How Do Snakes And Other Reptiles Shed Their Skin!?

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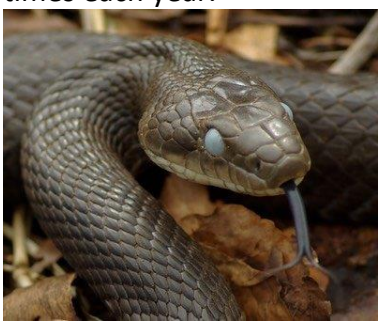
One question which is frequently asked, is just how exactly do snakes, and other reptiles, shed their skin? What causes them to do so? What is actually happening, physiologically underneath, when a reptile sheds their skin? And how are they similar (and different) from us, in these regards? Find our more in this educational article!

All living animals shed their skin periodically in some way or another, including humans. In addition to their skin, mammals shed their fur or hair, and birds their feathers or plumage for different seasons of the year. Fish continually secrete a layer of mucous over their skin known as sloughing, in which scales are being shed off continually, depending on their environmental and water conditions, but their shedding is usually not perceptible to the naked eye.

One might not realize it, but in our case, as well as for other mammals, for instance, shed millions of tiny, microscopic skin cells continually throughout our lives continually, and every day. Reptiles, on the other hand (including lizards, snakes, turtles and tortoises, and crocodilians), are a bit different in that their skin does not grow continually with them throughout their lives, and they must therefore shed their skin as a means of their growth much more periodically in one (in the case of snakes), or in several larger pieces up to several times each year.



*North American Ratsnake (Pantherophis spp.) with "blue" or "opaque" eyes or **spectacles**.*

Just as with our hair, nails, and other hardened areas of our skin, a reptile's skin and scales is

comprised of the same material as ours, known as **keratin**. Reptiles are covered with scales, which are hardened folds in the epidermal layers of the skin. These scales are usually arranged in rows along the body, the numbers and arrangement of which are characteristic of each group. When many reptiles shed their skin, you can see many of the details of the species, such as the scales and patterns or other markings and you can sometimes determine the species of reptile from its skin from the residual patterns and other visible marking left behind!

In reptiles, their abilities to produce replacement cells have been highly modified, and these skin and scale cells are not constantly produced independently of one another, but rather grow on the same cycle and form a single unit. Snakes therefore shed a layer of skin in one continuous piece, and the process of reptiles shedding their skin is known as "***ecdysis***". Most lizards will shed their skins in several large pieces, and turtles and tortoises shed the scutes from their plastrons and carapaces periodically. Even amphibians, such as frogs, toads, and salamanders also shed their skin in continual mucous-like skin which are cast off as their ways of shedding their skins.

American Toad (Anaxyrys americanus) eating its own skin.

Reptiles shed their skins for one, or for both, of two reasons, which are both similar and dissimilar to the reasons we shed our skins, albeit they do so much differently:

1. ***As their primary means of growth***. As described above, when snakes (or other reptiles) grow, their skin does not grow with them and becomes stretched. A newer and larger skin layer is generated and as soon as the new layer is complete the old layer (on the outside of the new layer) is discarded, leaving behind their old skin.

2. ***Healing injuries and parasites***. Shedding is also used as a way for these amazing animals to periodically remove harmful parasites and bacteria that may have been attached to their old skins, and for which they do not otherwise have any other good ways of periodically removing themselves from. Likewise, shedding their skin is one way in which these animals are able to heal from other physical injuries or trauma as well.
Much like how we start to notice peeling or flaking skin after a couple of weeks or so after we get a burn, or a scab, for example, which is our old, damaged skin our bodies are shedding off as it heals itself, reptiles are capable of the same feats, except that they shed their entire skin at once in response!

Painted Turtle (Chrysemys picta) shedding its scutes on its carapace.

The frequency of shedding in reptiles is thus much more variable, and depends on many different factors, such as the age, overall health and physical condition, and other temperature, humidity, and environmental factors. Juvenile, or hatchlings of many different species of reptiles, thus therefore, tend to shed more often or more frequently as they are growing and developing more rapidly. Thus, this is the main reason why a snake's, or other reptile's age cannot be determined by how many times they have shed, as they may shed up to several times each year (and likewise why counting the number of segments on the rattle of a rattlesnake also does not work for this same reason, as new segments are added each time these snakes shed there skin, and they are also fragile and can easily be broken off).

But what actually is happening underneath, physiologically, when a snake or other reptile begins to shed their skin, throughout this entire process? Let's take a look!

1. Prior to shedding, a snake or other reptile's skin and scales often becomes duller in color and intensity, and in the case of snakes, their eyes may become cloudy or blue. This is due to a fluid buildup between the old and new skin layers making it easier and more efficient for the old skin to be loosened and separated from the new skin underneath. This fluid is known as "***lymph***", which is a colorless fluid containing white blood cells, which bathes the tissues and drains through the lymphatic system into the bloodstream.

This is often casually known and referred to by hobbyists and others as being "***opaque***" or "***in the blue***", and many animals can become more irritable, nervous, or defensive during these times, as their vision is impaired and they cannot see as well as they normally would be able to. In other reptiles, it can be harder to tell, or predict when they are about to shed until they do.

Leopard Gecko (Eublepharis macularius) shedding its skin in several large pieces, and then eating it.

2. Most reptiles begin shedding by rubbing their snouts, or other parts of their bodies against rough surfaces and substrates such as rocks, logs, root systems, along themselves, and/or other coarse substrate in order to loosen the skin around their head. They will then slowly and gradually work, or crawl their way out of their old skins, which are turned inside out, using their body musculature and the rough surfaces around them to work off their shed. Depending on the animal and the species, as well as the environment around them, or sometimes other circumstances, it may take anywhere from a few hours to several days for a reptile to finish periodically shedding their skin.

3. Once the shedding process is complete, the reptile emerges with a shiny new skin, which is often brighter and more vibrant than the old one. Some animals, such as amphibians and many lizards, may then eat their old sheds as a way for them to regain some of the nutrients and supplementation lost during their shedding process, which is often why we do not see or find sheds from some groups of these animals in captivity, or in the wild.

4. After fully and completely shedding, the snake's eyes clear up, and their skin and overall coloration will appear fresh and vibrant. For the first few hours or days after each shed, their skin and scales can then be more sensitive and delicate; however, the snake or other reptile is then ready to continue their growth until whenever the next time they are ready to shed their skin may happen to be!