

**Physical Activity and Sunburn:  
Sun Safety in the FLASHE Survey  
Cohort**

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**Introduction**

- Physical activity is negatively associated with many cancers but is positively associated with melanoma
- This association ostensibly occurs via increased sun exposure, especially sunburn.
- Whether sunburn in physically active adults derives from behavioral differences in sun safe practices or suntanning remains unclear.

**Research questions:**

- Are sun safety behaviors associated with reduced sunburn among active adults?
- Does the tendency to suntan account for the association of physical activity with sunburn among active adults?

**Methods and Materials**

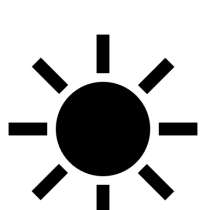



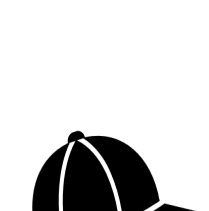

**Data Source**

- The National Cancer Institute's Family, Life, Activity, Sun, Health and Eating (FLASHE) national survey is cross-sectional and internet-based, and was administered in October 2014 (N = 1,793).
- The sample is drawn from ISPOS' Consumer Opinion Panel and is similar to the US population in sex, income, age, household size and region.

**Measures:**

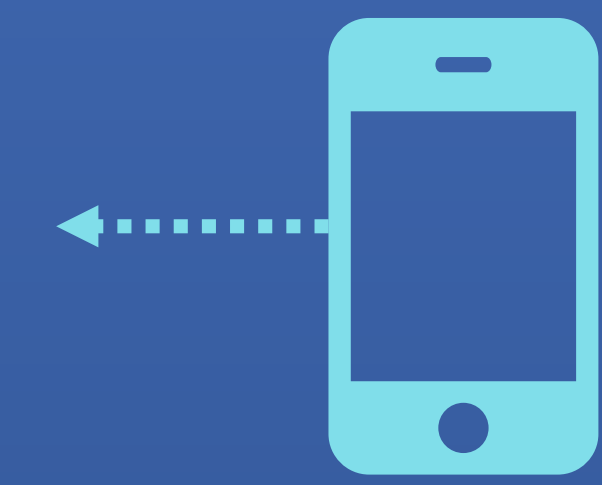
- Sunburn frequency in past 12 months
- Sun safety and suntanning practices
- Minutes of moderate and vigorous physical activity per day
- Physical activity level (meeting or not meeting PA guidelines) was calculated from MET Hours weekly of physical activity

Table 1. Sun safety behaviors overall and by sex.

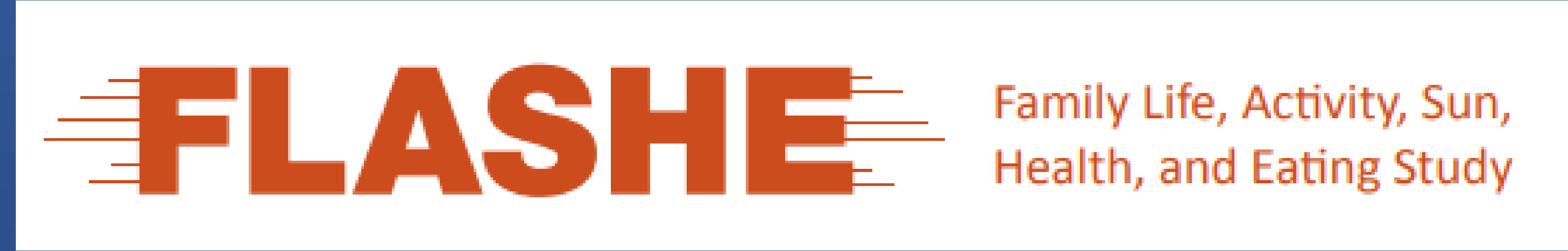
	Total		Men		Women	
	Raw count	Weighted %	Raw count	Weighted %	Raw count	Weighted %
 Sunburn						
Yes	681	38.2	199	42.1	482	35.1
No	1,112	61.8	269	57.9	843	64.9
 Regular Sunbathing						
Yes	247	13.7	60	12.4	187	14.9
No	1,500	86.3	398	87.6	1,102	85.1
 Regular Sunscreen						
Yes	1,094	37.9	136	31.8	772	42.8
No	655	62.1	322	68.2	519	57.2
 Shirt with sleeves						
Yes	1,207	70.6	346	76.0	861	66.5
No	538	29.4	113	24.0	425	33.5
 Hat						
Yes	738	27.5	245	44.1	493	14.9
No	1,009	72.5	211	55.9	798	85.1
 Shade or umbrella						
Yes	552	32.3	119	28.1	433	35.2
No	1,186	67.7	340	71.9	846	64.8

# Physical activity is associated with increased risk of sunburn, even when controlling for sun protective behaviors and intentional sun tanning.

*-There may be a minimum threshold for effectiveness regarding sun protection*



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**Results**

- After accounting for suntanning and sun safety practices, meeting U.S. physical activity guidelines was positively associated with sunburn overall (OR: 1.53, P = .004) and among women (OR: 1.57, P = .005), but not among men.
- Men more frequently met U.S. physical activity guidelines (80.3% vs. 67.4%;  $\chi^2 = 28.02, P < .001$ ) and reported higher rates of sunburn than women (42.1% vs. 35.1%;  $\chi^2 (1) = 5.54, P = .019$ ).
- Suntanning was more frequent among physically active people and increased odds of sunburn (Men: OR = 3.91, P = < .001; Women: OR = 2.67, P = < .001).
- Regularly wearing a sleeved shirt was the most commonly reported protective behavior and regular use of sunscreen, hats and shade for protection was low.

**Discussion**

- Physical activity increases risk of sunburn, even after controlling for intentional sun exposure (suntanning).
- Sun protective behaviors such as wearing a long-sleeved shirt or wide-brimmed hat were not associated with a lower risk of sunburn, suggesting there may be a minimum threshold for effectiveness regarding sun protection.
- Among adults meeting physical activity guidelines, no sun protection behaviors were associated with sunburn after controlling for sunbathing.

**Conclusion**

- Sunburn risk is heightened for physically active adults, especially women, which may have implications for melanoma skin cancer risk.
- Both intentional and unintentional UV exposure may be the culprit in heightened sunburn risk among physically active individuals
- Research is needed to better temporally align sun safety practices and potential suntanning during physical activity.

**References**

1) Moore et al. Association of leisure-time physical activity with 26 types of cancer in 1.44 million adults. *JAMA Intern Med.* 2016;176(6):816-825

**Acknowledgments**

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