



ULTRAVIOLET LIGHT (UV)

Ultraviolet light (UV), or more correctly, ultraviolet radiation (UVR), contains wavelengths of light just beyond purple on the visible light spectrum. UVR is produced by the sun or by artificial sources (tanning booths). UV exposure varies by season, location, and time of day. UVR is highest during the summer, at higher altitudes and locations closer to the equator, and during the noon hour. The majority of UVR can be reflected by snow or water. UVR spans the wavelengths from 200 to 400 nanometers (nm) and is traditionally divided into three subcategories: **UVC**, **UVB**, and **UVA**.

- **UVC**, the shortest of the three, ranges from 200-290 nm and is completely absorbed by the earth's atmosphere.

- **UVB**, which spans from 290-320 nm, is the major contributor to sunburns despite 90% of **UVB** being absorbed by the earth's atmosphere. **UVB** and its relationship to sunburns can be easily remembered as UV "B" for "burn." The SPF (sun protection factor) of a sunscreen measures its effectiveness in blocking **UVB**. Because it is a shorter wavelength than **UVA**, **UVB** penetrates the most superficial layer of the skin, the epidermis. **UVB** is a causative factor in non-melanoma skin cancers such as basal and squamous cell carcinomas.

- **UVA**, the longest portion of the UV spectrum, includes longer wavelengths from 320-400 nm. It penetrates more deeply into the skin through the epidermis into the dermis, the second layer of the skin. Unlike **UVB**, **UVA** is not blocked by window glass. The "A" in **UVA** can help one remember "A"ging effects, as **UVA** exposure causes premature aging and pigmentation. **UVA** is detrimental to the elasticity of the skin, and it may aggravate many photodermatoses including lupus erythematosus (LE) and polymorphous light eruption (PMLE). A new **UVA** protection-rating scheme endorsed by the FDA will appear on sunscreen products in 2009. A four star system will be used to rate the level of **UVA** protection, with one star providing "low" and four stars providing "high" protection against **UVA**.

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