

Spring 5-4-2024

The Relationship between Sun Protective Behavior, Health Beliefs, Attitudes, and Norms of Sun Exposure among College Athletes

Avery B. Snyder
Coastal Carolina University, absnyder@coastal.edu

Follow this and additional works at: <https://digitalcommons.coastal.edu/honors-theses>



Part of the [Public Health Education and Promotion Commons](#)

Recommended Citation

Snyder, Avery B., "The Relationship between Sun Protective Behavior, Health Beliefs, Attitudes, and Norms of Sun Exposure among College Athletes" (2024). *Honors Theses*. 461.
<https://digitalcommons.coastal.edu/honors-theses/461>

This Thesis is brought to you for free and open access by the HTC Honors College at CCU Digital Commons. It has been accepted for inclusion in Honors Theses by an authorized administrator of CCU Digital Commons. For more information, please contact commons@coastal.edu.

**The Relationship between Sun Protective Behavior,
Health Beliefs, Attitudes, and Norms of Sun Exposure among College Athletes.**

By

Avery B. Snyder

Biology

Gupta College of Science

Submitted in Partial Fulfillment of the
Requirements for the Degree of Bachelor of Science
In the HTC Honors College at
Coastal Carolina University

Fall 2023

Louis E. Keiner
Director of Honors
HTC Honors College

Thesis Advisor: Michael S. Dunn, PhD
Professor
Department of Public Health
Conway Medical Center College of Health
and Human Performance

Abstract

The purpose of this study was to assess the relationship between sun protective behavior, health beliefs, attitudes, and norms of sun exposure among college athletes. An electronic survey was provided to student athletes for about two weeks in October of 2023. Prior to student participation the Institutional Review Board approved the protocol and data collection. The survey was sent to the students by the athletic director through an app called Teamworks that connects to all the athletes at Coastal Carolina. The majority of students who took the survey reported they did not wear sunscreen in past games/practices. Of those who felt susceptible to skin cancer, believed their lifestyle increased their risk of skin cancer, and felt reapply sunscreen was not an inconvenience were more likely to wear sunscreen during their games/practices. Those who felt susceptible to skin cancer due to their lifestyle and who reported their friends wore SPF 30 sunscreen were more likely to get sunburnt at games/practices. This study further shows the importance of informing college athletes about sunscreen protection and skin cancer awareness. There is a need for more encouragement and information spread about this topic to have a greater chance at preventing skin cancer.

Introduction

In the United States, skin cancer is the most common form of cancer. Skin cancer can be further described as abnormal growth of the skin cells usually formed from sun exposure. It has been estimated recently that one in five Americans are prone to getting skin cancer in their life as diagnoses have been on the uprise (Bashline, et al., 2019, 1). The three major types of skin cancer are basal cell carcinoma, squamous cell carcinoma, and melanoma. Melanoma is known to be the most invasive type of skin cancer with its ability to spread throughout the body. Melanoma has the highest risk of death out of the three major types of skin cancer and is more than likely due to intense and prolonged sun exposure (Bashline, et al., 2019, 2). Skin cancer affects a great amount of the general population and should be taken seriously. Melanoma has been discovered to be the fifth most common types of cancers in the United States and is shown to be on the rise drastically since 1975 (Saginala, et al., 2021). More likely to be found in Whites than Blacks and Asians, melanoma is diagnosed at an average age of 57 years old and discovered in patients younger than 55 years old (Heistein, et al., 2023). There are several ways to decrease the chance of getting skin cancer, like the use of sunscreen and being mindful when exposed to the sun.

Outdoor college athletes are frequently exposed to the sun, as they practice almost every day of the week outside. Since they are outside more compared to those that do not play sports or of those that play indoor sports, they could be more susceptible to getting skin cancer. A study was conducted to assess sun exposure and skin cancer among swimmers and surfers. The results found that there was a high level of skin cancer prevalence with 50% of the 116 surfers and 27% of the 55 swimmers having skin cancer conditions (Kliniec, et al., 2023). Conditions may include basal and squamous cell carcinomas found on the skin by professionals. Athletes are exposed to

high levels of UV rays for extended periods of time and can get dehydrated which leads to sun burns being more likely to occur (Moehrle, 2008). Due to this, it is important that athletes are aware of the dangers and take advantage of the protection options for the safety of their skin. When referencing the Health Belief Model, it is believed that people will not change their habits until they think they are at risk themselves (Jones, et al., 2015). So, athletes at the college level may not perceive that they are susceptible to skin cancer as they reported in one study (Harrison, Bergfeld, 2009). Another study found that college athletes lack the facts pertaining to skin cancer and sun protection. One study found that college athletes lack the facts pertaining to skin cancer and sun protection. With little knowledge on the risks and consequences of skin cancer athletes are not likely to change their behavior to wear sunscreen (Hobbs, et al., 2014). Hobbs et al., (2014) found that athletes avoid sunscreen use because it gets in their eyes while performing, effecting individual play on the field. They may also ask the question of, are there benefits from wearing sunscreen? What is in it for them if they do wear sunscreen when exposed to sunlight? College athletes have reported they do not think they receive a benefit from wearing sunscreen, as it is an inconvenience and effects their performance (Hobbs, et al., 2014). Additionally, athletes share that sunscreen is greasy, time consuming, annoying to reapply, and burns or blurs their vision while playing (Gilaberte, et al., 2022; Hobbs, et al., 2014). Having sunscreen accessible at all times takes effort, planning, and it can be expensive to purchase. Making sure athletes always have it on hand means being prepared. The encouragement of sunscreen use needs to be implemented at greater lengths; with coaches and athletic trainers encouraging sunscreen use, athlete's attitudes toward use may be influenced, resulting in the greater likelihood of use (Hobbs, et al., 2014).

Outdoor athletes are expected to be outside and exposed to the sun for several hours each day. Whether this pertains to practice, scrimmages, conditioning, or games, these athletes are on their fields working hard in the sunlight. Athletic trainers, coaches, and parents of athletes expect them to wear sunscreen to protect their exposed skin, but there are many who do not give sunscreen a thought (Ellis, et al., 2012). Athletic trainers are supposed to be equipped with sunscreen when they are with their assigned teams. In a study conducted there was a report that stated 85% of college athletes had not worn sunscreen to their practice in the past week. Reasons these athletes said they do not apply sunscreen for practice included sunscreen availability, the way sunscreen feels on their skin, and lack of knowledge of skin cancer. Athletes in this study also indicated that sunscreen use can cause blurry vision leading to a messed-up play on the field. These athletes indicated that they would be more likely to use sunscreen if it was sweat proof. This study also reported the athletes' families and trainers encourage their use of sunscreen and with this encouragement they were more willing to use it (Ellis, et al., 2012).

The purpose of this study was to assess the relationship between sun protective behavior, health beliefs, attitudes, and norms of sun exposure among college athletes. With the extended exposure to sun college athletes get each day, it is important they are mindful of the resources they can use to protect their skin. Surveying athletes and their relationship with sunscreen helps lead to the understanding of their sunscreen usage and protections needs during their outdoor activities. By conducting this study, recommendations can be developed to enhance athlete's sun protection and reduce the risk of skin damage in the long run. It is important that this study is conducted with the targeted audience, being college athletes to gather accurate information on the factors that influence sun-protective behavior.

Methods

Participants

Participants included in this study were 145 student athletes at Coastal Carolina University. Students were both undergrad and graduate students that contained extended years due to injury or COVID-19 years of eligibility. The sample was made up of mostly white students (85.6%). The sample was then made up of 145 student athletes, which consisted of 29 freshman, 29 sophomores, 25 juniors, 35 seniors, and 22 graduates. The survey was almost balanced between men and women, as 47.1% were females and 52.9% were males. The mean age of the athletes was 20.22 (SD=1.50).

Procedures

An electronic survey was provided to student athletes for about two weeks in October of 2023. Prior to student participation, the Institutional Review Board approved the protocol and data collection. The survey was sent to the students by the athletic director through an app called Teamworks that connects to all the athletes at Coastal Carolina. The beginning of the survey had an introduction and explanation of the survey with consent to the study. This was to ensure the students knew their responses were anonymous and there were no risks when completing the survey. The survey took no longer than five minutes to complete.

Measures and Data Analysis

The survey consisted of questions with demonstrated reliability and validity (Reid, Aiken, 2013; Jackson, Aiken, 2000; Spradlin, Bass, Hyman, 2010; Venning, Abbott, Thomas, 2020). The first section of the survey covered demographics in which each person filled out their age, gender, school year, race, sport played, daily practice time, and family history of skin cancer. The second section of the survey addressed athlete's behavior of sun exposure and sunscreen use

(i.e., how often do you use sunscreen with SPF 30 or higher during their games and practices). The third section of the survey assessed the student athlete's perceived susceptibility of skin cancer (i.e., getting skin cancer is not a concern I have). The fourth section covered the severity of skin cancer (i.e., getting skin cancer would severely affect my life). The fifth section addressed the benefits of wearing sunscreen (i.e., implementing sun protective behaviors in my life would be beneficial to me). The sixth section assessed the barriers of sun protection (i.e., how likely is it that having to reapply sunscreen would keep you from using it). The seventh section assessed perceived norms of student athletes and the use of sunscreen (i.e., friends' encouragement for using SPF 30 sunscreen). Each of the behavior questions were measured on a 4-point Likert scale with responses of never, rarely, usually, and always. As a result of the small sample size, these questions were dichotomized into never/rarely and usually/always. The health beliefs, attitudes, and norms questions were measured on a 4-point Likert scale ranging from strongly agree to strongly disagree. Due to the small sample size these questions were dichotomized into agree and disagree.

In analyzing the data, first frequencies were conducted with all demographic variables. Secondly, frequencies were conducted with all dependent variable questions. These included sunscreen use during practice and games, sunburns while performing, seeking shade when possible, and family history of skin cancer. Third, chi-square analysis was conducted with each of the four dependent variable and the health beliefs, attitudes, and norms questions. Lastly, four separate logistic regression models were conducted with each of the four dependent variables and the health beliefs, attitudes, and norms questions (independent variables).

Results

Results of the study found that athletes rarely/never wore sunscreen during their games and practices (73.8%, 26.2%). However, there was an almost an equal distribution between always/usually and rarely/never getting a sunburn in a game or practice when not wearing sunscreen (51.2%, 48.8%). Additionally, 46.1% student athletes sought shade, when possible, whereas 53.9% remained in the sun while performing. It was also discovered that a greater percentage of student athletes, specifically 70.5% reported having family history of skin cancer.

Table 1 shows the prevalence of athlete's sun protective behaviors and health beliefs, attitudes, norms, and history of family skin cancer. Of those who felt susceptible to skin cancer, 36.9% used sunscreen at practice and games compared to 15.3% who did not feel susceptible ($\chi^2(1) = 7.44$; $p < 0.027$). Of the student athletes who believe their lifestyle increased their risk of skin cancer, 31.6% use sunscreen on the field and 3.7% did not ($\chi^2(1) = 8.67$; $p < 0.043$). When assessing the barriers of sunscreen use, results showed that 32.4% athletes wore sunscreen during their games and practices, compared to 24.1% who did not use sunscreen, as the process of reapplying sunscreen was seen as a barrier ($\chi^2(1) = 0.91$; $p < 0.004$).

Of those who did not feel susceptible to skin cancer due to their lifestyle, 58.2% reported getting sunburnt at a game/practice compared to 25.0% who felt susceptible ($\chi^2(1) = 9.58$; $p < 0.022$). Of the athletes who saw reapplying sunscreen as a barrier, 52.9% reported getting sunburnt during a game/practice when not using SPF 30, compared to 50.0% who did not see reapplying sunscreen as a barrier ($\chi^2(1) = 0.087$; $p < 0.003$). Of the student athletes who indicated that most of their friends used SPF 30, 76.3% indicated getting a sunburn during a game/practice, compared to 41.4% who felt that most friends did not use sunscreen ($\chi^2(1) = 12.93$; $p < 0.047$).

Of those who felt skin cancer was not a concern, 11.9% had a family history of skin cancer compared to the 43.9% who believed that skin cancer was a concern ($\chi^2(1) = 15.60$; $p < 0.001$). Of the student athletes who felt skin cancer would severely affect their life, 28.7% reported a family history of skin cancer versus 44.4% who believed skin cancer would not severely affect their life ($\chi^2(1) = 0.99$; $p < 0.014$).

Table 1. Prevalence of sun protective behavior and health beliefs, attitudes, norms and family history of skin cancer among college athletes		
Item	SPF 30 for game/practice Percentage	Sun burn during game/practice because not using SPF 30 Percentage
Skin cancer is not a concern		
Agree	15.3%	35.6%
Disagree	36.9%	64.6%
People my age don't need to worry about skin cancer		
Agree	24.1%	46.7%
Disagree	26.8%	52.6%
My lifestyle increases skin cancer		
Agree	31.6%	58.2%
Disagree	3.7%	25.0%
Skin cancer would severely affect my life		
Agree	25.7%	50.0%
Disagree	33.3%	55.6%
Skin cancer is easy to treat		
Agree	30.0%	61.0%
Disagree	24.4%	46.5%
SPF 30 reduces my chances of getting skin cancer		
Agree	26.7%	52.1%
Disagree	20.0%	40.0%
Sun protective behaviors in my life would be beneficial		
Agree	27.1%	52.9%
Disagree	14.3%	28.6%
Inconvenience of sunscreen would keep me from using it		
Likely	21.3%	50.0%
Unlikely	35.7%	55.8%

Reapplying sunscreen would keep me from using it Likely	24.1%	52.9%
Unlikely	32.4%	50.0%
Most of my student athlete friends use SPF 30 Agree	44.7%	76.3%
Disagree	18.6%	41.4%

Table 1 (cont.) Prevalence of sun protective behavior and health beliefs, attitudes, norms and family history of skin cancer among college athletes

Item	Seek shade when possible at game/practice Percentage	DV Family history of skin cancer Percentage
Skin cancer is not a concern Agree	40.7%	11.9%
Disagree	50.0%	43.9%
People my age don't need to worry about skin cancer Agree	33.3%	23.3%
Disagree	50.0%	31.6%
My lifestyle increases skin cancer Agree	48.5%	33.3%
Disagree	35.7%	17.9%
Skin cancer would severely affect my life Agree	48.7%	28.7%
Disagree	33.3%	44.4%
Skin cancer is easy to treat Agree	29.3%	26.8%
Disagree	54.0%	31.0%
SPF 30 reduces my chances of getting skin cancer Agree	46.7%	31.1%
Disagree	20.0%	0.0%
Sun protective behaviors in my life would be beneficial Agree	47.5%	30.8%
Disagree	14.3%	14.3%
Inconvenience of sunscreen would keep me from using it Likely	37.5%	33.8%
Unlikely	59.1%	25.0%

Reapplying sunscreen would keep me from using it		
Likely	45.5%	29.5%
Unlikely	47.4%	31.6%
Most of my student athlete friends use SPF 30		
Agree	51.3%	38.5%
Disagree	43.7%	26.4%

Table 2 presents odds ratio and 95% confidence intervals of sun protective behavior and health beliefs, attitudes, norms, and family history of skin cancer. Students who did not have a concern of skin cancer were 0.43 (CI = 0.20-0.91) times less to wear sunscreen at their game/practices. Those who felt susceptible to skin cancer from their lifestyle were 2.37 (CI = 1.03-5.49) times more likely to use sunscreen at their game/practice. Participants who reported that sunscreen was not an inconvenience to use were 4.25 (CI = 1.58-11.41) times more likely to use sunscreen during games/practices.

Those who felt susceptible to skin cancer from their lifestyle were 2.38 (CI = 1.13-4.98) times more likely to get sunburnt compared to those who did not feel susceptible. Students who reported reapplying sunscreen as a barrier were 0.28 (CI = 0.12-0.65) times less likely to get sunburnt at a game/practice versus the students who do not believe it is a barrier. Those who reported that most of their friends wore SPF 30 were 2.20 (CI = 1.01-4.78) times more likely to get sunburnt during a game/practice due to the lack of SPF 30 sunscreen use.

Those who felt skin cancer was not a concern were 0.25 (CI = 0.11-0.59) times less likely to have skin cancer in their family history compared to those who feel skin cancer was a concern. Of the student athletes who felt skin cancer would severely affect one's life, were 0.32 (CI = 0.13-0.79) times less likely to have family history of skin cancer compared to those who believed their lives would not be affected.

Table 2. Odds Ratio and 95% Confidence Intervals of sun protective behavior and health beliefs, attitudes, norms and family history of skin cancer among college athletes		
Item	SPF 30 for game/practice OR (95% CI)	Sun burn during game/practice because not using SPF 30 OR (95% CI)
Skin cancer is not a concern	0.43 (0.20-0.91)*	0.50 (0.25-1.01)
People my age don't need to worry about skin cancer	1.30 (0.64-2.67)	1.37 (0.71-2.66)
My lifestyle increases skin cancer	2.37 (1.03- 5.49)*	2.38 (1.13-4.98)*
Skin cancer would severely affect my life	0.73 (0.29- 1.86)	0.75 (0.32-1.75)
SPF 30 reduces my chances of getting skin cancer	0.93 (0.35- 2.46)	1.12 (0.47-2.70)
Sun protective behaviors in my life would be	2.27 (0.73- 7.09)	0.97 (0.39-2.42)
Inconvenience of sunscreen would keep me from using it	4.25 (1.58- 11.41)*	1.83 (0.81-4.12)
Reapplying sunscreen would keep me from using it	0.44 (0.18- 1.09)	0.28 (0.12-0.65)*
Most of my student athlete friends use SPF 30 * = significant < .05	1.48 (0.64-3.40)	2.20 (1.01-4.78)*

Table 2 (cont.) Odds Ratio and 95% Confidence Intervals of sun protective behavior and health beliefs, attitudes, norms and family history of skin cancer among college athletes		
Item	Seek shade when possible at game/practice OR (95% CI)	Family history of skin cancer OR (95% CI)
Skin cancer is not a concern	0.74 (0.39-1.39)	0.25 (0.11-0.59)*
People my age don't need to worry about skin cancer	0.67 (0.36-1.26)	1.09 (0.54-2.17)
My lifestyle increases skin cancer	1.31 (0.71-2.44)	1.38 (0.68-2.80)
Skin cancer would severely affect my life	0.62 (0.29-1.30)	0.32 (0.13-0.79)*
SPF 30 reduces my chances of getting skin cancer	0.46 (0.19-1.15)	0.60 (0.22-1.61)
Sun protective behaviors in my life would be beneficial	1.80 (0.74-4.35)	2.48 (0.86-7.17)
Inconvenience of sunscreen would keep me from using it	2.19 (0.99-4.82)	0.74 (0.32-1.70)
Reapplying sunscreen would keep me from using it	0.80 (0.40-1.59)	0.87 (0.41-1.85)
Most of my student athlete friends use SPF 30 * = significant < .05	1.26 (0.60-2.66)	0.90 (0.39-2.08)

Discussion

The purpose of this study was to assess the relationship between sun protective behavior, health beliefs, attitudes, and norms of sun exposure among college athletes. According to Fernandez-Ruiz, et al., 2022, outdoor athletes are exposed to sun rays more than the normal humans due to their outside performances. Coastal Carolina University is located close to the beach in South Carolina which tend to result in stronger UV rays. Coastal areas regularly have higher UV indexes compared to inland locations (O’Riordan, et al., 2008).

For the present study, factors associated with sunscreen use during games and practices consisted of feeling susceptible to skin cancer, barriers to reapplying sunscreen, and the sports lifestyle increases one's chance for skin cancer. This seems to suggest that students who feel susceptible to get skin cancer due to their lifestyle are more likely to use sunscreen for their practices and games. These results are similar to findings from Kliniec, et al., 2023, in which it was found that surfers acknowledge they should wear sunscreen due to their lifestyle taking place in the ocean that attracts UV rays.

Factors associated with sunburns during games or practices consisted of athletic lifestyles increasing the risk of getting skin cancer, reapplying sunscreen, and peer norms of using SPF 30 sunscreen. Social norms and through encouragement from the people around one are known to have a great impact on behaviors. Behaviors of others tend to influence choices of individuals, whether it is on purpose through encouragement or indirectly by observation (Kalkstein, et al., 2023). However, in this study, the results showed the opposite, in that athletes who reported friends use of SPF 30 sunscreen, the students were more likely to get burnt than those athletes whose friends did not report the use of SPF 30 sunscreen.

Factors associated with family history included the concern of skin cancer and the severity of skin cancers effect on one's life. These results suggest that athletes who have family members who have had skin cancer and may not realize the severity of the cancer. Melanoma when not found and treated early, can spread to other parts of the body. This makes the cancer more difficult to treat, increasing the severity. This also adds to the importance of spreading awareness of skin cancer and the process of treatment, surgeries, and radiation provided to those diagnosed.

The results of this study suggest that student athletes overall do not utilize SPF 30 sunscreen to protect their skin from UV rays as only 26.2% reported most of the time/always using sunscreen. These results are similar to other research in that studies had found that only a small percentage of athletes use sunscreen during their sports (Hobbs, et al., 2014). However, those who believed that they were susceptible to getting skin cancer were more likely to wear sunscreen than those who do not feel susceptible. An interesting finding of this study was more athletes reported wearing sunscreen during their games/practices even though it had to be reapplied, compared to those that saw reapplying sunscreen as a barrier. This leads to the conclusion of more people have acknowledged the importance of reapplying sunscreen in order to protect their skin.

Limitations

The results of this study must be considered in light of several limitations. First, the sample size was small. In total there is approximately 350 outdoor athletes, and 145 students completed the survey. Secondly, using Coastal Carolina student athletes was out of convenience. Thus, the generalization of the results must be done with caution.

Another limitation of the sample is Coastal Carolina may have different findings than other schools would be due to location. Since Coastal is located near the beach and in the South, athletes may wear sunscreen more when in the sun rather than those athletes performing in Northern states. While the sun is still shining in Southern states, Northern athletes have to start layering their clothes to be warm enough to play outside. With more layers of clothing, it is less likely they will wear sunscreen with protection of clothing covering their skin.

Implications

This data can be applied to the Department of Athletics at Coastal Carolina University as outdoor athletes were the ones who completed the survey. Athletes should be informed of information about skin cancer and the benefits of sunscreen. There is a possibility with more details on the topic student athletes will be more prone to use sunscreen while playing their sport. Trainers and coaches are expected to be equipped with sunscreen at all times, but they could encourage and actively reapply sunscreen for their athletes. This could result in sunscreen use as normal behavior when trainers are not around to do so. It is important to protect skin from the sun rays to avoid sunburns and athletes need to be informed of this.

For future studies, researchers should focus on larger sample sizes for a greater amount of data to refer to. Larger sample sizes provide stronger and more reliable results. With larger numbers of athletes completing surveys about sun protective behavior, the more confident we can be that the results are valid. Along with a larger sample size, studies should gather data from different campuses to compare data from colleges in several locations. This is because respondents from Northern and Southern schools may differ but can overall be used to make a statement about the use of sunscreen among athletes to avoid skin cancer.

Conclusion

After analyzing the data from Coastal Carolina student athletes, it is clear that sun protection awareness needs to be spread more, as it is crucial in the athletic population. By understanding the behaviors and beliefs towards sunscreen, a significant impact can be made in reducing the risk of skin cancer among athletes. Overall, the results of this study show that not enough student athletes are taking active steps in using SPF 30 sunscreen when participating in their games/practices. With more information provided about skin cancer and the benefits of

sunscreen, along with the encouragement of reapplying SPF 30 sunscreen, there could be major changes with athletes wearing sunscreen.

References

- Bashline, B. (2019). Skin cancer: Squamous and basal cell carcinomas. *FP Essentials*, 481, 17-22.
- Bashline, B., et al. (2019). Skin cancer: Melanoma. *FP essentials.*, 481, 11-16.
- Ellis, R M., et al. (2012). Sunscreen use in student Athletes: A survey study. *Journal of the American Academy of Dermatology.*, 67 (1), 159–160,
<https://doi.org/10.1016/j.jaad.2011.12.023>.
- Fernandez-Ruiz, J., et al. (2022). Knowledge, behaviour and attitudes related to sun exposure in sportspeople: A systematic review. *International Journal of Environmental Research and Public Health*, 19(16) 10175., doi:10.3390/ijerph191610175
- Gilaberte, Y., et al. (2022). Photoprotection in outdoor sports: A review of the literature and recommendations to reduce risk among athletes. *Dermatology and Therapy*, 12(2), 329-343. doi:10.1007/s13555-021-00671-0
- Harrison S, Bergfeld, W. (2009). Ultraviolet light and skin cancer in athletes. *Sports Health*, 1(4), 335-40. doi:10.1177/1941738109338923
- Heistein, J B., et al. (2023). Malignant Melanoma. In: StatPearls [Internet]. Treasure Island (FL): StatPearls.
- Hobbs, C., et al. (2014). Skin cancer knowledge, attitudes, and behaviors in collegiate athletes. *Journal of Skin Cancer*, doi:10.1155/2014/248198

- Jones, C L., et al. (2015). The Health Belief Model as an explanatory framework in communication research: exploring parallel, serial, and moderated mediation. *Health Communication*, 30(6) 566-76. doi:10.1080/10410236.2013.873363
- Kalkstein, D., et al. (2023). Social norms govern what behaviors come to mind-And what do not. *Journal of Personality and Social Psychology*, 24(6), 1203-1229.
doi:10.1037/pspi0000412
- Kliniec, K., et al. (2023). Skin cancer risk, sun-protection knowledge and behavior in athletes: A narrative review. *Cancers*, 15,13 3281, doi:10.3390/cancers15133281
- Moehrle, M. (2008). Outdoor sports and skin cancer. *Clinics in Dermatology*, 26, 1, 12-5.
doi:10.1016/j.clindermatol.2007.10.001
- O'Riordan, D., et al. (2008). A day at the beach while on tropical vacation: sun protection practices in a high-risk setting for UV radiation exposure. *Archives of Dermatology*, 144,11, 1449-1455. doi:10.1001/archderm.144.11.1449
- Saginala, K., et al. (2021). Epidemiology of melanoma. *Medical Sciences (Basel, Switzerland)*. 9,4, 63, doi:10.3390/medsci9040063