

Why Is Your Sunscreen Not Working?

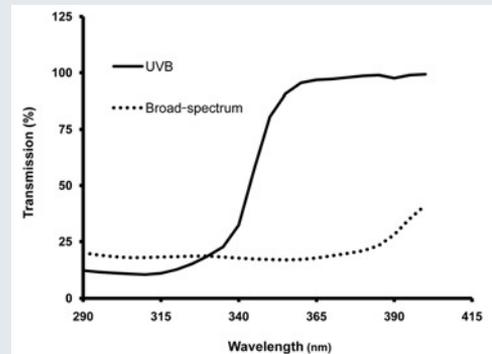
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Patients sometimes claim that, despite regular and routine use of sunscreen, they still develop “redness.” A discussion of proper application of sunscreen then ensues, and often one concludes that sunscreen compliance is really the issue. But is it? In this issue, Young and colleagues suggest otherwise. Stemming from the knowledge that UVA radiation participates in the erythema caused by cumulative UV exposure (Parrish *et al.*, 1981) and that current standards for assigning sun protection factor (SPF) are biased against the contribution of UVA to the resulting erythema, Young *et al.* compared a UVB sunscreen with a broad-spectrum (UVA and UVB) sunscreen with respect to their abilities to prevent erythema over 13 days of exposure to standardized UV irradiation.

The conditions under which solar-simulated radiation is used to test sunscreens are stipulated by the European Commission and the US Food and Drug Administration and specify more UVB relative to UVA than is found at noon at the equator. This extreme ratio of UVB to UVA does not represent the UVR experienced at all latitudes, especially temperate latitudes, nor is this ratio representative of all times of the day (Seite *et al.*, 2006). The two sunscreens evaluated by Young and colleagues, which were both labeled with an SPF rating of 6, were tested for their abilities to prevent erythema on subjects’ buttock skin exposed to a variety of UVB:UVA ratios that individuals may actually experience. These studies revealed that a broad-spectrum sunscreen was superior to a UVB sunscreen in preventing UVR-induced erythema.

Although sunscreens are described in terms of their ability to prevent UV-induced erythema, we often recommend these products for additional reasons. If erythema is considered a biomarker of solar skin damage, then these results suggest that broad-spectrum sunscreens could be advantageous in preventing UV-induced carcinogenesis. UVB sunscreens have shown benefit for reducing squamous cell carcinoma and its precursor actinic keratosis; however, the data are less clear for melanoma. Whether a broad-spectrum sunscreen would be better in this respect is of substantial interest. For brief answers, please refer to the supplementary information online <<http://www.nature.com/jid/journal/v130/n10/supinfo/jid2010262s1.html>>.



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QUESTIONS

1. How does UVR cause skin cancer?
2. How do sunscreens work?
3. What was the study’s rationale, and what methods were employed?
4. What were the results?
5. What are the implications of this study?

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