

## Artificial Lighting

Ultraviolet (UV) radiation derived from sunlight is essential for the synthesis of vitamin D in many animals, including desert tortoises. Vitamin D3 is essential for the absorption of calcium and phosphorus from the diet. A deficiency of calcium and phosphorus in a tortoise can lead to development of a soft shell. Desert tortoises, including hatchlings and adults, should be kept outside so that they receive the proper amount of UV radiation.

Unfortunately, there is no safe, comparable substitute for natural sunlight for a captive animal. Artificial full spectrum lighting only meets the minimum UV radiation requirements for many reptiles kept indoors. Artificial lighting may be used when a veterinarian states that a tortoise must be kept indoors temporarily or intermittently, so below we provide information on the most effective and safest indoor lighting configurations.

The best lighting configuration incorporates a ceramic clip-on fixture with a self-ballasted mercury vapor bulb. The lighting unit should be situated 18-28" above the tortoise. Lower wattage externally ballasted lamps should be about 12" above the tortoise. The mercury vapor bulb provides the natural combination of bright UV-rich light and warmth which many ectothermic (cold-blooded) animals seek and require. Power Sun bulbs by ZooMed and Mega-Ray bulbs, available at [www.reptileUV.com](http://www.reptileUV.com), are recommended.

Heat tolerance limits of the tortoise must be accommodated at all times. A hide box should be provided on the coolest end of the enclosure allowing the animal to retreat from the light and heat. The lighting unit may be controlled by an electrical timer to insure a normal day and night cycle. Tortoises do well under an 11 hour day/13 hour night summer cycle. A period of darkness is essential. Lights should never be left on 24 hours a day.

Full spectrum bulbs become progressively weaker in UV output with time. Full-spectrum bulbs should be changed every six months to maintain optimal UV output.

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