

Egg Binding (Dystocia) in Reptiles: Causes, Signs, Diagnosis, Treatment, and Prevention

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Egg-binding, also referred to as 'dystocia,' 'egg retention,' or 'post-ovulatory stasis' is common in many reptile species, including iguanas, snakes, and turtles. In many cases it is preventable with good nutrition and husbandry. It is extremely important to determine the cause of the egg-binding prior to treatment. Do NOT try to treat egg-binding yourself - always take your herp to a veterinarian.

What is egg-binding?

Egg-binding occurs when a female cannot pass the mature eggs formed in her reproductive system. In one survey it was found to occur in approximately 10% of the reptile population. It is reported more often in snakes and turtles, and less so in lizards. It is unclear if the difference is due to more snakes and turtles being bred, or if there actually is more dystocia in these species.

Complications of egg-binding include death of the young or eggs, peritonitis, inflammation and scarring of the reproductive tract leading to decreased fertility in the future, and death of the female.

What causes egg-binding?

Egg-binding can be due to:

- An anatomical defect in the female causing an obstructive dystocia, which makes it physically impossible for the egg to pass
- An overly large or malformed egg, or one that is not positioned correctly, is broken, or joined to other eggs (fractured)
- Poor condition of the mother (e.g., inactivity can lead to poor muscle tone and the inability to produce strong, repeated contractions). A female may become exhausted before she completes laying of all the eggs.
- Lack of or improper nesting site. A private, quiet area is needed, with the correct depth and selection of substrate for the species. (Lizards, especially, may make repeated attempts at digging a nest, but then never lay down to lay the eggs if the right nesting material is not present.)
- Improper temperature or incorrect temperature cycling, improper humidity, and/or incorrect lighting or photoperiod
- Malnutrition, especially if resulting in hypocalcemia (low blood levels of calcium). Obesity may also be a cause of egg binding.
- Dehydration
- Stress, such as overcrowding or too small of an enclosure.
- Hormonal or disease conditions such as infections of the reproductive organs, dehydration, or kidney disease (kidneys may become enlarged and partially block the pelvic area.)
- Breeding animals that are too young or too old, ill, or not in good condition. Excessive breeding of the same animal may also result in dystocia.

What are the signs of egg-binding?

The signs of egg-binding differ by species.

Snakes: In many cases, some eggs may be laid, but there remains a swelling in the caudal (towards the tail) half of the body. This may be hard to determine in large, well-muscled snakes such as pythons. Snakes may be egg-bound for days without showing any abnormal signs. Some snakes may show birthing efforts but are not able to produce an egg. They may become more active and show signs of discomfort by writhing.

Turtles: Turtles, as with snakes, may show few signs that they are egg-bound. Some may become depressed, have swelling at the cloaca or show breathing difficulties. They may strain, raise their hind quarters and dig with their hind feet without producing any eggs.

Lizards: Although normal gravid (pregnant) lizards may appear to have swollen abdomens and not be eating, they remain alert and active. Lizards with egg-binding rapidly become depressed, inactive, and lethargic. They may also raise their hind quarters and strain without producing any eggs. This is a serious condition, and could lead to death in several days.

How is egg-binding diagnosed?

Determining whether an animal is egg-bound versus normally gravid, can be very difficult. In most cases, radiographs (x-rays) will be taken to determine the size, shape, number, and location of any retained egg(s). Ultrasound can also be used.

The history is important including the date of mating, dates of shedding, and how long ago the signs appeared. A physical examination, together with laboratory testing, may help rule out other possible causes of the signs including constipation, urinary stones, and tumors.

How is egg-binding treated?

In general, if the signs are mild, treatment is conservative, with correction of any husbandry problems. For snakes and turtles who have already laid some eggs, unless an obvious abnormality is found, treatment is usually withheld for 48 hours. If given the right nesting material, and the proper and quiet environmental conditions, many females will start to produce eggs. If the female produces no eggs within 48 hours, additional treatment is usually begun. If no eggs have been laid, and an obvious dystocia is present, treatment should begin immediately.

For lizards, treatment should begin immediately. If the animal is dehydrated, that condition should be treated prior to treatment to remove the egg.

The four main courses of treatment include:

- Physical manipulation
- Hormonal stimulation
- Removal of the egg contents (ovocentesis)
- Surgical removal of the eggs.

Physical manipulation

Very experienced herpetologists or reptilian veterinarians may try gently applying pressure to produce the egg, after lubricating the cloaca. This must be done with extreme care since it could cause rupture of the reproductive tract, a prolapse (the reproductive tract is pushed through the cloaca inside out), and death. Some have advocated warm water baths, which may stimulate the production of the egg.

Hormonal stimulation

Injections of [oxytocin](#) or arginine vasotocin can cause contraction of the reproductive tract and the passing of the egg. (Oxytocin is the hormone produced by mammals; arginine vasotocin is the reptilian equivalent. It is very expensive and unstable, however.) In some instances, calcium may be given by injection prior to the use of hormones. Neither oxytocin or arginine vasotocin should be used if there is an obstruction. It could cause rupture of the reproductive tract or the egg, bleeding, and possibly death. To be most effective, either of these hormones should be given within the first 48 hours of dystocia. Hormones are most effective in turtles, in which over 90% respond. They can also be beneficial in lizards, and are least effective (less than 50%) in snakes.

Treatments with other hormones (estrogen and progesterone) along with calcium or propranolol (an anesthetic) have been attempted, however, more research needs to be performed to determine their safety and effectiveness.

Ovocentesis

In snakes, the contents of the retained egg can be removed by passing a needle through the skin and into the egg, and withdrawing the liquid contents (percutaneous ovocentesis). This will make the egg smaller, and easier to pass. This procedure, too, has risks. The contents of the egg must not leak out into the snake, or a severe inflammation can develop. This procedure needs to be performed within 48 hours of the onset of dystocia or the contents of the egg will become too solid to be removed.

In turtles, the contents of the egg can be removed also if the egg is visible at the cloaca, and the needle can be inserted directly into the egg (cloacal ovocentesis).

Ovocentesis is not commonly used in lizards.

Surgical removal

In a snake, if the above treatments have not been successful, the snake should be anesthetized. With the resulting relaxation, it may be possible to gently physically manipulate the egg and remove it. Extreme care must be used. If that is not successful, surgery to remove the eggs is indicated.

Surgical removal of eggs in turtles is more complicated, but can be performed. Recovery time usually is much longer for these species.

In a lizard, if there are many eggs, and there is no intention of breeding her, the reproductive tract can be removed along with the eggs. This will prevent recurrence of the problem, and is also a much faster procedure requiring less anesthetic time and easier recovery. The reproductive tract is very thin and delicate, making it very difficult to suture back together.

What is the prognosis for herps who are egg-bound?

If the female is healthy, most animals will recover and have an excellent prognosis. In most cases, the female will continue to be able to reproduce if the reproductive tract was not damaged or removed. A snake who has been egg-bound, may be more prone to the condition in the future. If the condition was due to husbandry or malnutrition and these were not corrected, the condition is more likely to recur.

How is egg-binding prevented?

Proper husbandry and nutrition are key, and some veterinarians suggest 99% of the problems could be avoided through proper management. Only the animals in the best condition, size, and correct breeding age should be used for breeding. Those who have had prior reproductive problems may need to be removed from the breeding program.

It is vitally important to provide the appropriate nesting location, substrate, temperature, and humidity for the species. Cages should be located in a quiet area and be of adequate size with appropriate furnishings to allow females room to move about and maintain muscle tone. Proper nutrition, including adequate mineral intake are essential. Good record-keeping of mating and shedding dates may help in determining if dystocia is present.

Many female lizards, such as iguanas, can produce eggs without the presence of a male, so merely isolating the female from the male will not prevent the condition.