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A review: role of ultraviolet radiation in age-related macular degeneration.

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Abstract
Age-related macular degeneration (AMD) is a leading cause of blindness in the western world. The retina is highly susceptible to photochemical damage from continuous exposure of light and oxygen. The cornea and the lens block a major portion of the ultraviolet (UV) radiation from reaching the retina (<295 nm). The relationship between UV light exposure and AMD is unclear, although short wavelength radiation and the blue light induce significant oxidative stress to the retinal pigment epithelium. Epidemiologic evidence indicates a trend toward association between severity of light exposure and AMD. In this review, we discuss type 1 and type 2 photochemical damage that occurs in response to UV exposure. We examine the impact of different doses of exposure to UV radiation and the subsequent production of oxidative stress in AMD. Local and systemic protective mechanisms of the retina including antioxidant enzymes and macular pigments are reviewed. This article provides a review of possible cellular and molecular effects of UV radiation exposure in AMD and potential therapies that may prevent blindness resulting from this disease.

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Ultraviolet radiation as a risk factor for cataract and macular degeneration.

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Abstract
The human eye is constantly exposed to sunlight and artificial lighting. Light transmission through the eye is fundamental to its unique biological functions of directing vision and circadian rhythm, and therefore, light absorbed by the eye must be benign. However, exposure to the intense ambient radiation can pose a hazard particularly if the recipient is over 40 years of age. This radiation exposure can lead to impaired vision and transient or permanent blindness.Both ultraviolet-A (UV-A) and UV-B induce cataract formation and are not necessary for sight. Ultraviolet radiation is also a risk factor for damage to the retinas of children. The removal of these wavelengths from ocular exposure will greatly reduce the risk of early cataract and retinal damage. One way this may be easily done is by wearing sunglasses that block wavelengths below 400 nm (marked 400 on the glasses). However, because of the geometry of the eye, these glasses must be wraparound sunglasses to prevent reflective UV radiation from reaching the eye. Additional protection may be offered by contact lenses that absorb significant amounts of UV radiation.In addition to UV radiation, short blue visible light (400-440 nm) is a risk factor for the adult human retina. This wavelength of light is not essential for sight and not necessary for a circadian rhythm response. For those over 50 years old, it would be of value to remove these wavelengths of light with specially designed sunglasses or contact lenses to reduce the risk of age-related macular degeneration.