



# Dental Caries in Herbivores

Date: March 22, 2010

By: [David Crossley](#), BVetMed, MRCVS, Fellow AVD, DEVDC

## Introduction

Rabbits and rodents may suffer from a wide range of dental problems. Although the vast majority of cases are related injury or to lack of [wear and tooth elongation](#), dental caries, a bacterial plaque-associated disease, may also be seen.

## Dental caries

Caries is a process of bacterial destruction of tooth substance. To develop, caries requires both specific bacterial species to be present and a rapidly fermentable food energy source, such as sugar, not normally present at high levels in natural diets. Tooth destruction may be superficial and of little consequence, or it can result in large cavities. These need to be distinguished from resorption lesions which may also appear as cavities in the tooth structure but are not the result of bacterial action.

Rabbits and rodents do not naturally carry cariogenic bacteria but they can acquire them from their owners. Once cariogenic bacteria are established on tooth surfaces they metabolize carbohydrates producing lactic acid as a waste product. This lowers the pH sufficiently to dissolve calcium salts out of enamel producing a **roughened tooth surface**. Once enamel has been affected, dental caries will appear as a **change in tooth color**. Caries will appear whiter if enamel is simply demineralized or darker if partial remineralization and incorporation of pigments has occurred. Once the lesion extends into dentine its collagen content is also used as a food source by bacteria and the tooth crown is gradually destroyed.

Caries rarely causes clinical signs, but lesions are common and were identified during 37% of postmortem examinations in [chinchillas](#) (*Chinchilla lanigera*) with abnormalities of tooth eruption. Caries lesions in omnivorous rodents with brachydont or short-crowned cheek

teeth are similar to the lesions seen in humans, and the [rat](#) (*Rattus norvegicus*) has been used extensively in dental caries research. If dental caries are identified early, dietary correction plus oral hygiene measures such as oral rinses and even tooth brushing may be employed by dedicated owners. Even cavity preparation and placement of fillings has been described in rats, however these procedures are generally impractical and significantly affected teeth are best extracted. In herbivorous rodents such as the chinchilla and [guinea pig](#) (*Cavia porcellus*), teeth are usually elongated when dental caries are found. Therefore the simplest solution is to remove the affected parts of teeth while correcting overall elongation via coronal reduction and occlusal equilibration (i.e. [tooth trimming](#)). This procedure frequently eliminates caries lesions, and if the pet will eat a more appropriate, low-carbohydrate diet they are unlikely to redevelop.

## References

- Crossley DA. Rabbit dental treatment. Proc North Amer Vet Conf 2004. Pp. 1375-1377.
- Crossley DA. Rodent dental treatment. Proc North Amer Vet Conf 2004. Pp. 1381-1382.
- Crossley DA. Oral biology and disorders of lagomorphs. Veterinary Clinics of North America: Exotic Animal Practice 6(3):629-59, 2003.
- Crossley DA, Dubielzig RR, Benson KG. Caries and odontoclastic resorptive lesions in a chinchilla. Vet Rec 141(13):337-339, 1997.
- Legendre LF. Oral disorders of exotic rodents. Veterinary Clinics of North America: Exotic Animal Practice 6(3):601-628, 2003.