

Carolina Anole

Digestive Tract



Digestive Organs

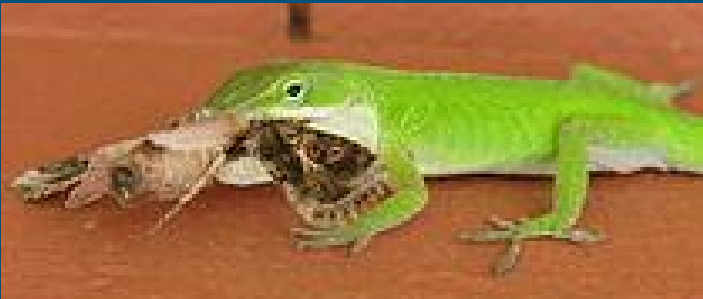
- Tongue
The tongue is a muscular organ that controls the food while it is in the mouth. It also pushes food back to swallow the food down into the esophagus.
- Esophagus
The esophagus is another muscular organ that transports the food from the mouth to the stomach. It is a long tube surrounded by small muscles that squeeze the esophagus to push down the food.
- Stomach
The stomach sterilizes and breaks down the food with acids, as well as grinding the food in the cardiac part of the stomach. It also does the initial digestion of proteins.
- Small Intestine
The small intestine is mostly made up of the duodenum, which winds around and connects to the liver and pancreas. The small intestine does the majority of digestion using the enzymes, including breaking down lipids and fats. The last part of the small intestine, the ileum, connects to the large intestine.
- Liver
The liver does many things, but in the digestive system liver cells, hepatocytes, produce bile. Bile is a greenish substance that consists of water, bile salts, and cholesterol. The bile goes through the bile ducts in the liver into the gall bladder.

More Digestive Organs

- Pancreas
The pancreas creates enzymes like amylase, lipase, and proteases for chemical digestion in the duodenum. These enzymes help separate the nutrients from each other so that they can be digested and absorbed by the body.
- Gallbladder
The liver has many functions, so the bile it produces has to go somewhere else, the gallbladder. The gallbladder stores the bile temporarily, and connects to the Duodenum to add the bile to the digestion process.
- Large Intestine
The large intestine is made up of the cecum, colon, and the short rectum. The cecum, a small pouch that connects the two intestines, does nothing in insectivores like lizards, because their diets are not based on cellulose, which the cecum ferments. The main purpose of the colon in insectivores is to reabsorbing water, vitamins, and electrolytes. The colon also digests the very few nutrients left in the food after the small intestine.
- Rectum
The rectum connects the digestive tract to the anus. It is a tube, but also a storage organ. It briefly stores the waste from digestion, until the sphincter muscles push it out.

Diet

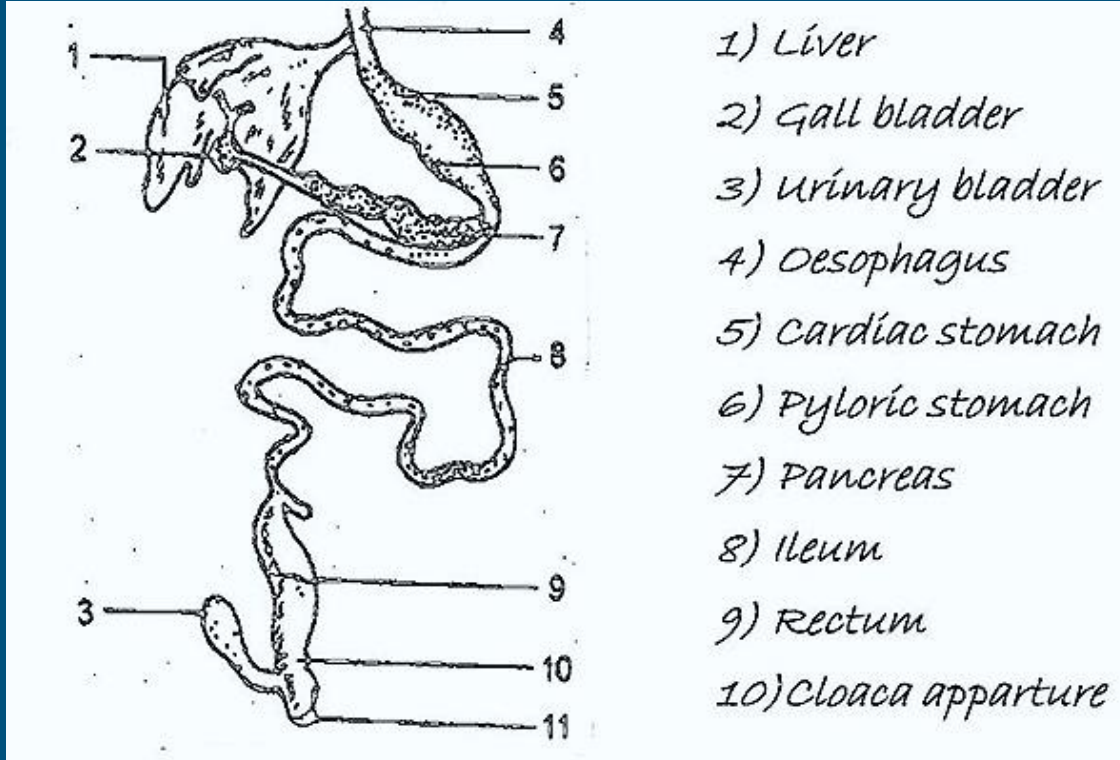
The Carolina Anoles are insectivorous creatures, meaning that they primarily eat insects. These small lizards enjoy eating crickets, grasshoppers, spiders, flies and other arthropods. Many are kept in captivity as small pets, and can be hand fed mealworms, maggots, and small crickets. These lizards are predators that like to wait up in trees, bushes, or on high rocks for their prey to wander too close, and then snatch them.



Digestion Tract

1. The food first enters the lizard through the mouth, where it is then chewed by its teeth. Because the lizard eats insects and bugs, it doesn't take a lot of effort to chew it up, as opposed to other creatures that eat plants. After being chewed, the food is swallowed down the esophagus.
2. After being swallowed, the stomach breaks down the food. The acids break down the food and soften it, and the stomach also begins the digestion.
3. The small intestine, pancreas, and liver are next, and they all happen at the same time. The small intestine connects to the stomach, and the duodenum is connected to the pancreas, and the gall bladder, that stores the bile from the liver. The small intestine uses the bile and enzymes to do most of the digestion.
4. Lastly, the last of the valuables are salvaged by the large intestine, which then takes the waste to the rectum, and eventually to the anus.

Preview of Digestive Tract



Nutrient Absorption

The first place where nutrients begin to be absorbed, is in the stomach. The stomach begins the digestion of protein by Pepsin. Pepsin is an enzyme that is emitted by the lining of the stomach. The majority of the food, the remaining proteins, the carbohydrates, and the fats. The nutrients from digestion, in all the organs I should add, are absorbed into the body through the membranes of the organs. The last place then, where nutrients are absorbed, is the colon. The colon reabsorbs the water, vitamins, or electrolytes that remain.

Sewage

Because the Carolina Anole eats insects, its waste cycle is fairly simple. Unlike herbivores, they do not need to spend a lot of time fermenting their waste, or gathering many nutrients from it. The colon first reabsorbs any of the remaining water or nutrients, and then sends it to the rectum. The rectum then temporarily stores the waste until it has reached its full capacity. Once that happens, the lizard needs to excrete the waste, poop, through the anus. In order to do this, the rectum pushes the waste into the cloaca. The cloaca briefly stores the waste, and then excretes the poop and uric acid together through the anus/cloaca opening.

Structural Adaptations

Color change - This lizard, the American Chameleon, can change its color from the brightest green, to the dullest brown and varying shades in between. The color change is a result of background, stress level, temperature, and what they are doing. This unique camouflage helps them survive in a variety of environments from predators, and being successful hunters.

Adhesive pads - these pads help the anoles climb up different plants to their domains for hiding and hunting. These pads are especially useful in areas near cities, so that they can climb the smooth poles and walls.

Autotomy - the tails of these lizards are able to break off at specific points to escape predators, and also continues to wiggle strongly for a few minutes after being broken off. A new tail will grow back, but not as strong or long as the first.

More Structural Adaptations

Dewlap - the Dewlap is a throat fan that is extended out to ward off predators and attract females. While the body of the Anole is green or brown, the dewlap is brightly colored with red, yellow, and orange. The wider the display, the more powerful the Anole and more attractive.

Claws - the claws of the anoles, as well as their toe pads help them climb, and catch prey. The claws are used for climbing when the anoles are on surface that isn't smooth.

Digestive System Adaptations

Low pH level - the acids in the stomach of *A. Carolinensis* is much more acidic like other insectivores/carnivores. This is an adaptation to the higher risk of disease or bacteria in the insects, as opposed to plants. This helps keep the Anole healthy enough to continue to keep the insect population down.

Shorter - the Digestive Tract of carnivores is shorter because the food that they are digesting is more likely to become rotten or spoiled. So to avoid infection, or stomach upset the system is shorter, so that the food spends less time inside the body. This is specially designed for the anole's diet, and so that it can consume the plant devouring insects.

Just one more

Water absorption - Unlike herbivores and omnivores, the colon focuses on reabsorbing water to stay hydrated, Lizards put more effort into obtaining their food, which means they need more water. This adaptation helps the anoles hunt down the insects, to control their population.

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Images from Wikipedia, Diagram from BioZoom, <http://volusianaturalist.com>.