

Feeding Mechanism in Snakes and Venom

All Snakes are Carnivorous, with over 2900 different species. Some Snakes have highly specialized diets (eggs, lizards, frogs, fish, fish eggs or invertebrates such as slugs or termites).

Snakes don't chew their food and prey is eaten whole including upto 30% pre-digested vegetable matter which comes from the prey animals.

Since Snakes are capable of swallowing very large animals through the mouth gap which can be widened enormously, this is possible because of the peculiar structure of the skull. The gastero-intestinal tract of the Snake is simple and relatively short compared to other reptiles. Due to this aspect of comparative physiology, it is vital that their anatomy gives a high quality diet in capacity to maximise the absorption of essential nutrients.

Size and type of prey

The size of the prey can be about the same diameter as the Snakes head. Snakes can be fed whole prey in order to mimic a Snake diet in the wild. The feeding of pieces of prey can lead to diet related to diseases. In general Snakes will eat whole animals and nutritional problems are relatively uncommon.

Frequency of feeding

- (1) Young growing Snakes may require food every 2 to 3 days
- (2) Active Snakes such as garter Snakes require several feeds per week.
- (3) Small adult Snakes may eat weekly or more often
- (4) Giant Snakes may only eat 4 to 6 times yearly

Snakes may not feed during ecdysis and some
some snakes do not feed during the breeding season.

Structural adaptations

- ① The two rami of lower jaw are loosely connected anteriorly by an elastic ligament which permits lateral expansion.
- ② The lower jaw is also loosely attached posteriorly to the quadrate bone which is thus also loosely attached to the skull.
- ③ Bones of the palate are also movable. These features allow the mouth to expand beyond thus the diameter of the snakes itself.
- ④ The pectoral girdle is absent.
- ⑤ There is no sternum so that the ribs are free ventrally. As a result the throat and body are also capable of great distention.
- ⑥ The glottis is located far anterior in the floor of mouth opening just behind the lower front teeth. Thus breathing is not interfered with while swallowing.
- ⑦ The cartilage of trachea of trachea prevent it from being closed so that air passage remains open for breathing while swallowing.

During swallowing, their sharp teeth which curve inward prevent the prey from slipping forward. By moving the two sides of jaw alternately, the snake gradually pushes the prey down into its oesophagus through which it passes by peristaltic movement into stomach. The absence of pectoral girdle and sternum also facilitates the process of swallowing.

Snakes Swallow Larger Snake too.

After the King Snake constricted and subdued its prey, it began the "exhaustive transport cycle" to get the slithering snake into its belly. Called "pecking walk", the King Snake opened up its jaw and alternately gaped the toothy part of its upper jaw over the surface of the prey. In turn "walking" its mouth over and around the prey.

So deep pull in its prey, the King Snake compressed its own vertebral column into a series of concertina like waves that shortened and lengthened its body.

The King Snake forced the prey's vertebral column to bend into waves and compresses it if necessary. Even with eyes bigger than its stomach, the King Snake could package its meal to ensure a perfect fit inside its gastrointestinal tract.

With all that work, most of the King Snakes regurgitated partially digested prey. Just one snake snake completely digested its prey a feat that took 15 days.

Snakes Venom

The poison which is secreted by the poison glands in poisonous snakes is called venom and is injected into the body of the victim by means of fangs, which act as sharp needles. It is clear straw colored or greenish liquid containing a complex mixture of powerful enzymes. Even dried venom keeps its poisonous properties for an indefinite period and can be readily dissolved in water, showing most poisons have no taste. The cobra poison is reported to taste much better. On the basis of the

action in the body of the victim there are two main types of venoms which are as follows:—

- (i) Haemotoxin - This causes tissue destruction, intense haemorrhage and local swelling. Blood vessels and blood cells are also destroyed by it. This type of venom is found in viper and krait.
- (ii) Neurotoxin - It affects various nerve tissues and nerve centres. It causes paralysis of muscle which causes respiratory movements and the victim may die of asphyxia or suffocation. Clotting power of blood is reduced and so there is profuse bleeding. It also produces low blood pressure and heart failure.

It also destroys the endothelium of blood capillaries and blood cells. It is found in Cobras, Coral Snakes and some vipers. Cobra's poison is more virulent than that of viper, and causes asphyxia and profuse bleeding.

The degree of virulence of Snake venom may differ in the same snake under different conditions and it of course varies in different types of snakes.

To kill the victim, it is necessary that the lethal dose be injected, the victim receives it timely treatment is undertaken. The antivenom serum or antivenin is the blood serum of horses which have been immunized against snake venom.

Different antivenoms are used for different snake bites. Snake venom is used in the preparation of some medicines also.
