



**MediRabbit.com**

## **“Floppy rabbit syndrome” - General muscle weakness**

**Esther van Praag**

**“Floppy rabbit disease” is well known and feared by few breeders and pet owners, and unknown by others. Those who have experienced this disease in a rabbit know how fast the onset can be, rarely with fatal consequences.**

General weakness syndromes are characterized by the rapid onset of muscular weakness, partial or general paralysis of the limbs and may be accompanied by a decreased appetite. They affect healthy rabbits, independently from their sex, age, breed or geographic region. The evening before, the rabbit was full of life, yet, next

morning, it appears limp and is unable to move. The progression of the diseases varies from one rabbit to another: from one to several hours. There are no or few precursory signs: the rabbit is calmer than usual, may present slight signs of misbalance, stumbling and difficulties to get up after a fall. Since causes are varied and



**Figure 1:** Rabbit suffering from general weakness, unable to lift its head and unable to move.



**Figure 2:** Rabbits suffering from the “Floppy Rabbit Syndrome” present a general weakness are unable to lift their head and unable to move.

diverse, various theories exist about these syndromes. This makes diagnosis difficult. It is based mainly on differentiating several possible causes.

### **“Floppy rabbit syndrome”**

Rabbits affected by the “Floppy Rabbit Syndrome” lay flat on their belly, flaccid, unable to lift its head and are unable to move due to paralyzed limbs (Figure 2). Appetite was normal before the onset of the syndrome. In fact, most floppy rabbits are hungry and when food and water bowls are placed within reach, they will eat by themselves. Thus, food does not seem to play a role in the syndrome onset, neither is the alimentary regime nor are the living conditions (cage, pen or free-range).

During the physical examination of the rabbit, it appears that respiratory and

cardiac rates are normal. Rectal body temperature is normal. Mucosal tissues are normally colored. A blood test allows to rule out hypocalcemia, a deficiency in calcium sometimes observed in pregnant or nursing does. Affected rabbits very often have low levels of potassium and proteins in their blood. Liver values are elevated, which are a sign of liver failure or hepatic lipidosis.

Radiographs enable to rule out spine injuries, a cerebral attack or splay-leg. Finally, it is important to rule out parasitic protozoan disease with multiple clinical manifestations, such as encephalitozoonosis and toxoplasmosis

### **Causes related to this syndrome**

Several causes are suspected to trigger the “Floppy Rabbit Syndrome”. A severe stress or fright, a decrease in appetite



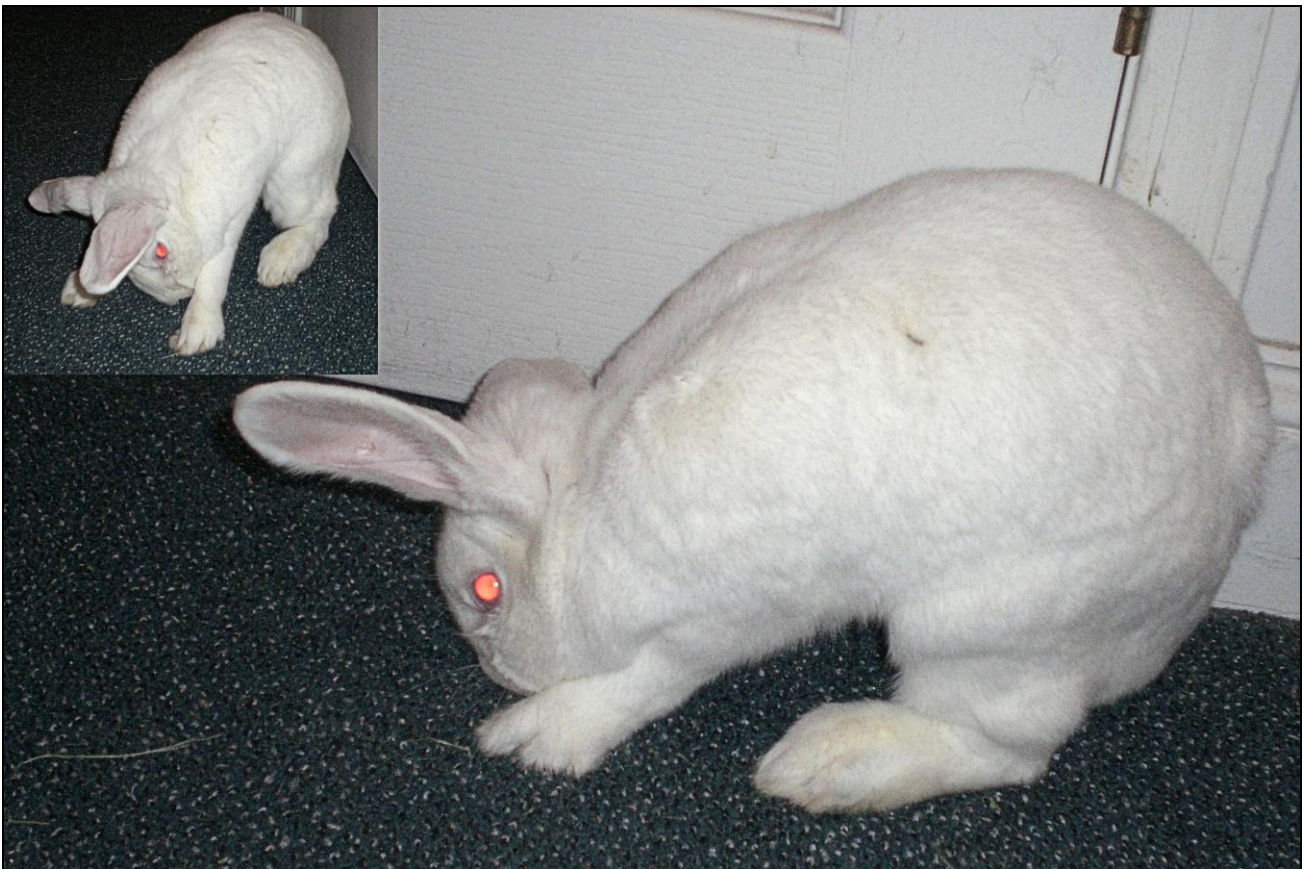
and/or a slow-down of the intestinal activity before the onset are suspected, but not confirmed. They affect the metabolism of potassium and, consequently, the level of this electrolyte decreases in the blood. In cattle, this leads to general weakness accompanied by an abnormal positioning of the head. It seems, however, that the floppy rabbit syndrome may also be caused by dietary deficiencies in selenium and/or vitamin E. The latter promotes the absorption of selenium in the body. The presence of coccidia in the liver - difficult to detect, interferes with the metabolism of certain vitamins, including vit E. When the supply from the diet is not sufficient, a vit E deficiency can lead to a selenium deficiency. Selenium deficiency is characterized by a general muscular weakness. Vit E supplement can help with recovery. Finally toxins contained in certain plants or hay

contaminated with pesticides or mycotoxins can also lead to a general weakness.

Prognosis depends on the cause and ranges from poor to good. Most affected rabbits will recover within a few days, after receiving supportive care, administration of fluids orally or SC to avoid dehydration and syringe feeding.

### **“Head down syndrome”**

Acute “head down syndrome”, also referred to as “Twilight syndrome”, in remembrance of the first rabbit who presented these clinical signs, affects mostly rabbits aged up to one year (Figure 3). It is observed more often in the USA than in Europe – a possible coincidence as information on the physiopathology of this disease is lacking, except the result of blood tests and necropsy that breeders and pet



**Figure 3:** Rabbit suffering from the acute “head down syndrome”, with its head bend down to the front (Picture courtesy of S. Trayan).

rabbit owners kindly provided to MediRabbit.com. Rabbits are unable to keep their head high due to a lack of muscular tonus in the neck region. The head is bended down to the front (Figure 3), never to the side as observed in encephalitozoonosis. Limb muscles are contracted and the rabbits are unwilling to move. Appetite may be reduced.

Serologic tests for *Encephalitozoon cuniculi* return negative. Several blood tests show an abnormal elevation of glucose in the blood, which may result from stress caused by the disease or restraint during the clinical examination. Hepatic values are elevated, while that of phosphorus is low. These results hint to an acute liver failure.

### **Digestive or food intoxication**

Necropsy confirms a chronic attack on the liver: dark coloration and fibrosis. Muscles have a pale color with many necrotic spots. Limbs muscles are more affected than those of the neck. The nervous system and the brain do not present lesions. The rapid evolution of the syndrome, the absence of tissue inflammation, the symmetrical nature and pale color of muscles suggest that the "head-down syndrome" has a toxic origin, for instance the accumulation of toxic neurotoxic substances of digestive origin in the brain. The slow-down of gut activity allows a longer time of contact between ingested proteins and intestinal bacteria, which allows the production of ammonium.

The liver is unable to metabolize the ammonium present in the blood. When ammonia reached the brain tissues, it has toxic effects causing the observed neuromuscular abnormalities observed in the affected rabbits. Plant intoxication (certain leguminous plants, excess of lupine, buttercup, wild parsnip, and comfrey) or a selenium poisoning has also been suggested causes. To this day, there is not known treatment for rabbits. Mostly, supportive care and medication are given to these rabbits. They were administered fluids and food by means of a syringe. The administration of antibiotics such as enrofloxacin or metronidazole seems to have contributed to the recovery of these rabbits. Analgesic medication was given too if needed. The clinical manifestations are reversible and most rabbits recovered without sequel after a week.

### **Acknowledgement**

All my gratitude to Mrs. Suzanne Trayhan (House Rabbit Network) for her help about the Twilight syndrome.

### **References**

- Harcourt-Brown F. Textbook of rabbit medicine. Oxford, UK: Butterworth-Heinemann; 2002.
- Bourne D. Floppy Rabbit Syndrome. [http://wildpro.twycrosszoo.org/S/00dis/Miscellaneous/Floppy\\_Rabbit\\_Syndrome.htm](http://wildpro.twycrosszoo.org/S/00dis/Miscellaneous/Floppy_Rabbit_Syndrome.htm)
- Saunders R., Meredith A., Varga M. Floppy rabbit syndrome. <https://www.vetstream.com/lapis/Content/Freeform/fre00306>

---

Email : [info@medirabbit.com](mailto:info@medirabbit.com)

Site web : <http://www.medirabbit.com>