



Western New York Herpetological Society

www.wnyherp.org

Whenever the care of reptiles is discussed someone will always ask about UV lighting and whether it is needed or not. Many owners are confused on the kind of bulbs and the configuration needed. Hopefully we'll be able to help address some of the questions that many of you have about UV lighting.

So what is UV light anyway?

The term UV is short for Ultra Violet and is not visible by human eyes though it is a vital part of natural sunlight (like Infrared). UV light has three different wavelengths and is noted as UVA, UVB and UVC. In herpetology and herpetoculture only UVA and UVB are seen in marketing campaigns.

UVA is the visible (to herps) part of the wavelength. This will help induce natural behaviors in diurnal reptiles and amphibians like feeding, breeding and is good for their overall well being.

UVB is not visible. UVB helps some reptiles manufacture vitamin D3 as well as give us humans sunburns. Vitamin D3 is necessary for amphibians and reptiles to take advantage of the calcium in their diet. Without vitamin D3 they are unable to use the calcium and even if offered daily supplements, could still suffer from MBD (Metabolic Bone Disease). Herps, unlike humans cannot make their own vitamin D3 and require UVB light.

UVC is another portion of the invisible spectrum. It can be extremely dangerous and has been known to actually alter DNA. It is most often used in UV Sterilizers found in the aquarium and water gardening hobbies to kill algae and bacteria.

Do all reptiles or amphibians need UV light?

Not all herps need UV light. Nocturnal species like leopard geckos do not require UV light in captivity because they do not require it in the wild since they are only active at night and never receive UV. Most people also agree that snakes do not require UV light since they obtain vitamin D3 from their prey items.

Other animals like Green Iguanas, American Anoles, and Bearded Dragons all need UVB light. Diurnal herps from the tropics or desert will require more UVB than other herps and there are products specifically marketed for these animals. Without UVB these animals will suffer metabolic disorders and softening of their bones that will eventually lead to a slow, painful, lingering death years before their life expectancies. Many people do not realize that the five-dollar American Anole requires the same lighting setup as a Green Iguana and will balk at when they realize how expensive the lighting setup actually is. For those of you thinking about getting a first time herp you may want to consider a Leopard Gecko or Corn Snake which may be a bit more expensive than the Green Anole, but does not require the expense of special lighting.

OK, so how do I give my herps UV light?

There are several different ways of providing UV light to your animals. Common options include fluorescent tubes, fluorescent power compact bulbs, mercury vapor bulbs and good old fashion sunshine. Please also keep in mind that glass, plexi-glass filter almost all UV light. Even fine mesh can reduce the amount of UV light delivered to the animal. That is why that, if possible, there be nothing between the UV light source and the animal.

Fluorescent bulbs that provide UVA/UVB light have been around for several years now and are fairly reliable. They are the least expensive bulbs, usually available for about \$20 each or less. Please keep in mind that there are few standards when marketing these bulbs and they are all not made the same. Some manufactures such as Zoo Med® and Exo-Terra® as well as many others make excellent fluorescent bulbs. "Black lights" or plant lights do not usually provide sufficient UVB light and are not appropriate for exclusive use with animals that require UV light.

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There are some disadvantages however. These fluorescent tubes require more expensive fixtures and need to be within 6 – 24 inches (depending on the bulb manufacturer) of the animal to be effective. As stated above fluorescent bulbs do not provide heat so other methods such as incandescent basking bulbs or ceramic emitters will need to be used to provide sufficient heat for your animals. The UV fluorescent tubes work by using a special coating on the inside of the bulb to produce the UVB wavelength. Unfortunately this coating will degrade before the bulb burns out. Since we cannot see the UV wavelengths most manufactures recommend replacing all fluorescent tubes every 6 months, even if they look fine. We recommend that you use a permanent marker to date the bulb or keep a journal so you know when to replace it.

Fluorescent power compact bulbs are almost exactly like their tube cousins with the same benefits and disadvantages except they have been engineered to fit in a standard incandescent socket and do not require a special fixture. They also tend to be a bit more expensive and may not light the same area as a tube. These bulbs also need to be replaced every 6 months and the enclosure will require additional heat sources as well.

Newer mercury vapor bulbs have only recently appeared on the scene in the past couple of years. Mercury vapor bulbs provide many advantages over traditional fluorescent bulbs. Depending on the bulb used they can be several feet away from the animal and still provide sufficient UVB light. They also use regular incandescent fixtures and do not require special light fixtures. Mercury vapor bulbs also generate heat and can help heat an enclosure. These bulbs will also last for a year or more (depending on manufacture) and do not require to be changed as often.

These bulbs are significantly more expensive than fluorescent tubes and are often twice (or more) the price of the tubes. However after factoring in costs of fluorescent replacement costs, special fixtures, and additional energy costs to provide heat they will often be less expensive to maintain. In the course of a year a mercury vapor bulb can pay for itself. While they also provide heat, they do not provide as much heat as a basking bulb of similar wattage and your enclosure may still require additional heat sources depending on the species being kept. Some people have criticized these bulbs as having too much UVB light that causes some eye problems. The easiest way to avoid this problem is by providing a hide area in the basking area so the animal can get away from the light if it so chooses.

Lastly, nothing beats Mother Nature. None of the bulbs discussed above even comes close to providing as much UV light as natural sunlight. If possible try to provide appropriate outdoor enclosures for your animals so they can take advantage of the natural sunlight.

Unfortunately most of us live in areas where we cannot provide outdoor enclosures year round. In that case use one of the options above to provide adequate lighting in the cooler months. Care also needs to be taken when constructing outdoor enclosures. Simply placing your aquarium outside will generally not suffice since glass filters out UV light. Your aquarium will also act as a green house and you run the possibility of “cooking” your pet. Fine mesh screening can filter half or more of the UV light so when constructing outdoor enclosures try to use the largest possible mesh that will still allow you to safely contain your animal.

Wow, that was great! Where can I find more information about UV light?

Try checking out reptile related magazines and books for information. The Internet has become a wonderful source of information as well. Discussion sites like Kingsnake (<http://www.kingsnake.com>) offer many great forums to read. You may also find these sources helpful as well:

“UV Lighting” by California Zoological Supply (Cal. Zoo.). Available on-line at:
<http://www.calzoo.com/html/uvlighting.html>

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“Reptile Lighting” by Melissa Kaplan. Available on-line at: <http://www.anapsid.org/uvtable.html>

“UV Lighting: Sunshine on their Shoulders” by Bonnie J. Keller. Available on-line at:
<http://www.vareptilerescue.org/uvb.html>

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