

Dental Health in Rabbits

A guide to keeping your rabbit's teeth healthy



Rabbits belong to the order *lagomorpha*. They are strictly herbivorous and rely on a diet high in fiber to maintain their digestive and dental health. Their diet and the presence of 4 incisors in the upper jaw are what separate rabbits from rodents. This second set of incisors, sitting directly behind the primary incisors, are called "peg teeth".

In total, rabbits have 28 teeth: 6 incisors, 10 premolars and 12 molars. The premolars and molars are often referred to as *cheek teeth*.

Rabbit teeth are what we call *elodont*. This means that the roots of the teeth are open, allowing for continuous growth throughout their lifetime. In fact, rabbit teeth grow approximately 2mm weekly. However, the rate of growth is dependent on diet and tooth wear. When the rabbit chews hay or grass the wear of the teeth is kept even by the side-to-side motion of the lower jaw grinding the coarse fiber against the surface of the teeth in the upper jaw.



What can you do to look after your rabbit's teeth?

The most important thing you can do to look after your rabbit's teeth is to provide an appropriate diet consisting of at least 85% hay. Your rabbit should eat a ball of hay about the size of their body daily. Not only is this important for their teeth, but also for their complex digestive system to function effectively. Allowing your rabbit access to a safe space outside where it can engage in natural grazing behavior, and be exposed to natural sunlight, may also be beneficial for your rabbit's dental health.

Prevention is key when it comes to dental health. Rabbits should be examined by a veterinarian every 6-12 months, and at any time you are concerned about your rabbit's well-being.

Your Rabbit's Diet and Vitamin D

Rabbits have a sweet tooth and are selective feeders. A rabbit will always choose foods high in sugar and protein if given the choice, much like a small child would choose a bowl of candy over a salad. This is why rabbits should never be fed muesli type mixes. Ideally, a small amount of rabbit specific pellets (approx. 1/8 cup/kg) should be fed daily, alongside unlimited hay and a handful of fresh leafy greens. Although, pellets do not have any direct effect on dental wear, pellets provide the rabbit with important vitamins and minerals essential for their health.

Wild rabbits spend most of their time grazing. While it is difficult to recreate this sort of environment for pet rabbits, rabbits need access to hay at all times. In order to encourage hay intake and to keep your rabbit mentally stimulated, hay should always be provided in more than just one location.

What kind of hay should my rabbit eat? Timothy hay, orchard grass and oat hay are all recommended. Alfalfa hay should be limited to young growing rabbits due to its high calcium and protein content.

Vitamin D

Rabbits are unable to synthesize vitamin D on their own. They are dependent on acquiring vitamin D through their diet, and through exposure to UVB rays - sunshine! Research¹ has indicated that indoor rabbits are at higher risk for developing dental disease compared to outdoor rabbits, because they do not have the opportunity to graze, or access to unfiltered sunlight. It is, however, not recommended to give vitamin D as a supplement. As a fat-soluble vitamin, the risk of it building up in excess amounts in the body, can cause a range of problems. It has been proposed that allowing indoor rabbits 30-60 minutes of outdoor time daily could make a difference in your rabbit's health. If taking your rabbit outside is not an option, it is also possible to provide your rabbit with artificial sunbathing spots indoors. UVB lights used for reptiles can be used for this purpose.² Just remember that your rabbit should be able to move in and out of the light source at its own will.

Encouraging your Rabbit to Eat More Hay

- Always provide high quality and dust free hay 24/7
- Put hay in your rabbit's litter box
- Sprinkle in dried herbs and flowers, also known as "hay toppers", to encourage the natural instinct of foraging
- Mix it up! Use different types of hay
- Stuff your rabbit's toys with hay. Grass nests and willow tubes are great for this! (Fig.1.1)
- Keep it fresh! Change your rabbit's hay daily. Any uneaten hay can be used as bedding, while soiled hay should be tossed.



Fig 1.1

Dental Disease

Dental disease in rabbits is complex and depends on many factors, such as husbandry, improper diet and nutritional deficiencies. Growing rabbits have a massive requirement for resources such as calcium and phosphorous: limitations on intake can affect dental growth and lead to dental disease.³ Diet plays a big role in the development of dental disease, also in adult rabbits.

Dental disease can also be congenital (present at birth) or acquired (develops during life). Certain breeds of rabbits are more prone to dental problems compared to others due to the shape of their skull, this includes lops and dwarf breeds.^{4,5}

Dental disease causes pain and makes it difficult for the rabbit to eat. Problems that are often encountered are malocclusion, overgrown incisors, molar spurs and abscesses.

In the early stages, dental disease might be difficult to spot. As prey animals, rabbits will attempt to hide illness and pain, this is called *masking phenomenon*.

Signs of dental disease include:

- Decreased appetite and difficulty eating certain types of food (e.g. hay)
- Dribbling
- Runny eyes and nasal discharge
- Abscesses
- Weight loss
- Behavioral changes
- Uneaten cecotropes
- Tooth grinding
- Unkept coat
- GI stasis

What is malocclusion?

Malocclusion is a misalignment between the teeth of the upper and lower dental arches.



How does your vet examine your rabbit's teeth?



Fig 1.2

Keeping in mind that rabbits are prey animals, dental exams can feel very intimidating to them. Some rabbits benefit from being wrapped in a blanket, commonly referred to as a “bunny burrito”. This method allows your rabbit to feel more secure and prevents injury. Other rabbits, however, benefit from less restraint, and perhaps just the eyes covered during the exam.

The oral cavity of the rabbit is long and narrow, in order to be able to look at the cheek teeth the vet will use a tool called an *otoscope* (fig.1.2). The vet will look for any changes in color or texture of the teeth, overgrown teeth and molar spurs. The oral mucosa will also be examined looking for any sores or ulcers. If any abnormalities are detected, or if the vet is suspicious of dental disease, your rabbit will have to undergo further investigations. This will be done under a general anesthetic or sedation, and usually includes dental x-rays or CT, and a full mouth examination. X-rays and CT imaging will allow the vet to see if there are any abscesses or other underlying issues with the teeth present that may require more extensive treatment.

Dental Disease and Treatment

Rabbits that are diagnosed with acquired dental disease (ADD), can be staged according to severity⁶

Grade I: Normal

Grade II: Elongation of roots and poor tooth quality

Grade III: Malocclusion

Grade IV: Cessation of tooth growth

Grade V: End-stage dental disease

Dental disease in rabbits is very painful, adequate pain control is therefore necessary to maintain a good quality of life. Putting together a long term treatment and nursing care plan with your veterinary team, is also vital in order to manage progressive dental disease and ensure animal welfare.

Malocclusion is treated by shortening and reshaping the teeth. The aim is to restore symmetry of the mouth. Rabbits with advanced dental disease may require extractions if there are root abscesses present. Depending on the condition of the teeth, the cause of malocclusion and the rate of tooth growth; rabbits with moderate ADD may need to undergo dental procedures every 4-12 weeks.⁷ Overgrown incisors usually need to be trimmed more frequently compared to cheek teeth with molar spurs.

Although it is possible to trim incisors while the rabbit is awake, this is not advisable due to the risk of injury to the soft tissues in the oral cavity if the rabbit moves. Removal of molar spurs and more extensive dental treatment or surgery, will always require the rabbit to be placed under general anesthesia. This is both safer, and far less stressful for the rabbit.

References

- 1,2** Emerson, Whittington, et al., 2014. Effects of ultraviolet radiation produced from artificial lights on serum 25-hydroxy Vitamin D concentration in captive rabbits. *American Journal of Veterinary Research*, vol. 75
- 3,7** Varga, M. 2014. *Textbook of Rabbit Medicine* (2nd ed). Butterworth Heinemann Elsevier, Edinburgh, United Kingdom
- 4** Johnson J.C., Burn C.C. 2019. Lop-eared rabbits have more aural and dental problems than erect-eared rabbits: a rescue population study. *Vet Record*. Volume 185, Issue 24.
- 5** Universities Federation for Animal Welfare Genetic Welfare Problems of Companion Animals. 2011. An information resource for prospective pet owners. <https://www.ufaw.org.uk/rabbits/netherland-dwarf-dental-malocclusion>. Accessed: 01.04.2022
- 6** Harcourt-Brown, F.M., 1995. A review of clinical conditions in pet rabbits associated with their teeth. *Vet. Rec.* 137, 341 – 346