Sunscreen use and duration of sun exposure: a double-blind, randomized trial

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Abstract

Background: In epidemiologic studies, sunscreen use is associated with increased risk of cutaneous melanoma, basal cell skin cancer, and higher numbers of nevi. It has been proposed that sunscreens may encourage prolonged sun exposure because they delay sunburn occurrence. We examined whether, under habitual conditions of sunscreen use, the sun-protection factor (SPF) had an influence on sun-exposure duration.

Methods: Before the 1997 summer holidays, we randomly assigned 87 French and Swiss participants who were 18-24 years of age to receive an SPF 10 or an SPF 30 sunscreen. Neither medical personnel nor study participants were aware of their sunscreen assignment. Participants were asked to complete daily records of their sun exposure. To avoid influencing the recreational sun-exposure habits of the study participants, no recommendation was made about sun exposure or sun protection. Furthermore, participants were told that the trial end point was the number of pigmented skin lesions before and after the holidays. One subject was lost to follow-up. All statistical tests were two-sided.

Results: The SPF 10 (n = 44) and SPF 30 (n = 42) groups had equivalent mean holiday durations (19.4 days versus 20.2 days) and mean quantities of sunscreen used (72.3 g versus 71.6 g). The mean cumulative sun exposures for the two groups were 58.2 hours and 72.6 hours, respectively (P =.011). The mean daily durations of sunbathing were 2.6 and 3.1 hours, respectively (P =.0013), and, for outdoor activities, they were 3.6 and 3.8 hours, respectively (P =.62). There was no difference in sunburn experience between the two groups.

Conclusions: Use of higher SPF sunscreen seems to increase the duration of recreational sun exposure of young white Europeans.

What is the main purpose of the study?
a) To assess the efficacy of sunscreen in preventing skin cancer
b) To investigate the relationship between sunscreen use and sun-exposure duration
c) To compare different sunscreen brands for their SPF effectiveness

How many participants were randomly assigned to each sunscreen group?
a) 87
b) 44
c) 42

What were the ages of the participants in the study?
a) 25-30 years
b) 18-24 years
c) 30-35 years

What were the two levels of sun-protection factor (SPF) assigned to the participants?
a) SPF 15 and SPF 50
b) SPF 10 and SPF 30
c) SPF 20 and SPF 40

How were the participants instructed to record their sun exposure?
a) Weekly reports
b) Daily records
c) Monthly logs

What measures were taken to ensure that the participants' sun exposure habits were not influenced by the study?
a) Recommendations on sun exposure were provided
b) Participants were informed about their sunscreen assignment
c) No recommendations were made about sun exposure or sun protection

Was there any difference in the holiday durations between the SPF 10 and SPF 30 groups?
a) Yes, there was a significant difference
b) No, the holiday durations were equivalent
c) The holiday durations were not mentioned in the abstract

What were the mean cumulative sun exposures for the SPF 10 and SPF 30 groups?
a) 72.6 hours and 58.2 hours, respectively
b) 50.3 hours and 60.8 hours, respectively
c) 80.1 hours and 55.6 hours, respectively

What were the findings regarding sunburn experience between the two groups?
a) SPF 30 group experienced more sunburns
b) SPF 10 group experienced more sunburns
c) No difference in sunburn experience between the two groups

Here are five terms from the text. Match them with their correct definitions:

1. Cutaneous melanoma
2. Basal cell skin cancer
3. Sun-protection factor (SPF)
4. Nevi
5. Sunburn occurrence

Definitions:
a) A scale indicating the level of protection a sunscreen provides against UVB rays.
b) A type of skin cancer that develops in the cells that produce melanin.
c) Small, often pigmented, skin growths that can appear anywhere on the body.
d) A type of skin cancer that begins in the basal cells of the skin's outer layer.
e) The incidence or happening of skin damage caused by excessive exposure to sunlight.