

Health Awareness: Understanding UV

Ultraviolet (UV) light is a form of electromagnetic radiation that is emitted from such sources as the sun. The sun also produces infrared radiation as well as visible light, all of which play a factor in sustaining life. UV radiation in particular affects our health and can be harmful in excess.¹

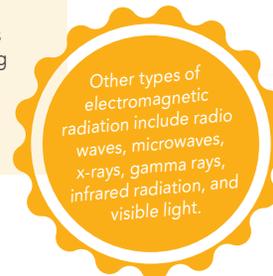
The amount of UV radiation we receive at the earth's surface varies depending on our location and the time of year. UV levels increase with altitude and proximity to the equator.² In addition to these factors, the ozone layer is greatly responsible for absorbing and filtering UV. This protective layer shields us from the most immediately dangerous UV rays.³ However, ozone levels can change dramatically even over the course of the day.⁴



What are UV rays?

There are three types of UV rays, classified according to radiation wavelength. Different wavelengths affect our health in different ways. The shorter the wavelength, the more harmful the radiation, however, the longer the wavelength, the further it can permeate our skin.⁵

UVA	UVB	UVC
UVA rays have the longest wavelength and can penetrate our skin the deepest, down to the dermis. Unprotected and excessive exposure to UVA rays can cause premature aging, freckles, 'sunspots', wrinkling, sagging, dryness, and skin cancer. ⁶ UVA radiation is also associated with the most immediate 'tanning' effect on the skin. ⁷ UVA rays can also age the structures of the eye, which can lead to corneal damage, cataracts, macular degeneration, and cancers. ⁸	UVB rays have a medium wavelength. UVB rays produced by the sun are partially filtered by the atmosphere. UVB that does reach the earth's surface can penetrate the upper layers of our skin, the epidermis. ⁹ Unprotected and excessive exposure to UVB rays can cause sunburns, blisters, skin peeling, premature aging, and skin cancer. ¹⁰ Similar to UVA, UVB rays can also damage the eye, and can lead to corneal sunburn, tissue growths, cataracts, macular degeneration, and cancers. ¹¹	UVC rays have the shortest wavelength, therefore are the most dangerous. However, UVC from the sun is completely filtered upon entering our atmosphere and thus does not reach the surface of the earth. ¹² If humans are exposed to UVC from other sources (such as welding torches or mercury lamps), this type of radiation can cause severe burns, blisters, ulcers, lesions, and can lead to longer-term issues such as cancer. ¹³



How can you protect yourself from UV radiation?

While excessive and prolonged UV radiation is harmful to human health, luckily there are many ways that we can protect against its damaging effects.



Apply sunscreen thoroughly and regularly. Apply sunscreen at least 15 minutes before sun exposure and reapply throughout the day.¹⁴ Use sunscreen labelled as broad-spectrum and SPF (sun protection factor) 30 or higher.¹⁵ Sunscreens developed especially for the face and lips are also available.



Seek shade and consider wearing a broad-rimmed hat. Even in the summer there are plenty of activities that can be enjoyed in shaded areas.



Wear sunglasses that are 100% UV blocking against both UVA and UVB rays. Additionally, people who wear corrective lenses may consider wearing UV blocking contact lenses as an added layer of protection.¹⁶



Monitor the UV Index to know your risk of exposure to harmful rays. When the UV Index for your location is rated '3' or higher, extra care should be taken.¹⁷ Typically, UV rays are at their strongest between the hours of 10am-4pm.

Nurses know that sun safety is important when it comes to protecting against the harmful effects of UV radiation. During the summer and at all times through the year, UV radiation can affect skin and eye health, potentially leading to serious health issues. As leaders in public health, members of patient-centred care teams, and as trusted health professionals, nurses play an integral role in communicating the importance of sun and UV safety to patients and communities by sharing science-based resources and information.

¹ Health Canada. [What is ultraviolet radiation?](#) Updated Nov 2017.

² World Health Organization. [Radiation: Ultraviolet \(UV\) radiation](#). Mar 2016.

³ Health Canada. [UV and the ozone layer](#). Sep 2018; National Geographic. [Atmosphere](#). 2022.

⁴ WHO. [Radiation: Ultraviolet \(UV\) radiation](#). 2016.

⁵ Ibid.

⁶ Healthline. [What's the Difference Between UVA and UVB Rays?](#) Sep 2019; Skin Cancer Foundation. [UV Radiation & Your Skin](#). Aug 2021.

⁷ WHO. [Radiation: Ultraviolet \(UV\) radiation](#). 2016.

⁸ Canadian Association of Optometrists. [UV Damage You Can't See That Impacts Your Vision](#). 2022; Kuo I. [John Hopkins Medicine. How to Protect Your Eyes from UV Damage](#). Jul 2019.

⁹ Health Canada. [What is ultraviolet radiation?](#) 2017.

¹⁰ WHO. [Radiation: Ultraviolet \(UV\) radiation](#). 2016; Skin Cancer Foundation. [UV Radiation & Your Skin](#). 2021.

¹¹ Canadian Association of Optometrists. [UV Damage You Can't See That Impacts Your Vision](#). 2022.

¹² WHO. [Radiation: Ultraviolet \(UV\) radiation](#). 2016.

¹³ Healthline. [What's the Difference Between UVA and UVB Rays?](#) 2019.

¹⁴ HealthLinkBC. [Protecting Yourself from Ultraviolet \(UV\) Radiation](#). Accessed 2022.

¹⁵ Canadian Dermatology Association. [Sun Safety for Every Day](#). Accessed 2022.

¹⁶ Canadian Association of Optometrists. [UV Damage You Can't See That Impacts Your Vision](#). 2022.

¹⁷ Canadian Cancer Society. [Enjoy the sun safely](#). Accessed 2022.