

Intestinal diseases and bacterial enteritis in rabbits

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Rabbits respond to various diseases by an intestinal disturbance, characterized by diarrhea. It occurs generally more often in young weaned rabbits aged 4 to 10 weeks than in adult rabbits. It rarely occurs in new-born rabbits, probably because they are born hairless and blind and are thus confined to the nest, which acts as a shelter from the outside environment.

Intestinal diarrhea in rabbits is favored by four particular features:

1. The rabbit is a very excitable animal which is not able to adjust well its alarm response (adrenaline discharge) to the gravity of the situation.
2. The rabbit has a particular intestinal physiology, characterized by cecotrophy (reinjection of soft pellets). In case of alarm, a hormone is released in the blood and it affects the nervous system of the intestine, slowing the passage of food and blocking cecotrophy.
3. After a stressful event (alarm or attack), the cecum is alkalinized, influencing the intestinal environment. This modification influence the intestinal flora (bacteria) and a pathogenic bacteria like *Escherichia coli* or *Clostridium* spp. become dominant.



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Two rabbits taking care of their sick friend, suffering from diarrhea (brown puddles in circle)



4. The appearance of a disease in rabbits is generally delayed after a stress and diarrhea appears only 5 to 7 days after.

The symptoms of digestive problems or enteritis in rabbits is simple and constant. The first signs which last 1 to 3 days are generally not noticed. It is a decrease in food intake by the rabbit, followed by constipation. The soft pellets are generally not eaten. After the 5th day, moderate diarrhea, accompanied by skin dehydration appears. It consists of small quantities of liquid feces which soil the hindquarters of the rabbit. Death can occur at this phase, sometimes even before the diarrhea appears.

Two or three days later, the acute form of the illness starts, involving a total stop of food and liquid intake and extensive diarrhea. Rabbits often grind their teeth as a response to severe intestinal pain and fall into an agitated coma. At this stage mortality is high. It was nevertheless observed that animal who were in coma for a full day survive and recover within a few days.



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Dirty bottom of a rabbit suffering from diarrhea

A post mortem examination of the intestine show atypical lesions. During the acute phase of the disease, the intestinal content is liquid. Its aspect is bruised or congested. The cecum appears congested, streaked with red, like brushstrokes and is filled with gas and little food.

Causes

There are many specific and non specific causes to diarrhea.

Young rabbits respond badly to transport, especially during the post-weaning period, to unidentified noises, to a new environment and to new persons or animals. Changes in food also cause digestive troubles. Generally it is not the food itself which is the main cause of diarrhea, but rather its



composition, such as not enough crude fiber, too much proteins, too finely ground food or improper watering.

Specific causes of diarrhea can be the presence of chemical agents such as antibiotics (see: "[Antibiotics dangerous for use in rabbits](#)") or nitrate in the drinking water. Viruses and bacteria cause enteritis, due to the abnormal development of, e.g. *Corynebacteria*, *Clostridia*, *Pasteurella* and *Escherichia coli*. Salmonella, however, rarely occur in rabbits. Trematodes (flukes), Cestodes (tapeworms), nematodes ([intestinal worms](#)), and protozoa ([coccidia](#)), all intestinal parasites are also a familiar cause of disease in rabbits, with [coccidiosis](#) being the major and most important disease agent (see part: [Hepatic and intestinal coccidiosis](#)).

Bacterial and Mucoïd enteritis

Mucoïd diarrhea affects sometimes growing rabbits and nursing females. The soft pellets are mixed with mucus, a translucent and gelatinous substance. This particular type of enteritis has various causes, among them are bacteria or nutritional defects (lack of water and not enough fibrous food).

Bacterial enteritis develops very rapidly, within 3 to 4 days and results in the death of the animal before diarrhea appears. The bacteria causing intestinal enteritis are known as *Clostridia perfringens* and *Escherichia coli*. In healthy rabbits there are very few *E. coli* bacteria present in the droppings (10^2 - 10^3 / g drops), but in diarrhea they are systematically present in high number. *Escherichia coli* is sometimes found together with Coccidia. The bacterium produces toxins, but it has been shown that these do not on their own induce diarrhea. For diarrhea to occur there must be another stress on the rabbit, such as for instance unbalanced feeding or a thermal shock.

Clostridia perfringens exists in 5 forms, classified according to the production of toxins. These toxins provoke generally local lesions in the intestine, but sometimes their action can affect distant organs such as the liver and the kidney.

Escherichia coli possesses five general mechanisms to invade the intestine and cause the disease. Sometimes there is production of toxins. The bacterium invades the intestine by adhering on the villi of enterocytes and begins to proliferate. The presence of toxins stimulates the secretion of water and electrolytes by the intestinal mucosa. Proliferation and production of toxin together provoke diarrhea.



A cure against bacterial enteritis is often too late, as the disease develops very rapidly. Antibiotics and sulpha drugs will prevent the bacteria to reach other rabbits.

Further Information

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OCTOBER 2003

