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Self-Affirmation Ineffective for Promoting Positive Skin Cancer Attitudes and Behavioral Intentions Among Female College Students

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Few studies have examined self-affirmation interventions to improve receptivity to information related to skin cancer prevention. The current study aimed to understand if value or trait affirmations are effective for improving receptivity to sun safety messages. Participants were 310 female college students reporting ever (44%) or never (56%) tanning indoors. The design randomized participants to one of two types of self-affirmation interventions or one of two matched control writing conditions. Skin cancer information was presented and attitudes about skin cancer and behavioral intentions to tan were subsequently measured. A behavioral measure involved giving participants the opportunity to request free sunscreen. Neither values nor trait self-affirmations were effective; indoor tanners reported higher intentions to tan in the future across all manipulation groups.

Keywords: self-affirmation, indoor tanning, behavior change, skin cancer, tanning

Skin cancer is the most common cancer in the United States (CDC, 2017). Rates of melanoma, a potentially fatal skin cancer, are increasing among young women (Noone et al., 2018; Weir et al., 2011). Most skin cancers are caused by ultraviolet radiation (UVR) from sun exposure and artificial sources such as indoor tanning (Gandini, Autier, & Boniol, 2011). The CDC Youth Risk Behavior Surveillance reports that 15% of White high school girls use indoor tanning facilities (Guy, Berkowitz, Everett Jones, Watson, & Richardson, 2017). Ever using indoor tanning increases melanoma risk by about 20% (Boniol, Autier, Boyle, & Gandini, 2012), and ever indoor tanning before age 30 is associated with younger age of melanoma diagnosis (Ghiasvand et al., 2017). Appearance orientation predicts tanning and positive attitudes about tanning in young people (Gillen & Markey, 2012).

Health promotion efforts that effectively persuade against tanning are needed for primary prevention of melanoma and other skin cancers. However, a common challenge is the inability to communicate effective health messages in a way that positively changes behavior. In particular, those who engage in risky health behaviors have a propensity for resisting health promotion and behavior change messages (Sherman & Cohen, 2006), and often attempt to contrive justifications for their behavior or find ways to discredit the health information (Ditto & Boardman, 1995). Such information, especially when it identifies the dangers of behaviors that an individual engages in, can diminish positive self-view, as it highlights inadequacies in personal physical health. Generally, people prefer to hear information that reflects well on the self (Taylor & Brown, 1988).

Self-Affirmation Intervention

One technique that seeks to reduce defensiveness to health information is self-affirmation (Steele, 1988). Self-affirmation is thought to reduce psychological threat by bolstering the global image of the self as competent and good. Psychological threat is the perception of an environmental challenge to self-integrity. Self-affirmation is an act that drives the process of manifesting adaptive adequacy, thus producing a competent view of the self (Cohen & Sherman, 2014).

Although several inductions of self-affirmation have been used, the most common and widely tested form of self-affirmation intervention is a writing exercise called a values affirmation. The values affirmation consists of writing about a personal value that is important to the self, such as relationships with family and friends, religious beliefs, art, or humor. By highlighting an alternate source of self-worth, the participant is more likely to have increased global self-integrity, reducing the threat provoked by relevant health information. Typically, the target, in this case health, will not be included on the list of values in these inductions, because the goal is to globally affirm. Including the target may render the intervention ineffective (Cohen & Sherman, 2014).

Without affirmation, individuals may feel that their self-worth is being scrutinized during persuasion attempts. Self-affirmed individuals, on the other hand, are hypothesized to be able to dedicate more cognitive resources to understanding and confronting health information, even if it does conflict with their global self-integrity. Thus, self-affirmation is not intended to produce a change in thoughts or behavior, rather, it is supposed to enable change (Cohen & Sherman, 2014). Those who are experiencing psychological threat may benefit the most from self-affirmation interventions; for example, smokers exposed to an anti-smoking message are believed to benefit most from self-affirmation, as opposed to non-

smokers who are unthreatened by the message (Cohen & Sherman, 2014). Self-affirmation interventions have been effective across several domains, including education, intergroup conflict, and health (Cohen & Sherman, 2014). Within the health area, the intervention has been successfully used to promote receptivity to persuasive information encouraging fruit and vegetable intake (Fielden, Sillence, Little, & Harris, 2016), physical activity (Cooke, Trebaczyk, Harris, & Wright, 2014), and smoking cessation (Kessels, Harris, Ruiter, & Klein, 2016). However, some studies have found the manipulation is not strong enough to persuade smokers (e.g., Dillard, McCaul, & Magnan, 2005; Schneider, Gadinger, & Fischer, 2012).

Skin Cancer Prevention and Self-Affirmation

Few studies have examined self-affirmation interventions aimed to facilitate receptivity to skin cancer prevention messages. To this point, only one study has demonstrated that self-affirmation may be useful for skin cancer prevention. In this study (Schüz, Schüz, & Eid, 2013), participants were given personalized UV photograph feedback, a process that demonstrates which areas of the face may be damaged by the sun and therefore are at risk for developing skin cancer. Their findings showed that self-affirmation was effective for promoting skin cancer-related psychosocial outcomes in combination with personalized risk feedback.

Two studies have reported a negative effect of the intervention in this domain. A 2011 self-affirmation intervention lowered perceived risk for skin cancer and did not improve behavioral intentions in a sample of young women (Good & Abraham, 2011). In addition, an online study of young women that examined self-affirmation and indoor tanning risk (Mays & Zhao, 2016) found that this type of intervention was not effective for influencing intentions to reduce indoor tanning in response to written messages, and unexpectedly increased desire to tan. The authors hypothesized that tanning may be too closely tied to self-concept, noting that indoor tanning may be affirming in itself, suggesting that future research should determine whether a different approach to self-affirmation intervention may tease apart the relationship between indoor tanning, self-concept, and message resistance.

Study Aims and Hypotheses

1. In an attempt to replicate previous research, the current study aimed to test the effectiveness of a values-based self-affirmation for improving persuasion following online skin cancer awareness information, in terms of skin cancer attitudes and behavioral intentions, and a behavioral outcome of requesting a sample of sunscreen. We hypothesized that this intervention, in combination with relevant persuasive information, will be successful in improving skin cancer attitudes and behavioral intentions for ever-indoor tanners compared to never-indoor tanners, demonstrating a two-way interaction. In addition, we predicted that requests for sunscreen would also be associated with ever-tanning and being in the self-affirmation as opposed to the control condition.

2. A second aim of this study was to test whether a novel variation in the standard self-affirmation manipulation that affirms aspects of the self that are related to appearance, but explicitly not related to skin tone, would be effective for promoting these same skin cancer cognition outcomes. We hypothesized that affirming a physical trait of the self,

other than skin tone, will allow indoor tanners' self-esteem to shift away from skin tone and become bolstered by the chosen trait, demonstrating positive effects of self-affirmation with respect to receptivity to skin cancer prevention information. According to Steele's (1988) principle of substitutability, self-affirmation seeks to shift the source of self-esteem, fostering higher global feelings of self-worth, rather than attempting to boost self-esteem in an area related to the persuasive message, in this case, regarding one's skin tone. We also predicted that requests for sunscreen will be associated with ever-tanning and being in the self-affirmation as opposed to the control condition.

To test these hypotheses, ever-indoor tanners and never-indoor tanners were randomly assigned to values (see Aim 1; or control) or trait (see Aim 2; or control) self-affirmation conditions in a 2×4 between-subjects design at a single time point.

Method

Participants and Procedure

Participants were recruited from a psychology department subject pool in the US and required to be 18-years or older and able to read English. A screening question determined ever-indoor tanning status and was used to stratify groups: "Have you ever used a tanning bed or booth with tanning lamps?" (Lazovich et al., 2008). A power analysis was conducted using G-power to determine the appropriate number of subjects in order to detect an effect should it exist. Assuming a small-to-medium effect size, based upon meta-analyses of prior self-affirmation research for health promotion (Epton, Harris, Kane, van Koningsbruggen, & Sheeran, 2015; Sweeney & Moyer, 2015), and a desired power of at least .80, a total of 300 participants was determined to be adequate to test the 2×4 ANOVA design.

Participants completed the study online within a secure online research software tool used for survey administration. Previous studies have utilized online methods to administer self-affirmation interventions (Fielden et al., 2016; Mays & Zhao, 2016). Participants received course credit for their participation. The study was approved by a university Institutional Review Board.

Domains and Measures

Measures were administered both before and after the randomly assigned self-affirmation manipulation. They are described in order of administration below.

Demographics. Participants answered questions regarding gender, race, and age when they signed up on the subject pool website.

Previous tanning behavior. Using established measures (Glanz et al., 2008; Lazovich et al., 2008), participants reported their history of indoor and outdoor tanning. Participants reported whether they had ever used indoor tanning (*yes/no*), and, if yes, how many times they had done so in the past 12 months (open response). Participants also reported how often they spend time outside in order to get a tan, with response choices: *never, rarely, sometimes, often, or always*.

Self-affirmation writing. Participants completed one of two types of self-affirmation interventions, or one of two matched control writing exercises. This consisted of writing about a value that is important to them (or someone else) or writing about a

physical trait that is important to them (or someone else). The values affirmation has been used successfully in previous studies (Cohen & Sherman, 2014; McQueen & Klein, 2006) and the trait affirmation was developed de novo for this study.

Values affirmation condition. In this condition, participants chose from a list of the following values the one most important to them: athletic ability, creativity, relationship with family and friends, spiritual or religious values, sense of humor, music and art. Next, they were prompted to write a few sentences explaining why they chose the value and a time when it was important to them.

Values control condition. In this condition, participants chose from the same list of values the one least important to them, and were prompted to write a few sentences explaining why they chose the value and why it could be important to someone else.

Physical trait affirmation condition. In this condition, participants chose from a list of the following physical traits the one most important to them: fashion style, hair, smile, eyes, butt, arms, legs, breasts, muscle definition, height, weight, hands/nails, voice. Next, they were prompted to write a few sentences explaining why they chose the trait and a time when it was important to them.

Physical trait affirmation control condition. In this condition, participants chose from the same list of traits the one least important to them, and were prompted to write a few sentences explaining why they chose the trait and why it could be important to someone else.

Skin Cancer Information. In this section, participants read information about skin cancer which was adapted for length from the Centers for Disease Control (CDC) website (CDC, 2017). Covered topics included information about UVR, tanning, signs and symptoms, and risk reduction strategies. Eight basic true/false questions about this information were included, and incorrect responses initiated a display of the correct response to the participant before proceeding. See Appendix 1.

Defensive Reaction to Information. Based on Mays and Zhao (2016), three scales were averaged to assess defensive reactions to the skin cancer information. One scale (Dillard & Shen, 2005) measured threats to freedom, with four items on a scale of 1 (*strongly disagree*) to 5 (*strongly agree*), such as, “the information tried to pressure me.” The second and third (Zhao & Nan, 2010) measured message derogation, and anger in response to the message. For message derogation, four items on a scale of 1 (*strongly disagree*) to 6 (*strongly agree*) asked participants to respond to whether the message was “Exaggerated,” “Distorted,” “Overstated,” and “Overblown.” To measure anger in response to the message, four items on a scale of 1 (*not at all*) to 4 (*very much*) asked participants to respond to whether the message made them feel “Angry,” “Irritated,” “Annoyed,” and “Aggravated.” These scales were reliable in the sample, with Cronbach’s alphas of .92, .95, and .88, respectively. Total scores for each scale were calculated, then combined, and averaged.

Attitudes. Likert-type scale items measured participants’ beliefs and attitudes about skin cancer and tanning on a scale from 1 (*completely agree*) to 5 (*completely disagree*), such as, “A nice tan improves one’s appearance” (Hobbs, Nahar, Ford, Bass, & Brodell, 2014). The scale had acceptable reliability (Cronbach’s alpha = .65).

Behavioral intentions. Behavioral intentions to tan were measured using five items. For the first three items, a scale of 1 (*definitely will not*) to 7 (*definitely will*) was used to respond to items such as, “I intend to tan indoors regularly in the next year.” Remaining items were reversed, such as, “I want to avoid indoor tanning in the next year,” and assessed

on a scale from 1 (*not at all*) to 7 (*a lot*). The scale had acceptable reliability in the sample (Cronbach's alpha = .63).

Interest in sunscreen (behavior). Before submitting responses and debriefing, participants were thanked and offered an opportunity to submit a request for a free sample of sunscreen as a behavioral measure. Participants were provided with instructions to send an email with their mailing address to the researchers, should they wish to receive the sample. Participants who submitted sunscreen request emails were recorded in the dataset.

Analysis

Data were analyzed using SPSS Version 24 (IBM, 2016). The means for dependent variables were analyzed with ANOVA using randomized affirmation condition and ever/never tanner status as factors. The reaction to information measures were analyzed for mean differences across groups, to determine if the manipulation affected defensive processing. Requests for a sample of sunscreen was analyzed using binary logistic regression.

Results

Participant Demographics

The sample consisted entirely of females ($N = 310$). Ages ranged from 18 to 47, with a mean of 20.72 ($SD = 3.55$). Fifty-eight percent were White, 24% were Asian, and 5% were Black. Forty-four percent reported ever indoor tanning, and among those, 47% in the past year. Ever-indoor tanning was significantly correlated with frequency of outdoor tanning ($r = .51, p < .01$).

Self-Affirmation Manipulation Check

Defensive reactions. As a manipulation check, defensive reactions to the information were analyzed by manipulation group and tanning status. No main effect or interaction effects were found to indicate mean differences across the measures of defensive reactions ($ps > .05$).

Strength of affirmation. As an additional manipulation check, all self-affirmation (or control) writing was blindly and systematically coded by three research team members with respect to strength on a 1 to 5 scale, with 1 representing *not affirming at all* and 5 representing *very affirming*. The means for the four affirmation conditions differed significantly, $F(1,308) = 148.57, p < .001, R^2 = .59$, and LSD post-hoc testing was conducted to assess pairwise comparisons. The affirming values ($M = 3.46, SD = 1.11$) and affirming traits conditions ($M = 2.51, SD = 1.15$) differed significantly from one another ($p < .001; d = .84$), and each differed from the two control conditions ($ps < .001; ds = 1.62-2.85$). The values control ($M = 1.12, SD = 0.34$) and trait control ($M = 1.11, SD = 0.42$) conditions did not differ significantly from one another ($p > .05; d = .03$). Given these differences, and the low affirmation strength of the trait affirmation manipulation, the trait affirmation was determined to lack value as a true self-affirmation manipulation, and separate analyses of the two types of affirmation interventions were conducted.

Self-Affirmation Results

Values affirmation. Two-way ANOVA was used to determine a statistically significant difference between the values affirmation condition ($n = 76$) and control condition ($n = 78$) on outcome variables, with tanning status as a second factor. There were no differences between the tanning groups regarding their attitudes toward indoor tanning and sun safety ($F [1,150] = 1.46, p = .23$), but ever tanners were significantly more likely to report intentions to indoor tan compared to never tanners ($F [1,153] = 37.23, p < .01$). No main effects of the values self-affirmation, and no two-way interactions between values affirmation and tanning status were observed for attitudes ($F [1,150] = .36, p = .55$; $F [1,150] = 1.39, p = .24$) or behavioral intentions ($F [1,153] = .09, p = .77$; $F [1,153] = .30, p = .58$). The predicted interactive effect of the values self-affirmation intervention (Aim 1) resulted in very small estimated effect sizes (partial eta squared) of .01 for attitudes and .002 for behavioral intentions. Means and standard deviations for outcome variables are reported in Table 1.

For the interest in sunscreen behavior, logistic regression was conducted with month of study participation entered as a covariate, and the self-affirmation manipulation and tanner status entered as predictors. Neither predictor variable was significantly associated with the proportion of sunscreen requests ($ORs = .91 - 1.05, ps > .05$). In the values affirmation condition, 27% requested sunscreen; in the control condition, 28% requested sunscreen.

Trait affirmation. In comparisons of the trait affirmation condition ($n = 72$) to the trait control condition ($n = 78$) using two-way ANOVA, neither tanning status ($F [1,140] = 1.59, p = .21$) nor self-affirmation condition ($F [1,140] = .10, p = .76$) resulted in differences between groups for attitudes about tanning; a two-way interaction between trait affirmation and tanning status also was not supported for attitude differences ($F [1,140] = 1.54, p = .22$). No main effect of the trait self-affirmation was observed for behavioral intentions ($F [1,145] = 3.32, p = .07$), and no two-way interaction between trait affirmation and tanning status were observed for behavioral intentions ($F [1,145] = .16, p = .69$). Only ever-tanning status was associated with higher behavioral intentions to tan ($F [1,145] = 15.44, p < .01$). The predicted interactive effect of the trait self-affirmation intervention (Aim 2)

Table 1. Means and Standard Deviations for Outcome Variables

Self-Affirmation Group	Attitudes (Range: 1-5) Mean (SD)	Behavioral Intentions (Range: 1-7) Mean (SD)
Values Affirmation ($n = 78$)	4.39 (.41)	2.34 (1.20)
Values Control ($n = 82$)	4.35 (.46)	2.44 (1.19)
Trait Affirmation ($n = 72$)	4.40 (.39)	2.28 (1.05)
Trait Control ($n = 78$)	4.41 (.46)	1.97 (.99)
Total ($N = 310$)	4.39 (.43)	2.26 (1.11)

resulted in very small estimated effect sizes (partial eta squared) of .01 for attitudes and .001 for behavioral intentions. See Table 1 for means and standard deviations for outcome variables.

Neither self-affirmation manipulation nor tanner status significantly predicted interest in sunscreen with logistic regression, controlling for month of study participation ($ORs = .97 - 1.27, ps > .05$). In the trait affirmation condition, 24% requested sunscreen; in the control condition, 22% requested sunscreen.

Discussion

This study found that a values self-affirmation, in combination with relevant persuasive health information, was not effective for promoting positive skin cancer attitudes, behavioral intentions, or sunscreen request behavior in female ever-indoor tanners. This replication attempt supports two previous studies (Good & Abraham, 2011; Mays & Zhao, 2016) that also found that values self-affirmation was not effective for positively influencing the receptivity to messages designed to alter intentions to reduce indoor tanning. While these previous studies found unintended negative effects, whereby self-affirmation decreased risk perceptions for skin cancer and increased desire to tan, the present study found no effect, with effect sizes close to zero. A lack of group differences in measures of defensive reactions to the skin cancer information suggests that the manipulation did not influence such reactions, a central component to the posited intervention effect of self-affirmation. One potential explanation for the ineffectiveness of the values affirmation, according to previous criticism of self-affirmation (Crocker & Park, 2004) and an interpretation by Mays and Zhao (2016) is: perhaps the act of tanning to improve the appearance of the self is too closely tied to affirming one's sense of self during the intervention. Further, as noted by Dillard, McCaul, and Magnan (2005), who found a similar result for smokers, it is possible that the values used in the intervention were not more important to the participants as being a tanner is.

The physical trait affirmation intervention was included to attempt to circumvent this problem and explore whether affirming aspects of appearance unrelated to skin tone may bolster global sense of self without directly involving the idea of tanned skin. However, the strength of affirmation present in this trait writing, on average, was significantly lower than that of the values affirmation writing; participants appeared reluctant to self-affirm their traits. The trait writing method was not effective for any outcomes, including attitudes, behavioral intentions, and behavior. It may be that individual factors may also play a role in the effectiveness of affirmation interventions. For example, those who are higher on self-complexity might be more inclined to benefit from affirming alternate values. Other features of messages presented to readers, such as their framing, which was not a focus here, are worth considering in terms of how they may interact with affirmation manipulations.

Indoor tanning behavior has been related to self-worth, appearance, and body dysmorphia in previous research (Blashill & Traeger, 2013; Phillips et al., 2006). These factors complicate attempts to intervene in this health domain because participants may not be willing to change their behavior if they believe their appearance will suffer as a result. UV photo-aging is one intervention that seeks to address this appearance component of skin cancer health behavior, by demonstrating personalized skin damage to participants; one study found that self-affirmation was successfully used in conjunction with a UV photo-aging intervention for lowering intentions to tan (Schüz et al., 2013), and a recent

systematic review of UV photo-aging interventions also indicates high effectiveness overall for promoting positive skin cancer cognitions (Persson et al., 2018).

There are several limitations to this study. The inclusion of only female participants is a limitation that resulted from too few male indoor tanners in the subject pool. A behavioral measure more closely tied to indoor tanning, rather than sunscreen use, may have given more insight in this sample that included indoor tanners; however, indoor and outdoor tanning were highly correlated in this sample. A UV photo-aging intervention may have been useful to test the theoretical questions of this study, however, resource constraints prevented this in the current study.

In summary, self-affirmation writing interventions in this study were not effective for promoting positive attitudes and behavioral intentions related to skin cancer prevention in female college students reporting ever-indoor tanning. Consistent with previous research, a values affirmation did not facilitate promoting positive skin cancer cognitions; a novel trait affirmation was also not effective. Indoor tanning was associated with stronger behavioral intentions to tan, despite intervention assignment. Self-affirmation interventions may be best executed in this domain alongside a more intensive intervention, such as UV photo-aging, to achieve attitude and behavior changes.

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Appendix 1: Skin Cancer Information

Please read the following information about skin cancer carefully. There will be 7 total pages to read. After reading, there will be just a few questions about the information, then some additional questions about your thoughts and beliefs.

Page 1: Overview

Skin cancer is the most common cancer in the United States. Most cases of melanoma, the deadliest kind of skin cancer, are caused by exposure to ultraviolet (UV) light.

To lower your skin cancer risk, protect your skin from the sun and avoid indoor tanning. Center for Disease Control (CDC) recommends these easy options—

Stay in the shade, especially during midday hours.

Wear clothing that covers your arms and legs.

Wear sunglasses that block both UVA and UVB rays.

Use sunscreen with SPF 15 or higher and both UVA and UVB protection.

Avoid indoor tanning.

Cancer is a disease in which cells in the body grow out of control. When cancer starts in the skin, it is called *skin cancer*. Skin cancer is the most common cancer in the United States.

The two most common types of skin cancer—basal cell and squamous cell carcinomas—are highly curable, but can be disfiguring and costly. Melanoma, the third most common skin cancer, is more dangerous and causes the most deaths. The majority of these three types of skin cancer are caused by exposure to ultraviolet (UV) light.

Page 2: Risk Factors

People with certain risk factors are more likely than others to develop skin cancer. Risk factors vary for different types of skin cancer, but some general risk factors are having—

A lighter natural skin color.

Family history of skin cancer.

A personal history of skin cancer.

Exposure to the sun through work and play.

A history of sunburns, especially early in life.

A history of indoor tanning.

Skin that burns, freckles, reddens easily, or becomes painful in the sun.

Blue or green eyes.

Blond or red hair.

Certain types and a large number of moles.

Page 3: Sun Exposure and Ultraviolet (UV) Light

Ultraviolet (UV) rays are an invisible kind of radiation that comes from the sun, tanning beds, and sunlamps. UV rays can penetrate and change skin cells.

In addition to sunburn, too much exposure to UV rays can change skin texture, cause the skin to age prematurely, and can lead to skin cancer. UV rays also have been linked to eye conditions such as cataracts.

Ultraviolet (UV) rays come from the sun or from indoor tanning (using a tanning bed, booth, or sunlamp to get tan). When UV rays reach the skin's inner layer, the skin makes more melanin. *Melanin* is the pigment that colors the skin. It moves toward the outer layers of the skin and becomes visible as a tan.

A tan does not indicate good health. A tan is a response to injury, because skin cells signal that they have been hurt by UV rays by producing more pigment.

Page 4: Dangers of Indoor Tanning

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).

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.

Page 5: 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.

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

Although it is important to get enough vitamin D, the safest way to do so is through what you eat.

Page 6: What are the signs and symptoms?

A change in your skin is the most common sign of skin cancer. This could be a new growth, a sore that doesn't heal, or a change in a mole. Not all skin cancers look the same.

A simple way to remember the signs of melanoma is to remember the A-B-C-D-Es of melanoma—

“A” stands for asymmetrical. Does the mole or spot have an irregular shape with two parts that look very different?

“B” stands for border. Is the border irregular or jagged?

“C” is for color. Is the color uneven?

“D” is for diameter. Is the mole or spot larger than the size of a pea?

“E” is for evolving. Has the mole or spot changed during the past few weeks or months?

Talk to your doctor if you notice changes in your skin such as a new growth, a sore that doesn't heal, a change in an old growth, or any of the A-B-C-D-Es of melanoma.

Page 7: What can I do to reduce my risk?

Protection from ultraviolet (UV) radiation is important all year round, not just during the summer or at the beach. UV rays from the sun can reach you on cloudy and hazy days, as well as bright and sunny days. UV rays also reflect off of surfaces like water, cement, sand, and snow. *Indoor tanning* (using a tanning bed, booth, or sunlamp to get tan) exposes users to UV radiation.

The hours between 10 a.m. and 4 p.m. are the most hazardous for UV exposure outdoors in the continental United States. UV rays from sunlight are the greatest during the late spring and early summer in North America.

The sun's ultraviolet (UV) rays can damage your skin in as little as 15 minutes. CDC recommends easy options for protection from UV radiation—

Stay in the shade, especially during midday hours.

Wear clothing that covers your arms and legs.

Wear a hat with a wide brim to shade your face, head, ears, and neck.

Wear sunglasses that wrap around and block both UVA and UVB rays.

Use and reapply sunscreen with sun protection factor (SPF) 15 or higher, and both UVA and UVB protection.

Avoid indoor tanning.

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