (tanning) and epidermal thickening (hyperplasia), both of which contribute to

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protection against subsequent sunburn and lessening of the penetration of UV to vital skin cells. It is a protective adaptive response of the human skin to UV radiation, not an indication of damage to the skin. See, e.g., Newton-Bishop 2011; Bataille 2000. As stated by two scientists from the NCI: "Human skin is repeatedly exposed to various DNA-damaging environmental influences and therefore requires numerous endogenous mechanisms to protect against, reduce and/or repair such damage. These mechanisms include increasing epidermal thickness, DNA repair mechanisms and apoptosis, antioxidant enzymes and, last but not least, skin pigmentation. Brenner 2008.

In stating that a "*A 'base tan' only provides a sun protection factor (SPF) of about 3 or less*", the CDC is apparently relying on studies involving light tans produced by small doses of UV. Cripps 1981; Sheehan 1998; Pathak 1983; Rivers 1989; Devgun1982. A moderate dose of UV, such as that received from a tanning bed operated in accordance with the FDA exposure schedule regulations, produces a moderate tan with an SPF of approximately 6. See, e.g., Miller 2006; Miller 2008; Caswell 2000.

The increased melanisation exhibited by a tan, in addition to providing the direct optical protection of an SPF of 3 to 6, prevents UV induced skin cancer development by reducing UV transmission to underlying cell nuclei and preventing formation of DNA photoproducts such as cyclobutane pyrimidine dimers and (6-4) photoproducts. Kobayashi 1998; Yamaguchi 2008. The exposure to UV that causes the increased melanisation also causes epidermal thickening which provides additional protection from future UV exposure by lessening of the penetration of UV to vital skin cells (such as melanocytes) which may in turn reduce the risk of melanoma. See, e.g., Newton-Bishop 2011; Bataille 2000. Further, the extra melanin acts as a free-radical scavenger that shields nuclear DNA from UV-induced harmful alterations. Pathek 1988; Corani 2014. Finally, it has recently been discovered that eumelanin rapidly dissipates the energy of incoming UV via proton transfer, thereby protecting lower skin levels from UV. Corani 2014.

Epidemiological studies provide further support for the protective effect of a tan. Numerous epidemiological studies have shown that regular non-burning sun exposure, the type of exposure that produces a tanned skin, is associated with reduced risk of melanoma. See, e.g., Gandini II 2005, Lazovich 2010; Newton-Bishop 2011. Epidemiological studies have also shown that sunburns, which a tanned skin protects against, are associated with increased risk of melanoma. See, e.g., Gandini II 2005, Lazovich 2010; Newton-Bishop 2011.

With respect to artificial sunscreens, it is noted that in order for the labeled SPF level of a chemical sunscreen to match the actual SPF level, the sunscreen must be applied with an even thickness of 2.0 mg/cm2 and must be reapplied periodically. Several studies have shown that the actual thickness applied is 0.5 mg/cm2 or less, which results in a labeled 15 SPF sunscreen having an actual SPF of 2 or less. Autier 2007 ("With a 0.25 or 0.5 g/cm2 sunscreen application, the actual SPF is about the eighth and the fourth square root of the SPF indicated on the bottle."); See also Autier 2001; Faurschou 2007; Lazovich 2012; Reich 2009; Schalka 2009.

A tan does not require reapplication and does not wash off. Another advantage of a tan vs. a chemical sunscreen is that the vitamin D produced in the skin by UV is part of the body's intrinsic protective mechanism against UV damage and provides further protection against sunburn. Gupta 2007; Mason 2010.

<u>The specific recommendation for correcting the information</u>

We recommend that the heading and paragraph *"**A Base Tan Is Not a Safe Tan. (base tan is not safe tan.htm)** There is a common misconception that a tan acts as the body's natural protection against sunburn. The Burning Truth: A tan is the body's response to injury from UV rays, showing that damage has been done. A 'base tan' only provides a sun protection factor (SPF) of about 3 or less, which does little to protect you from future UV exposure."* be deleted from the CDC's website, and, in lieu thereof, the following italicized sentence be added after the sentence "The Burning Truth communication initiative encourages you to keep your skin healthy and beautiful for life by protecting yourself from too much exposure to ultraviolet (UV) rays from the sun and tanning beds.": *"While some amount of exposure to UV rays is essential to good health, it is important not to get a UV burn. A tanned skin obtained gradually without burning provides some natural protection from a subsequent UV burn. It has a sun protection factor (SPF) of about 3, which means that it takes about three times as much UV exposure to burn a person with tanned skin as it does to burn a person with untanned skin, you don't have to remember to put it on, and it doesn't wash off. However, it is possible to get a UV burn even with tanned skin, so care must be taken."*

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 information about the health benefits 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
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Respectfully submitted,

American Suntanning Association

By: /S/
Barton D. Bonn, President

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