UVB and Aquatic and Simi-Aquatic Turtles

What an extremely interesting subject. I just had to find time to respond to this thread.

First I would like to make the bold statement the vitamin D is not found in nature unless it was developed through the irradiation of UVB originally baring one very rare exception.

Second it should be noted that UVR (B) does penetrate water to certain depths. In one recent study on the effects of UVB on trout, UBV was measured at 5uW/cm2 at a depth of 21cm when a solar simulator was producing 190uW/cm2 at the surface. Naturally the less depth, the higher the UV reading increased significantly. This study was intended to find out what is in fish skin that helps stop "sun burn" and fungal infections produced by UVB (odd but true).

UVB is known to reduce the production on fungal infections of most turtles.

How much vitamin D is from diet and how much is from irradiation to UVR for aquatic turtles that never bask is really conjecture at this time and may be for quite some time yet. Can it hurt to use a UV source in this case? Since its part of the natural environment, I would venture not. As Rich mentioned, proper distance and levels should always be considered. I would imagine that this group of turtles would be very efficient at utilizing dietary D3. Why?

At the top of the food chain in the water is algae and plankton. Both of these contain very high amounts of vitamin D that is produced by its UVB exposure, so even the completely aquatic turtle living on small fish has access to great amounts of this important vitamin (hormone based). This is why many keepers of this specific group may feel that the use of commercial foods containing D3 are enough.

It should also be noted that aquatic turtles being fed "feeder fish" will most likely not be as healthy as the commercially fed turtles due to the fact that these fish are most likely lacking the high D3 content that the same feeders have in nature because they feed on high D3 algae.

Semi aquatic turtles that Dr Richard Lunsford mentioned, such as the common alligator snapping and mud turtles of New York, will certainly bask to a much greater extent when given the ability to expose themselves to natural levels of UVB produced by the MegaRay mercury vapor lamps. This is not from scientific study but rather observation with my own collection. This has been observed by many of my customers involved with wildlife rehabilitation and working with indigenous species of turtles. (Again, some of this to a certain degree may also be induced by the fact that the commercial food even tough fortified with supplemental D3 may not compare to the levels and quality of D3 in their natural
food.)

As an example of increased basking, one of my customers doing wildlife had a hatchling snapping turtle for a year. This creature had not grown and had a very poor appetite. It never basked even though it had a

fluorescent tube and a basking bulb. When given the ability to bask under naturally high levels of UVB from our **MegaRay** 100wt SB bulb, this creature spent hours basking. Its appetite increased to the point that its keeper said she couldn't feed it enough. Within a couple of months she said she could watch it grow almost in front of her eyes.

This is all just a single case and that of just observation and not a scientific study. But I hear this hundreds of times when proper UVB levels are introduced to the habitat. **Understand that although this is observation, it is observation of introducing what would naturally be involved in these species lives rather then a claim that a creature did better by eliminating what would be a natural part of its physiological nature.**

There is no doubt that species like the Red Eared Slider thoroughly enjoy basking under the heat and ultraviolet. Any turtle keeper that can't see it by the expression on the face of these creatures when stacked on a log in their natural habitat is blind. This may not be a scientific statement, but it's true.

Being what we are, we seem to always be obsessed with being able to "recreate" the creation in a way that fits our liking or circumstances. Generally to the demise of the very creatures that we have decided were ours to keep.

Best,

Bob Maccargar

-----Original Message-----
From: UVB_Meter_Owners@yahoogroups.com
[mailto:UVB_Meter_Owners@yahoogroups.com] On Behalf Of richardlunsford
Sent: Friday, December 16, 2005 5:42 PM
To: UVB_Meter_Owners@yahoogroups.com
Subject: [UVB_Meter_Owners] Re: Lights and Aquatic Turtle
is
Hi:
At TurtleForum.com we've got a lot of turtle keepers, more aquatic turtle keepers than tortoises & box turtles (but no shortage of either). There is a lot of interest in UV-B bulbs; some members believe it's an unnecessary expense & D3-containing foods like ReptoMin and Mazuri foods are fine, some would also give an additional supplement like RepCal D3 & calcium, and some outright advocate UV-B lighting as 'needed' to newcomers.
I wrote a Guide to UV-B Lighting for Austin's Turtle Page
http://www.austinsturtlepage.com/Articles/guidetolighting.htm (Note: I've submitted an update mentioning the fact T-Rex is now using Mega-Ray tech. (via Westron) for at least one of their bulbs).
and we've got a long-running thread on the subject in our Advanced Herpers' Section:
http://www.austinsturtlepage.com/Articles/guidetolighting.htm
Complicating this picture is that there are difference functional classes of turtles. For example:
1.) Strictly Aquatic - Fly River Turtles. To some extent alligator

snappers, although their heads come up for air during the day. Might be a little exposure there. Ditto for FRT's, I'd think.
2.) Limited Basking in Nature but often don't in captivity - Common Snapping Turtles, North American Softshell Turtles, Mud & Musk Turtles - I've photographed all those basking in the wild numerous times, but in many captive setups it seems rare.
3.) Frequent Baskers - sliders, cooters, painted turtles, chicken turtles, many others.
So the question for many is whether those brief exposures of the head & neck when the turtle surfaces for air are useful in species who don't bask much?
And remember, we've got some members interested in Mega-Rays who turn out of have, like, 20 gallon long tanks & don't own UV-B light meters. I advocate using Mega-Rays to people with the knowledge to know what they're doing, but the ReptiSun 5.0 is a more 'idiot-proof' solution for close-range situations (remember that a typical aquatic turtle setup is filled with water to within 4-6 inches from the top, & the bulb fixture is maybe 5-8" over the turtle). Even the ReptiSun 10.0 tube fluorescent can be very powerful at short range.
Now, to throw a wrench in the gears, so to speak, considering that on your discussion group it's been pointed out not all species can equally utilize dietary Vit. D3 (Green Iguanas aren't so good at it, right?), then I have to wonder if that also holds true for turtles (in which case more strictly herbivorous species like adult cooters who don't encounter much dietary D3 in the wild might be at risk).
Richard.