

The Digestive System of A Deer

Classification

Phylum: Chordata
Class: Mammalia
Order: Artiodactyla
Family: Cervidae
Genus: Odocoileinae

**You could not live on the diet of a deer.
How is a deer able to do it?**

Deer survive on leaves, grass blades, and other plant parts.

These parts are made of cellulose. Cellulose is a molecule we cannot digest. Actually the deer can't either. So how can they use this as food?

Deer have many adaptations that help them to digest this cellulose. These adaptations include special behaviors, specialized digestive system, and a symbiotic relationship with microorganisms.

What is a symbiotic relationship?

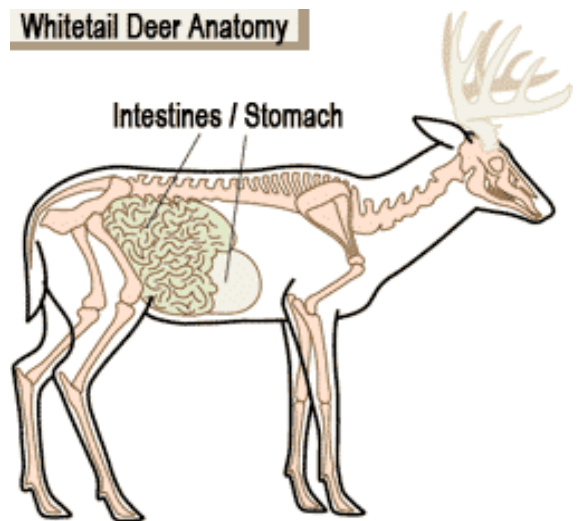
Fortunately for the deer there are microorganisms that can digest cellulose. These microorganisms live inside the deer. Deer provide the plants for the microorganisms who can't pick them for themselves. The microorganisms break down the cellulose in the plants into a form that the deer can absorb. This kind of symbiosis where both organisms benefit is called mutualism.

How does this happen?

As deer begin to feed in the pasture, they eat very fast. Depending on the type and abundance of food, the deer can fill its stomach in about one or two hours. When a deer eats, food is chewed just enough to swallow. This is the first chewing.

Specialized Digestive System

Deer have a four-chambered stomach. The first chamber, called the rumen, is for storage. The rumen allows for the deer to gather a lot of food at once and then digest it later. The deer bring the food back up into their mouth and



chew it again. This process is called chewing their cud. It is also called ruminating, named after the rumen. Animals that can do this are called ruminants.

The reticulum is the second stomach chamber. This is where the microorganisms live. The microorganisms attack the chewed food that the deer has eaten. This process is called fermentation. This helps to break the cellulose down into simpler substances that can be absorbed by the deer and the microorganisms. Fermentation produces a gas (methane), which the deer must discharge very regularly. (They burp!)

When deer chew their cud again, mixed in with the digested food are microorganisms. The deer chew the microorganisms and a lot of deer's nutrition comes from them. There are plenty of microorganisms left in the reticulum. This time when it goes back down, the chewed food goes to the third chamber the omasum . This is where water is absorbed.

Finally, the resulting cud enters the last chamber, (the abomasum), where gastric juices continue digestion. Gastric juices are liquids, like the acids in your stomach, that help digest food.

Last, it moves on to the intestines. This is where the food is absorbed by the animal's body. This is where the animal receives the nutrients for his body. The deer's intestines are 28 feet long!

When the animal has absorbed everything it can use, everything that isn't digested is passed off as waste droppings.

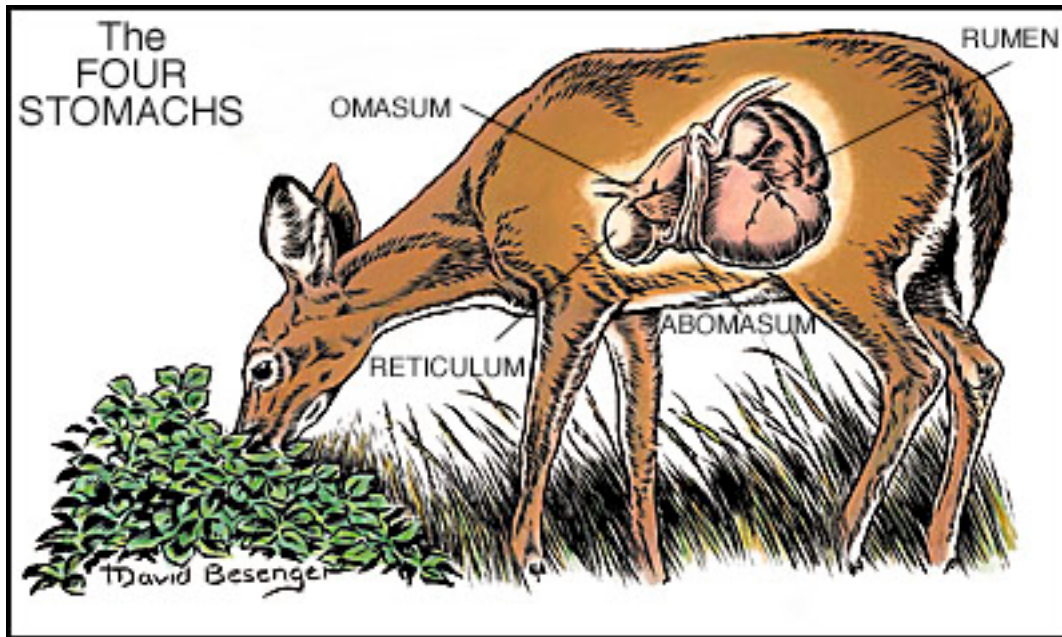
See if you can remember what happens in each of these stomach chambers:

- Rumen
- Reticulum
- Omasum
- Abomasum

Can you describe these other adaptations that help the deer digest plants?

Behaviors

Symbiotic Relationship



References:

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