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New methods to protect skin from photodamage from sun exposure are necessary if we are to conquer skin cancer and photoaging. Sunscreens are useful, but their protection is not ideal because of inadequate use, incomplete spectral protection, and toxicity. Skin naturally uses antioxidants (AOs) to protect itself from photodamage. This scientific review summarizes what is known about how photodamage occurs; why sunscreens—the current gold standard of photoprotection—are inadequate; and how topical AOs help protect against skin cancer and photoaging changes. This review is intended to be a reference source, including pertinent comprehensive reviews whenever available. Although not all AOs are included, an attempt has been made to select those AOs for which sufficient information is available to document their potential topical uses and benefits. Reviewed are the following physiologic and plant AOs: vitamin C, vitamin E, selenium, zinc, silymarin, soy isoflavones, and tea polyphenols. Their topical use may favorably supplement sunscreen protection and provide additional anticarcinogenic protection. (J Am Acad Dermatol 2003;48:1-19.) **Learning objective:** At the completion of this learning activity, participants should have an understanding of current information about how the sun damages skin to produce skin cancer and photoaging changes, how the skin naturally protects itself from the sun, the shortcomings of sunscreens, and the added advantages of topical AOs for photoprotection.

^a North Carolina

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