

Digestive of a chicken



**ASSIGN
BUSTER**

THE DIGESTIVE SYSTEM OF CHICKEN In most livestock, teeth function to grind feed into smaller particles. Birds must pass feed usually whole into the esophagus because they do not have teeth. Therefore, particles of poultry feed should be small enough to pass through the esophagus. Feed passes from the mouth and through the precrop esophagus to the crop. If the proventriculus and gizzard are full, feed is stored in the crop. Feed is also moistened in the crop. Feed passes from the crop through the postcrop esophagus to the proventriculus. The proventriculus (a glandular type of stomach) secretes acid and enzymes. The acid and enzymes are mixed with the feed to start the digestive process. The feed then passes to the gizzard (a mechanical type of stomach). The gizzard has very strong muscular walls that grind the feed. Depending on the type of feed ingested, poultry may also swallow small rocks. These rocks aid in the grinding of harder feed particles in the gizzard. Feed passes from the gizzard into the small intestine, where additional enzymes are added and digestion occurs. The small intestine also serves to absorb digestion products (proteins, carbohydrates, and fats). You should notice in the photo above that the first part of the small intestine loops around the pancreas (called the duodenal loop). The pancreas secretes digestive enzymes into the small intestine. The small intestine of a mature chicken is more than 4.5 feet in length, which is necessary to provide the surface area required to absorb digested feed. Two blind pouches called the ceca (singular: cecum) are attached at the junction between the small intestine and large intestine. Microorganisms capable of breaking down fibrous material live in the ceca. However, this is not a significant part of the digestion system in modern birds. Scientists believe that the ceca may have played an important role in the digestion system of

ancestors of modern birds. The large intestine of a mature chicken is relatively short, about 4 inches in length. The large intestine stores undigested waste material and absorbs water from the material. The large intestine connects to the cloaca, which is where the digestive, urinary, and reproductive systems meet. Uric acid is mixed with feces and passes out of the vent. The vent serves also as the point where eggs pass out of the bird body.

Digestive System in Cockroach (Invertebrates) The digestive system includes the mouth parts, a pair of salivary glands and the alimentary canal.

Mouthparts of cockroach To understand the position of the mouth parts observe the external features of cockroach in diagram below. The body of the cockroach is segmented into three portions head, thorax and abdomen. The mouth parts are attached to the ventral side (underside) of the head portion and surround the mouth or oral cavity which face down. The different mouth parts are:

- Labrum** or the upper lip. It is a broad, roughly rectangular shaped structure. It hangs from the front edge of the head on the lower side. It covers the mouth and the mandibles.
- Mandibles** They are a pair of hard, strong, large, dark coloured triangular structures found one on either side with jagged inner edges and the two mandibles move in horizontal motion and crush food between them.
- Maxillae** Maxillae are a pair of structures lying outside and behind the mandibles. Each of them consists of three parts - protopodite, exopodite and endopodite. Protopodite consists of cardo and stipes, exopodite is 5-segmented and sensory, also called maxillary palp and endopodite is made up of inner lacinia and outer galea. The maxillae are used to manipulate the food before it enters the mouth.
- Labium** It is said to be formed by the fusion of the second pair of maxillae. It forms the broad median lower lip consisting of several parts in addition to a pair of 3-

segmented labial palps on either side. The maxillary and labial palps have sense organs that help them to choose suitable food. The mandibles and the maxillae grind the food by moving it laterally. The labrum and labium help to hold the food between the mandibles and the maxillae. Alimentary canal

Digestion takes place in specialized cavities joined together to form a continuous canal. It is called the alimentary canal. The alimentary canal is divided into three main portions- Foregut Foregut consists of the mouth surrounded by the mouthparts. The mouth cavity is called the pharynx. It continues as the oesophagus that is short, narrow and thin-walled. The canal then enlarges into the crop, which is also thin-walled. The crop opens into a short, muscular organ, the gizzard or the proventriculus. Outside and lying below the crop are a pair of salivary glands. Each salivary gland is branched, the secretions of all the branches being poured into a common duct. For either pair of salivary glands there is a thin walled salivary receptacle or reservoir which is like a bladder. It stores the salivary secretions. The receptacles of either side have a common receptacular duct which opens into the common salivary duct. This common salivary duct opens into the mouth cavity at the labium. The entire foregut is lined with chitin. In the gizzard, the chitin forms proventricular teeth and the plate to facilitate grinding of the food. Midgut Midgut forms the true gut or the mesenteron and consists entirely of stomach or ventriculus. At the junction of the gizzard and stomach are six pairs of gastric caecae ('gastric' means pertaining to stomach). These are pouch-like structures arranged in a ring-like manner around the anterior end of the stomach. The anterior lobe of each pair of the caecae extends over the proventriculus and the posterior lobe extends over the ventriculus. The caecae secrete digestive juices and pour them into the

stomach. The midgut is not lined by chitin or cuticle but by a peritrophic membrane. This membrane protects the stomach wall from abrasions and is fully permeable to enzymes and digested food. Hindgut Hindgut is a coiled structure consisting of anterior ileum, middle colon and posterior rectum. The rectum opens to the exterior through the anus. The hindgut is lined by cuticle. At the junction of the stomach and ileum are attached numerous long tubules called the Malpighian tubules. Mechanism of digestion Digestion starts in the mouth with the mandibles and the maxillae chewing the food. It is also acted upon by the salivary carbohydrases which partially digests the food. The food is then swallowed with the help of lubrication provided by the salivary juice. The food then enters the oesophagus and then into the crop. Here, the masticated food is temporarily stored. The food is then passed into the gizzard which acts as the grinding chamber. At the junction of the gizzard and the stomach is a valve called the stomodaeal valve. It allows the passage of only the thoroughly digested food into the stomach and also, prevents the regurgitation of food from the stomach. The ground food then enters the stomach. The digestive enzymes secreted by the gastric caecae act upon the food in the stomach. These enzymes include amylase, maltase, invertase, tryptase and lipase. The remaining carbohydrates, proteins and fats are digested here. The digested food is absorbed through the stomach walls into the surrounding space which is called the haemocoel. The haemocoel consists of a large number of fat bodies which are fat cells having fat globules, protein granules and glycogen. They form storage structures. From here, it is transported to the different body parts. In the hindgut, absorption of water takes place and the undigested food is formed into almost dry pellets. These are excreted through the anus as faeces. Digestive

system of jellyfish The digestive system breaks down food by going through the villi and it break it down into molecules and then it gets into the blood stream breaking down. The digestive system of a jellyfish is simply a cavity (coelenteron or enteric cavity) with a 'mouth' into which food is taken; the digestible portion is dissolved and absorbed in this cavity, and the remains are ejected back through the mo. Digestive system of rat There are several similarities between the digestive system of a rat and a human as far as location and function are concerned. Both mammals possess the three main areas of the digestive system: salivary glands, the oral cavity, and the abdominal cavity. Each of these is subdivided into specific organs. Digestion, by definition, is the process by which food substances are chemically altered into forms of energy where they can be absorbed through cell membranes. Because a rat's digestive tract is so similar to that of a human, it is fair to say that they function in similar ways. An animal's diet is revealed by its dentition pattern. This refers to the types of teeth the animal has, the number of teeth, and how they are arranged. There are three main types of dentition patterns: herbivorous, carnivorous, and omnivorous. Rats and humans are both omnivores, meaning they eat meat and vegetation. Rats, however, need to chew more rough food, like tree bark, and in domestic rats, chew toys. This is because their front incisor teeth would, if left to grow freely with nothing to wear it down would grow through the rodents jaw. This of course, would never happen with humans. Human teeth stop growing after they reach a certain point. Another major difference between the rat and human digestive tract, aka the alimentary canal, is the fact that while we as humans have gall bladders, rats do not. Instead of a gall bladder, rats have a bile duct (ductus choledochus) which is formed from several tubes

from the liver. the various lobes of the liver unite to form this tube (the bile duct) and this allows the transport of bile into the duodenum. Also, because rats do not have gall bladders, they are more apt to graze constantly throughout the day, which is why (if you have a pet rat--though i doubt this..) you are not supposed to just continually feed them throughout the day.

Because they do not have a gene to trigger a feeling of fullness, rats would (along with other rodents, such as guinea pigs, hamsters and mice) literally eat themselves to death. And finally, because i have to finish a lab report (on a rat dissection no doubt).. when the food enters the caecum (latin spelling of the word.. it can also be spelled cecum!) the nutrients is then absorbed.

Many anumanls, including man, have a short veriform appendix at the end of the cecum, this is absent in the rat. Oh and rats do not have uvula (i do not know if i said that already) but its true (haha i are dork!)

Digestive system of dog
THE COMPONENTS OF A DOG'S DIGESTIVE SYSTEM: The visible components are the organs and the physical remedies the dog has available to digest food. There are some significant and very obvious differences to what you have in your body. These are fairly easy to understand, because the differences can be observed, even by a layperson.. The dog's digestive system (= gastrointestinal system — or GI system for short) is composed of the mouth, with teeth, jaws, and saliva, the esophagus, the stomach, with connections to the pancreas and the liver The intestine The colon with its bacterial florae the rectum with anus. The mouth, including teeth, jaws, and saliva The fang teeth are there to grab and hold and tear. The front teeth are there to scrape meat off bones. The incisors (small " saw teeth") are there to grab and hold. The big incisors are there to cut - acting as a pair of scissors. And the molars in-behind is there to crush. The jaws are fairly long, enabling

the fang to grab quite large objects. The muscles that control the jaws are some of the most powerful muscles in the dog's entire body. One more important thing, which you might not have noticed yet, the dog cannot move its jaws sideward. The fang teeth make it impossible, and the jaw joint is a stiff hinge joint. If your dog trusts you well, it might allow you to test this by trying to gently move its lower jaw from side to side - but if you ever get your hands on a skull of a dog, you can very quickly verify this. The enzymes that catalyze food are absent in dog saliva! Dogs have no need for chewing their food. They can't. Their stomach takes care of all the digestion, without any support from the saliva. The dog's saliva serves the purpose of being a lubricant for swallowing so the food easily gets through the esophagus, and that's about it! The canine stomach - and how it digests food The dog's stomach is like an accordion that folds to almost a thin intestine-like organ when it is empty, and when filled, it expands to full size, unfolding all the wrinkles. The stomach has some very strong muscle in its lining, and it will constantly massage the food, thus making sure the digestive juices get into close contact with the food. The dog's stomach will take up some 70-75% of the total volume of the entire gastrointestinal system. It is huge. The human stomach will be only a small fraction of the system, taking up only about 20% of its total volume. The stomach will continue the digestion process till more or less all digestible pieces of food have been dissolved. When finished with the digestion process, the strong muscles will squeeze the now liquid mass into the intestine for the final finish of the process and for the absorption of the nutrients. In general, all this is geared towards the stomach handling big portions of food at a time The dog's stomach is a depot organ - the human stomach is merely a transit station. Another important aspect

that is often ignored is that a dog's stomach is not supposed to be working constantly. It is meant to do a lot of hard work for some time — and then rest for a long period of time. It makes sense that it needs rest, considering how much harder it has to work, compared to a human stomach. Yet, a human stomach generally gets some serious rest every night. Our meals typically take no more than about 3-4 hours for the stomach to finish and hand over to the intestine, so even if we get a " good night snack" just before bed time, there will still be 4-6 hours rest available for the stomach before breakfast. For the dog, digestion of a full meal can easily take more than 24 hours....

Another important aspect of the stomach's function is the connection between the stomach resting and the liver functioning in a different mode! The essence of this very complicated process is that, as long as the stomach is active and digests food, the digested nutrients will enter into the blood stream, typically through the intestine. Those will include many smaller molecules, also small carbohydrates that can be used by the body immediately as fuel. Basically, while this happens, the liver is running mainly a " garbage clean-up" production; it does not do much to contribute to the production of simple carbohydrates. The intestines and finishing the digestion process: The intestine handles the food on a continuous basis, like the workers along a conveyor belt in an assembly plant. The food comes in at one end and then gets pushed through the intestine until it comes out of the other end. The food travels along the intestines as time passes on. The specific position of it along the length of the intestine is determined by the time it has spent in the intestine. Food that is close to the stomach has not been in the intestine for very long, whereas food that is close to the colon has been traveling through almost the entire intestine. The relative length of

the intestine tells us a lot about the role of the stomach. For the dog, the short intestine reveals that the stomach is where the main digestion takes place. For a human, the long intestine indicates that the stomach's role in the digestion process is nothing more than a preparation for the "real digestion" that takes place in the intestine. The colon and its bacterial flora: Finally, when the small intestine has done its job, the remains of the liquid food mass is passed to the colon. The colon's main function is really to absorb the water from what now is going to become the stool. Water is important as transport medium for the enzymes, and when their job is done, the dog might as well make good use of all the water in the mix. This is the same as for a human. As the colon dries the food mass, these bacteria have a chance to thrive on the remains of the food, and, in the process of them eating some of it, they also generate some additional nutrients which the colon will absorb too. Sometimes, however, these bacteria will generate some gasses also, through some fermenting-like processes. Dependent on the food sources and also on the specific bacteria in the colon, these gasses can be more or less offensive to a human nose... Diarrhea and runny stools: This means that the speed the colon uses to do its job is linked to the speed the intestine sets. If the intestine speeds up, the colon has to do the same thing - it cannot accumulate any partially digested food. This becomes important because a fast processing from the colon's side means a low efficiency for the water absorption - which, in turn, means "loose stool", if not diarrhea.... For the dog, this is not necessarily the case. The strong acid in its stomach will kill practically all of those bacteria that would normally harm a human. But that would not make the intestine speed up the absorption process... Stinky gas...: Although the unpleasant gases are

discharged through the anus, they are normally generated in the colon. The reason is almost always that there are imbalances among the bacteria that live in the colon. Some bacteria ferment parts of the food — and generate those gases in the process. The problem is not simple to deal with. To solve it, you need to get the bacterial flora in the colon back to its natural balance. To do this without a clue as to what exactly it is that is out of balance is quite challenging, to put it mildly. Sometimes, a change of the food can work, avoiding specific foods that nourish the “ wrong” bacteria. Certain foods will typically make the situation worse than others. You can then simply try to avoid the “ trouble-makers”. Carbohydrates are very often major culprits for this, but excessive vegetables of many kinds can easily nourish such fermentation processes. Sometimes adding certain supplements can do it. There are many herbal remedies that will have those kinds of effects of the bacterial flora in the colon; many bacteria do not like certain herbs — so if you can find the right combination of herbs that will work on the exact problem you are dealing with, you can solve the problem.

Shark Digestive System Most sharks swallow their food whole or bite it into relatively large pieces. Sharks have U-shaped stomachs that use very strong acids and enzymes to dissolve most of what is eaten. The stomach produces an easily absorbed, soupy mush. Only this liquid mush enters the intestines because the pyloric valve (the valve between the stomach and the intestines) is small. Indigestible things, (like very large bones and non-nutritive items) are vomited. Absorption of nutrients takes place in the intestines. Although the intestines are short, they have a large surface area due to infolding of the inner surface of the intestines. Some shark intestines are arranged in folds, some are in a spiral pattern, like a spiral staircase enclosed within a cylinder.