

Appendix 1 (as supplied by the authors): Sunscreen for the Prevention of Skin Cancer: An Update on Efficacy and Safety

Definitions

- **Actinic keratosis:** a precancerous lesion, also known as a solar keratosis
- **Allergic contact dermatitis:** cutaneous inflammatory reaction caused by the direct application of an allergen to the skin, thereby triggering an immune response
- **Basal cell carcinoma:** type of non-melanoma skin cancer that has a minimal risk of metastasis
- **Bioaccumulation:** gradual buildup of a chemical substance within an organism's body, occurring when the absorption rate of the substance exceeds the excretion rate
- **Biomagnification:** increase in the concentration of a chemical substance within successively higher levels of the food chain
- **Broad spectrum sunscreen:** product that inhibits ultraviolet radiation across the entire ultraviolet A and ultraviolet B spectrum and having a critical wavelength of less than 370 nm
- **Chemical (organic) sunscreen:** ultraviolet radiation-inhibiting product that contains filters that convert absorbed energy into heat
- **Comedogenicity:** causing or exacerbating acne
- **Irritant contact dermatitis:** cutaneous inflammatory reaction caused by the direct application of a substance that aggravates the skin
- **Micronized sunscreen:** ultraviolet radiation-inhibiting product that contains zinc oxide and/or titanium dioxide particles that have been reduced in size, sometimes as small as one nanometer in diameter, making the product more cosmetically appealing
- **Minimal erythema dose:** dose of ultraviolet radiation (J/m^2) that produces subtle, well-defined erythema of the skin 24 hours following exposure
- **Photoallergic dermatitis:** delayed-type hypersensitivity reaction that occurs in response to the application of a substance to the skin that only becomes an allergen after exposure to ultraviolet radiation
- **Physical (inorganic, mineral) sunscreen:** ultraviolet radiation-inhibiting product that most commonly contains zinc oxide and/or titanium dioxide as the active ingredient(s)
- **Squamous cell carcinoma:** type of non-melanoma skin cancer that has the potential to metastasize
- **Sun protection factor:** ratio that refers to the ability of a sunscreen to protect from sunburn-producing radiation. It represents the dose of ultraviolet radiation required to produce one minimal erythema dose on protected skin (i.e. after the application of 2 mg/cm² of sunscreen) divided by the dose required to produce one minimal erythema dose on unprotected skin. Thus, when a sunscreen is applied with sun protection factor of 15, only $1/15$ of sunburn-producing ultraviolet radiation reaches the skin.

$$\text{SPF} = \frac{\text{Minimal erythema dose of protected skin}}{\text{Minimal erythema dose of unprotected skin}}$$

- **Ultraviolet index:** measurement of sunburn-producing ultraviolet radiation for a given time and region that is often provided in the daily weather forecast
- **Ultraviolet protection factor (UPF):** a measurement, analogous to SPF, that determines the degree of protection that an item of clothing provides against ultraviolet A and ultraviolet B radiation
- **Ultraviolet radiation:** electromagnetic radiation with a wavelength between 100 nm and 400 nm, with terrestrial radiation comprising primarily ultraviolet A (315 nm-400 nm) and ultraviolet B (280-315 nm)