

Beak and Claw Care

by

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Excessive growth of the beak and claws is common in captive chelonians. Such overgrowth can be due to a number of causes, most of which are avoidable with good husbandry:^{1,2}

Presentation	Cause
Overgrowth of both beak and claws	Usually due to nutritional disorder (e.g., vitamin A deficiency, MBD*, excessive dietary protein)
Overgrowth of beak but not claws	Nutritional disorder, lack of adequate abrasiveness in the diet to properly wear the beak, beak malocclusion due to birth defect or trauma
Normal beak with elongation of the claws on both the front and rear feet	May reflect a lack of wear due to inappropriate substrate and lack of room for movement so animal is unable to properly wear down the claws
Normal beak with elongation of the claws on either the front or rear feet but not on both	Elongated set of claws on either the front or rear feet is a normal secondary sexual characteristic on many chelonians

*Causes of metabolic bone disease (MBD) include³:

- Diet deficient in calcium
- Negative dietary calcium/phosphorous ratio
- Diet deficient in suitable vitamin D
- Lack of exposure to appropriate ultraviolet light
- Disruption of vitamin D metabolism due to kidney, liver, intestinal or parathyroid disease, or possibly dietary excess of protein during growth periods
- Anything leading to inappetence resulting in inadequate calcium intake (e.g., inappropriate environmental provisions, such as inadequate heat)

Beak Overgrowth

The beak, a keratinized horny cover over the upper and lower jaws, grows continuously in chelonians. In the wild, the upper and lower beaks wear down as fast as they grow. In captivity, however, they often overgrow due to the causes outlined above.

If a beak becomes severely overgrown, it is essential to have it trimmed by an experienced veterinarian. Trimming is done with a high-speed electric drill, is painless, and does not require anesthesia unless the patient is uncooperative, pulling its head in or moving around too much. It is also necessary to determine the underlying cause of the overgrowth to eliminate the problem and

prevent its recurrence.

There is far more at stake than cosmetics in deciding to pay for a professional beak trim. An overgrown or improperly trimmed beak can have far-reaching negative consequences. It can impair the animal's ability to eat, leading to nutritional deficiencies and wasting, and their accompanying health problems. An overgrown beak can also lead to serious beak damage. In one reported case⁴, an overgrown beak in a sulcata (*Geochelone sulcata*) resulted in a split of the beak and horn covering the front of the lower jaw. Food became trapped at the base of the split and an infection developed. The resulting wound had to be surgically repaired under general anesthesia and the overgrown beak reshaped with an electric drill.

Mollusk-eating turtles, such as diamondback terrapins, possess heavily keratinized plates in their upper and lower jaws and are particularly prone to beak overgrowth in captivity where diets tend to be softer. Special care must be taken to examine their beaks regularly and determine if a beak trim is needed before it becomes a big problem.

There are several inexpensive books^{5,6,7} with valuable information on proper diets for turtles and tortoises that can help prevent overgrown beaks. In addition, the Tortoise Trust (www.tortoisetrust.org) has excellent articles on nutrition, including a new one devoted to promoting proper bone development and how to select a good calcium supplement. Information on a good diet for North American Box Turtles can be found at www.boxturtlefacts.org.

Care should be taken when supplementing animals suffering from MBD. Some MBD patients already have high blood phosphorous levels and this can be worsened by the use of supplements containing both calcium and phosphorous. Phosphorus-free calcium supplements (e.g. RepCal Phosphorus-Free Calcium with Vit. D3.) are readily available at many pet shops carrying reptile supplies.

Claw Overgrowth

Like beaks, claws grow continuously in chelonians. In the wild or in captive situations where the enclosure is spacious and the substrate is appropriate, chelonians can wear down the claws as fast as they grow. Unfortunately, captive tortoises and box turtles are often kept in cramped housing with nonabrasive substrates (e.g. newspaper, paper products like Carefresh® or wood shavings on a smooth floor). This can result in grossly overgrown claws. Aquatic and semi-aquatic turtles generally do not have a problem with claw overgrowth as a result of being housed in an abrasion free-environment (e.g., an aquarium with no substrate).

Excessive claw growth commonly results in loss of claws and digits; they easily get caught on enclosure furnishings. If such wounds are not treated right away, an infection can develop which may spread and cause more serious systemic infection.

Claws can grow so long that they prevent normal use of the feet, causing abnormal posture and movement, and possibly pressure sores on the footpads, especially in larger tortoises. These sores are painful and can lead to serious infections if not treated. Over a protracted period, overgrown claws can cause permanent deformity of the digits and or feet. As the animal ages, unnatural weight bearing may promote the onset and progression of painful arthritis in the joints.

An animal with overgrown claws is likely to injure itself when rubbing or scratching its head or body with its feet. It is also more likely to injure other animals it is housed with and the person who handles it!

There are two ways to trim claws.⁸ One is to cut them with sharp nail clippers specifically designed for that purpose. It is possible to accidentally cut too high up on the claw and hit the central blood vessel. In this case, apply a 5% solution of hydrogen peroxide to the claw tip with a cotton swab to

disinfect it. Wipe the claw dry with a fresh swab. Use a styptic stick to stop the bleeding (available at pet supply stores).

Claws can also be filed down using a high-speed electric file. At 20,000 rpm, the file will cauterize the blood vessel in the claw should it be hit. In my opinion, it is easy to have a mishap with an electric file and its use is best left in the hands of an experienced veterinarian.

Although it is tempting to trim back seriously overgrown claws all at once, it is best to do it over time. As the claws are trimmed back, the central blood vessel will retreat farther up the claw, making it possible to cut the claws shorter without hitting the vessel.

For sound information on how to correctly care for turtles see The Tortoise Trust website (tortoisetrust.org). There are excellent articles on selecting appropriate substrates to provide for proper claw wear, and enclosure design to ensure adequate exercise.



Overgrown claws are a common problem in box turtles that are kept in small aquariums where movement is restricted and in enclosures where the substrate does not allow normal claw wear. These active turtles should be kept in spacious enclosures in a deep loam soil or finely shredded hardwood mulch that allows the turtles to dig. This Eastern Box Turtle male spent 50 years in a ten-gallon tank on a cat litter substrate. After this picture was taken, his beak and claws were trimmed and he was given a spacious enclosure to allow sufficient movement to strengthen the leg muscles



Desert Box Turtle
(*Terrapene ornata luteola*)



Eastern Box Turtle
(*Terrapene carolina carolina*)



Ornate Box Turtle
(*Terrapene ornata ornata*)



Eastern Box Turtle
(*Terrapene carolina carolina*)

Normal Beaks



Eastern Box Turtle
(*Terrapene carolina carolina*)



Ornate Box Turtle
Terrapene ornata ornata



Three-toed Box Turtle
(*Terrapene carolina triunguis*)

Abnormal Beaks



Front foot Desert Box Turtle



Front foot Eastern Box Turtle



Hind foot: Eastern Box Turtle male



Hind foot Eastern Box Turtle female

Normal Feet (hind feet are sexually dimorphic)



Eastern Box Turtle



Eastern Box Turtle



Eastern Box Turtle

Abnormal Hind Feet

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