

Ultraviolet Lighting for Companion Birds: Benefits & Risks

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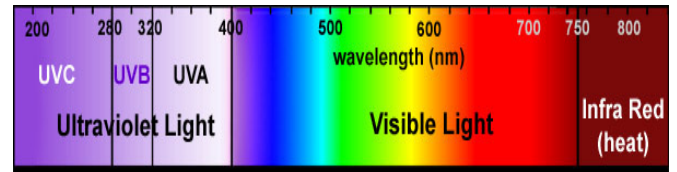


One of the goals of enriching the lives of our companion parrots is to ensure that they receive optimal environmental conditions. As guardians of our parrot's health, another important goal is to avoid causing harm. UV lighting has both the potential to improve as well as harm the health of our parrots. And until now, client education of proper UV lighting for birds has received little attention from the veterinary community. In addition, there is a considerable amount of misinformation and lack of information from the pet industry on this subject.

Parrots are from the parts of the world that are within 40° latitude from the equator. These regions have the highest solar radiation on the planet. Our parrot's wild relatives receive exposure to natural sunlight every day, but much of this is filtered through dense vegetation. Any direct sunlight is usually in the mid-morning, when ultraviolet (UV) light is at lower levels. There are probably species-specific UV requirements, but this is an area of research that has not been developed.

The ultraviolet light spectrum consists of three kinds: UVA, UVB and UVC. Unlike mammals, birds (and reptiles) are able to see UVA, which seems to help them select ripe foods and identify mates. UVB enables birds to metabolize vitamin D, which is essential for calcium metabolism and immune function. UVC is normally filtered out by the earth's ozone layer and does not exist on the planet

naturally. Exposure to high doses of short-wavelength UVB radiation can also lead to inflammation of the cornea, eyelids and skin. UVC can be created synthetically and is typically used for microbial sterilization.



The UV index is a measurement of the intensity of ultraviolet radiation (UVA and UVB) produced by the sun or a UV bulb. Typically the higher the UV index, the more intense the UVB radiation.



UV Index	Description
0-2	No danger to the average person
3-5	little risk of harm from unprotected sun exposure
6-7	High risk of harm from unprotected sun exposure
8-10	Very high risk of harm from unprotected sun exposure
11+	Extreme risk of harm from unprotected sun exposure

Birds have very thin skin and thinner corneas compared to mammals. This is why they appear to be more sensitive to ultraviolet light than mammals and reptiles. This is especially a concern for birds that have bare facial skin, such as African greys and macaws. And similar to people, increased damage from high

intensity, low-wavelength UV light may increase the risk of cancer and cataracts over time.

Types of bulbs on the market today include: tubes (linear fluorescents), spirals (compact fluorescents) and floods (mercury vapors). It is important to remember that glass and plastic filter out beneficial UV rays. That is why your bird will not get the benefits of natural sunlight in front of a window. That is also why you need to remove any plastic shielding on bulbs fixtures. The UV output will decrease over time so bulbs should be replaced every 6-12 months, even if light output is still present.



Linear



Compact



Mercury vapor

Not all fluorescent bulbs are created equal. We have found that some bulbs produce virtually zero or very low UVB which provides no benefits. We have also found that some bulbs produce the wrong (too short) wavelengths of UVB (and in some cases, UVC) which can be harmful at close distances. Based on our preliminary data (in preparation

to be published), we can recommend the following bulbs (below) to be safe and provide the needed UVB. Birds that might benefit from a higher UVB bulb include birds on a poor (seed) diet, birds that are laying eggs and birds that do not get any natural sunlight.

High UVB

ZooMed Reptisun 5.0 linear tube

Hagen ExoTerra Reptiglo 5.0 linear tube

Low UVB

Arcadia Bird Lamp linear tube

Duro-Test Vita-Lite linear tube

Overall, the benefits of UV light warrant that every companion parrot should receive some exposure. Natural, unfiltered sun exposure (20-30 minutes a day, 2-3 times a week) in the warmer months is ideal. Birds with appropriately clipped wings or birds that are harnessed or caged can spend time outside once the weather is above 65° F. Avoid excessively hot days (temps above 80° F) and monitor for signs of heat stress, such as panting and opened wings. During the winter months, the use of UV bulbs is generally recommended. Bulb exposure (on time and distance) really depends on the bulb. The goal is to mimic mid-morning sun (UV index 2-4). Birds probably do not need as much exposure as reptiles. Remember to always mount the bulb from the top and allow for a UV gradient that gives the bird the ability to move away from the light. In general, the bulbs (recommended above) should be no closer than 6" from the top of the bird's head (from the highest perching spot in/on the cage) and keep the bulb no farther than 12-18." At the present time, I am recommending using linear tubes. Compact fluorescents and mercury vapor floods may be used with caution (CAREFULLY read the package inserts regarding safe distance and discontinue use immediately if you note any squinting, face rubbing or redness of the skin around the eyes). Remember to discuss UV lighting with your veterinarian as part of your wellness plan.

Dr. Wade is able to test your bulbs for UVB output as well as measure UV index for safety in the clinic or on-site for larger collections of birds. Call 759-0144 for more information.

Wade LL, Baines FM. Ultraviolet-induced Photokeratitis in a Meyer's Parrot (*Poicephalus meyeri*) and Ultraviolet-induced Photodermatitis in an African grey parrot (*Psittacus erithacus*). *Proc Annu Conf Assoc Avian Vet.* 2008;421-422.

Abstract: The use of synthetic ultraviolet (UV) lighting has been recommended for environmental enrichment in birds housed indoors. There are many health benefits, including vitamin D₃ synthesis with UVB and improved vision and behavior with UVA.^{1,2} However, high doses of UV radiation damage epithelial tissues, including the cornea, conjunctiva and skin.³⁻⁵ Recently, UVB induced photokeratoconjunctivitis have been reported in several reptile species.⁶ To the author's knowledge, there are no reports of a similar condition in companion birds.

A 12 year-old Meyer's parrot developed inflammation of the cornea after the introduction of a new linear fluorescent UV light above the cage. The bird exhibited intermittent squinting and face-rubbing. Clinical signs resolved within 72 hours of discontinuing exposure to the bulb. Spectrometer and broadband UV meter readings showed high levels of unusually low wavelength ultraviolet B output from the bulb above the birds' cage.

A 6 month-old African grey parrot developed inflammation of the skin around the eye after the introduction of a new compact fluorescent UV light above the cage. The bird exhibited redness of the unfeathered skin. Signs resolved within 72 hours of discontinuing exposure to the bulb. Readings from an identical bulb also showed high levels of unusually low wavelength ultraviolet B.

In the last several years, there has been an increase in number and variety of fluorescent UV spectrum bulbs available for exotic pets.⁷ However, consumer knowledge is poor and industry standards are lacking, especially for birds. We obtained spectrometer and broadband UV meter readings of 33 bulbs from 8 companies to characterize UV and visible light output.

References:

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