Dental Disease in Rabbits
The benefits of Endoscopy

Presented by:
We’ve been welcoming rabbits to our clinic for 23 years. We are committed to offering you and your rabbit high quality care for all your rabbit’s needs. We specialize in rabbit dentistry and provide full service for your furry friend. Stay tuned to learn more!
Rabbit teeth are adapted for the ingestion of a fibrous diet.

The incisors and all of the cheek teeth continuously grow.
Dental Growth Rate: 2 to 2.4mm per week!

Rate of growth is determined by:
(rate of eruption) - (rate of attrition)

Both of which can be affected by many factors:

- Malocclusion/ inappropriate occlusal wear
- Age
- Inappropriate occlusal wear substrate (dietary fibre content)

Images Drs. Foster & Smith
- The continual eruption and growth of the teeth predispose rabbits to dental problems.
- Underlying etiology of dental disease may be associated with prognathic defects, trauma, foreign bodies, or neoplasia, however:
  - most dental problems of pet rabbits are part of a progressive syndrome that effects the shape, position, and structure of the teeth.
Dental disease can lead to a number of clinical problems such as:

- Epiphora (runny eyes)
- Dacrocystitis (infected tear ducts)
- Abscesses
- Trauma of oral tissues (lacerations, teeth growing into cheeks/soft tissue)
- Secondary GI disturbance (off hay, stasis, bloat)
- Poor coat quality (unkempt, retained shed, etc)
The anatomy and physiology have evolved to accommodate their unique diet.

Their incisors function to cut grass and other plants. The food is chewed with the rough occlusal surface of the molars, also called the cheek teeth.
A unique feature about rabbits is that their mandible is narrower than their maxilla. That means when they are not chewing, their teeth do not line up.
How they chew...

- The cheek teeth only come into contact when they are chewing.
- It is this movement, along with efficient rough surfaces, that allow for grinding of the fiber. It also provides for the appropriate wearing of the teeth.
1) Congenital and developmental abnormalities.
2) Traumatic – especially seen after trimming of the incisors and they fracture.
3) Abnormal wear – this is the most important and most frequent. All captive rabbits do not receive the same variety of food as free range rabbits do.
4) Metabolic bone disease.
Who is at risk of dental disease?

- **Congenital** (breed specifics)
  - Conformation
    - brachycephalics
  - Genetics
    - malocclusion
    - abnormal enamel
    - premature aging (special fur quality breeds such as Rexes, Lionheads, etc)

- **Acquired**
  - Age related
  - Insufficient dietary substrate
Diet is a major factor to the abnormal wearing of teeth. This is especially true when:

- Rabbits are fed food such as seeds, bread, fruit or treats.
- Diets are deficient in hay and vegetables.
- The molars overgrow the mandibular (lower jaw) cheek teeth bend towards the tongue, and the maxillary (upper jaw) cheek teeth bend towards the cheeks.
When the molars begin to bend, this further reduces the occlusive surface they have – making the dental disease worse. Once this happens, we will see our rabbits refusing hay and looking for something easier to eat.
The Challenges of the rabbit mouth include:
- Small mouth
- Narrow mouth
- Long oral cavity
The Challenges of the rabbit mouth

When looking in a rabbit's mouth, we require special instruments to open the mouth and keep the cheeks out of the way. However, we need to ensure not to open the mouth too wide or for too long, so not to stretch the masticatory (chew) muscles and ligaments of the temporomandibular joint.
How do we look into these small mouths?

There are a few different ways that we can look into these little mouths. Each option presents both limits and advantages.
Otoscope and Speculum
- Not magnified
- Can do while awake
- Can miss small spurs and spikes especially without sedation
- Speculum moves tissue out of the way making it easier to see lesions than with the otoscope
- Risk of injury

Endoscopy
- Magnified on a screen
- Image capture for owner
- Need anesthesia
- Can identify those very small, but clinically significant, spurs and spikes
How do we look into these small mouths?

**Otoscope/speculum** - We can use an otoscope or speculum to look into your bunny’s mouth typically while they are awake and in the exam room.
Sometimes sedation or general anesthetic is required to have an adequate look into the mouth.
Set up for a typical oral examination using the speculum
Diamond composite dental burr bits – variable sizes
Here is a display of the different dental instruments that we use during a typical rabbit dental procedure.
Dental instruments in use

Image courtesy of MTaylor
Why not use nail clippers or other crush devices?

The crushing/shearing action DAMAGES teeth risking:

- Fractures
- Creating points that may be even sharper or micro point that become significant with growth
- Damage soft tissue: bleeding can be significant if by one of the arteries
- Damages ligaments risking: loosing of teeth, infection/creating of sulci for accumulating food and debris that can become abscesses, and it is also stressful and painful (awake animals)

Image: E. Harrison
We also use the aid of radiographs (x-rays) to have a look at:

- Bone structure of the jaw and sinuses
- The crowns (part you can see in the mouth above the gums, Tip of the Iceburg)
- The ‘roots’ (part under the gums which are much longer)
- Screen for bone lysis and areas of abscesses
Deep sedation or general anesthesia is required for diagnostic positioning.

To take a full series of radiographs of the mouth:

- Typically 5 different views are required
- Anatomic evaluation lines assist in staging
Dental Radiographs (Xrays)

- TIP OF THE ICEBERG
- Radiographs allow for seeing tooth root (subgingival crown) disease

Image: medirabbit.com
We can assess your rabbit's occlusion of both incisors and the cheek teeth.

We can also see changes in the bone structure.
3. L oblique highlighting R mandible
We are equipped to take high quality digital x-rays of your rabbit to better assess the condition of his or her mouth.
“Even during examination of the anesthetized rabbit, experienced observers can still miss several lesions. Oral endoscopy allows thorough inspection of the oral cavity and greatly facilitates detection of subtle lesions because it provides magnified perspective of dental structures.”

Dental Endoscopy
Endoscopic Intubation

Rabbits - Intubation

Images courtesy M. Taylor; Anatomic image from P. Popesko, A Colour Atlas Of the Anatomy of Small Laboratory Animals; Volume 1 Rabbit, Guinea Pig. 1992. Pirada

- Difficult to intubate
- Oropharynx long
- Long incisors
- Large fleshy tongue
Normal Occlusion
Facilitates assessment of:

- Occlusion
- Enamel and dentin quality
- ALL teeth
- Assess for looseness or instability of individual teeth
Endoscopy: improved visualization of “hidden lesions”
Signs of dental disease:

- Decrease in hay consumption
- Decrease in appetite
- Difficulty taking in food
- Wetness around the mouth
- Weight loss
- Swelling around the jaw.
Diseased teeth and effects on the mouth

These pictures were taken with the endoscope. They capture an overgrown molar, as well as an ulcer that has occurred as a result of the grinding action of the molar repeatedly along the surface.
Before and after a molar trim

- Before
- After

oropharynx
Diseased teeth

Picture one:
Missing Teeth
Abnormal dentition colour
The teeth are mobile and there is discharge around the teeth - pus.

Picture two:
Molar 2 and 3 have moved towards the cheek creating a sore on the inside of the cheek.
The molars are discoloured
There is pus between the teeth that are loose.
Left mandible side
Uneven surface
“stepping”

Back teeth marked short to below gumline, There is pus between Molars 2-3. Some of the teeth have broken and the fragments are still there. Dentin abnormal
Here the dentin is abnormal and there is a generalized discoloration of the enamel.

In this picture molars had to be resurfaced and there is a defect with pus between the molars. The tissue is trying to heal.
Once our rabbit is anesthetized and all of our monitoring equipment attached, we can use the endoscopy to have a wonderful magnified view of the mouth. This is done both before to assess the mouth as well as during the dental to ensure that all spikes, abnormal surfaces and abnormalities have been visualized.
Tools of Rabbit Dentistry

- Endoscopy unit and tower
- Dental tools such as probes, speculae, gags, tissue guards, Surgifoam gel, flush, metal tongue guards, ronguers, hemostats, etc
- Antiseptic mouth rinse and coolant for teeth during resurfacing
- Anesthetic cart
- Emergency drugs pre-calculated and at hand
- Patient monitoring equipment
- Patient warming devices
- Minimum of 2 (up to 4) personnel
Rabbit Dentistry at Campus Estates Animal Hospital

We are fully equipped and eager to receive your rabbit for its next dental. Book your appointment for a dental check up today!

Hope to see you soon!