

# **COMMON DENTAL PROBLEMS IN RABBITS, GUINEA PIGS, CHINCHILLAS AND RODENTS: TREATMENT & PREVENTION**

Sari Kanfer, DVM

February 29, 2004

## ***I. Normal Anatomy:***

### Terms:

Cheek teeth - premolars & molars in rabbits, guinea pigs & chinchillas

Root – the part of the tooth residing in the bone

Crown – the part of the tooth exposed in the mouth

Occlusion – how teeth meet

Malocclusion – abnormal occlusion

Occlusive angle – the angle at which the teeth meet when viewed from the front

Dental Arcade – row of cheek teeth on one side, upper or lower

### RABBIT SKULL:

-All teeth grow continuously throughout entire life

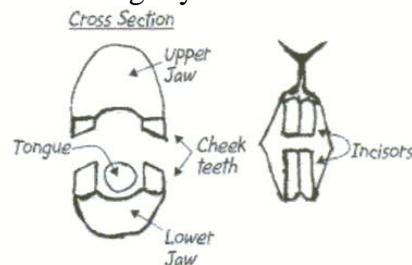
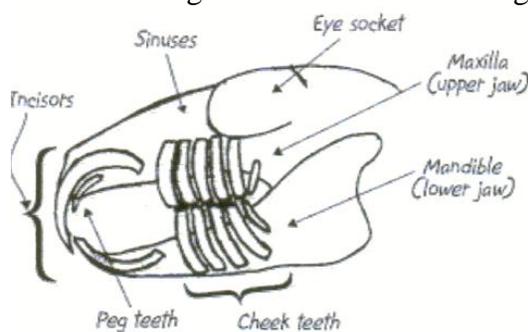
-At rest, incisors are touching & cheek teeth are parted

-Chewing motion mostly side to side

-Occlusive edges of cheek teeth are sharp & ridged

-All teeth are white

-Occlusive angle of arcades is 10-15 degrees, and teeth are slightly curved



### GUINEA PIG SKULL:

-All teeth grow continuously

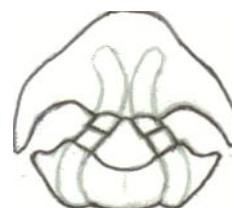
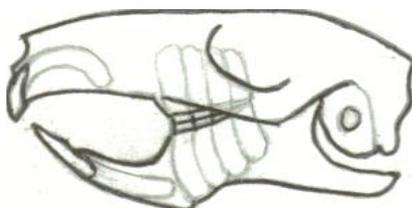
-At rest, cheek teeth are touching & incisors are parted

-Chewing motion is forward-back-down

-Occlusive edges are flat, and therefore can slide back and forth

-All teeth are white

-Angle of occlusion is 30 degrees from horizontal, and teeth are markedly curved along their entire length



### CHINCHILLA SKULL:

- All teeth grow continuously
- At rest, cheek teeth are touching & incisors are parted
- Chewing motion is forward-back-down
- Occlusal edges are flat, and therefore can slide back and forth
- Pigmented enamel on front of the incisors (iron) = good health
- Occlusal angle of arcades is very straight



### Rats, Mice & Hamsters:

- Skulls are similar to chinchillas, but with less cheek teeth (3)
- Incisors grow continuously, cheek teeth stop growing (like human molars)
- At rest, cheek teeth are touching & incisors are parted
- Chewing motion is forward-back
- Occlusal edges are flat, and therefore can slide back and forth
- Pigmented enamel on front of the incisors (iron) = good health
- Occlusal angle of arcades is straight

## ***II. Common Problems:*** (In order of progression of disease)

### RABBITS, GUINEA PIGS, CHINCHILLAS:

Rabbits, guinea pigs, chinchillas and other herbivores (like horses and cattle) have evolved over the eons to survive on the available vegetation in their environment – coarse grasses and weeds. These plants are very high in silicates which makes them tough, like sandpaper. So a great deal of chewing with the cheek teeth is needed to break down the coarse food, and the teeth will wear down accordingly. Herbivores deal with this by having continuously growing teeth. **Normal rabbit tooth wear is 3 millimeters a day.** **Rabbits on an all pellet diet will have a 60-100 times DECREASE in tooth wear.**

- **Crown Elongation.** When herbivores are not eating enough coarse vegetation like hay and grasses, the cheek teeth are not wearing down normally. The teeth still grow at the same rate, but when the teeth wear down slower, the cheek teeth overall get longer. The crowns are longer which prevents the mouth from closing as far. This not only changes the balance in the mouth, but also stretches the jaw muscles and can cause pain when chewing.
- **Incisor Malocclusion.** Longer cheek teeth means that the mouth doesn't close normally, which causes the incisors to meet and wear abnormally. The lower incisors usually grow in front of the uppers, causing the uppers to curl backwards into the mouth.

- **Spike (Spur) Formation.** Insufficient fiber leads to improper wear on the cheek teeth and sharp edges. Because of the different occlusive angles, each species has slightly different spike formation. Rabbits get spikes on the outer edges of the upper arcades, and the inside edges of the lower arcades. This causes wounds in the cheeks or the tongue. In guinea pigs the lower arcades tend to overgrow and arch over the tongue, trapping it and preventing movement. They can also get spikes on outer edges of upper teeth. Chinchillas can get spikes like rabbits, and also some tongue entrapment like guinea pigs, though not as severe.
- **Root Impaction, Elongated Tooth Roots.** When the cheek teeth are not wearing down fast enough, but the teeth are continuing to grow, the crowns get longer and there is increased pressure at the roots. Over time the pressure builds up and causes inflammation and pain. In most cases the tooth roots will start to protrude through the bottom of the lower jaw, or will push up under the eyes.
- **Jaw Abscess.** The inflammation that occurs at the roots can get larger and larger, and can become infected. When the tooth roots protrude through the lower jaw, this also can become infected. Infection of the upper cheek tooth roots will lead to a large abscess behind the eye, causing it to bulge out. Usually with these conditions there is a deep seated infection and inflammation in the bone, but occasionally the infection is in the soft tissue only.
- **Cheek Abscess.** Spikes on the outer edges of the upper dental arcades cut into the cheek and cause infection and eventually a large abscess if not treated.
- **Tear Duct Obstruction.** Elongated and inflamed roots of the upper cheek teeth and the upper incisor roots press on the tear ducts and prevent flow. This is commonly seen as eye discharge or excessive tearing of one or both eyes. Flushing the tear ducts may help, but usually the ducts are blocked and will not flush.
- **Trauma.** Incisors can break due to a fall, or when pulling aggressively on cage bars. Any head trauma like getting their head squeezed in a door, being stepped on or getting bitten by a dog can cause fractures of teeth or bones, as well as soft tissue injuries. These injuries cause an imbalance in occlusion and can lead to any of the above conditions.
- **Congenital.** Herbivores can be born with abnormal teeth. There are also certain breeds that have been developed to be smaller and have shorter, more rounded faces, like dwarf rabbits. Smaller skulls have less room for their teeth, so the teeth get crowded and become maloccluded.
- **Malnutrition.** Young herbivores fed a diet of seeds are lacking calcium and vitamin D3. This can lead to softer bones and abnormal tooth formation. Guinea pigs cannot produce their own vitamin C, and if they do not receive a daily supplement, they will have severe problems with their bones and joints.

#### RATS, MICE, HAMSTERS:

These rodents have evolved to be omnivores. Like humans, they eat vegetation, grains and meat, and some species of rodents eat insects as well. With less vegetation in their diet, there is less wear on the cheek teeth, thus no need for continuously growing cheek

teeth. They do however have continuously growing incisors for all the gnawing and tunnel building they need to do.

- Insufficient gnawing can lead to overgrown incisors
- Incisor injury can lead to malocclusion
- Rodents can get cavities and periodontal disease. This is caused by the same bacteria that causes cavities in humans – rodents get this bacteria from kissing their owners and sharing food
- Hamsters have large cheek pouches – injuries from sharp edges on foods can cause abscesses
- Poor nutrition during development can lead to dental and bone abnormalities.

### ***III. Prevention:***

Two words – **PROPER DIET!** Fiber, fiber, fiber for rabbits, guinea pigs, and chinchillas. Gnawing material and a balanced varied diet for rats, mice and hamsters.

**A good oral exam by your exotics vet** is extremely important to try to identify problems in the earlier stages. Looking into the mouth with an otoscope while awake, we can only see a few of the cheek teeth. With rabbits, we can get a general idea if there is a problem, but with the smaller mouths of guinea pigs and the other rodents, it is very difficult to do a good oral exam awake. Ideally, a short episode of anesthesia with a thorough oral exam and skull x-rays is indicated frequently, even annually.

**EARLY TREATMENT OF DENTAL PROBLEMS WILL DECREASE SEVERITY OF DISEASE AND LIMIT PAIN AND SUFFERING**

Once dental problems are present, signs include:

- Decreased appetite, weight loss
- Saliva or food buildup under chin, near lips, on the inside of the front legs
- Reluctance to eat hard food, or any change in appetite
- Stinky breath
- Lump on the outer cheek, under the eye
- Lump under lower jaws (lumps start small, but can get very large)
- Discharge from cheek or chin/lower jaw area
- Incisors that are uneven (gently lift upper lips to check incisors). If uneven incisors are present, there is a very good chance that the cheek teeth are abnormal as well.
- Increased tears in front of one or both eyes
- Chewing movements when pet is not eating or purring
- Drinking more or standing over water dish

Most commonly, you will not see any signs until subtle problems have been present for a long time. This is why middle-aged rabbits that have had yearly vet exams and good diets seem to suddenly begin having dental problems.

One theory of why rabbits on grass hay & green leafy vegetable diets are getting crown elongation – grass hay & vegetables are still too soft and not as coarse as weeds

and wild grasses. This is why I encourage owners to feed their rabbits & rodents branches & leaves from safe trees<sup>1</sup>, as well as weeds from your yard (unfertilized and untreated).

Other theories concern vitamins and sunlight. Guinea Pigs require vitamin C for many cell processes, including bone health – some people wonder if chinchillas also require more vitamin C in their diet. Sunlight causes animals to produce vitamin D3, which many animals need in order to properly utilize the calcium in their food. Reptiles have a well-recognized requirement for sunlight, and without sufficient sunlight during growth they get soft bones. Does the fur of animals prevent or decrease sunlight's effects? If so, then furred animals may not have a need for sunlight. Many rodents are nocturnal, and rabbits are mainly active at dawn and dusk, so how much sunlight would wild rabbits and rodents get? And therefore, would they really have a requirement for sunlight? Chinchillas are commonly seen sunning themselves in the wild, and many of our pet rabbits seek out a sunny spot for a nap. The requirement for sunlight is not known in these small mammals. .

#### ***IV. Treatment:***

- Maloccluded incisors can be trimmed with a dental drill – some rabbits will allow this to be done with out anesthesia. Cutting incisors with nail trimmers or bone cutters is not the best treatment. It can cause splitting of the tooth longitudinally, resulting in infection of the root. It also causes trauma to the tooth as well as pain from the concussive forces.
- Trimming long cheek teeth and spurs requires anesthesia and specialized instruments. Experienced exotic vets can usually get better long term results by trimming teeth back to more normal occlusive angles and crown heights, as opposed to just trimming off the spikes.
- Abscess treatment depends on the location and severity. An abscess is a pocket of pus surrounded by a capsule of thick tissue. This is the body's attempt to wall off infection. Rabbits, guinea pigs, chinchillas and rodents have thick creamy pus that does not drain well, so just lancing an abscess is not enough. The abscess capsule prevents antibiotics from getting to the infection, therefore surgical removal of the abscess is usually necessary. Smaller soft tissue cheek abscesses are the easiest to treat, and we can often get full resolution of the abscess. If the abscess is large, or involves a bone infection or infection around the teeth, then more invasive surgery is needed, and there is less chance of complete resolution. These cases call for the veterinarian to remove as much abnormal and infected tissue as possible, and then place antibiotic impregnated bone cement beads in the area. This allows for high concentrations of antibiotics at the site of infection, and it lasts 2-6 months or more. All you need for an abscess to recur is a few abnormal cells or compromised tooth root health. **You want to make sure that an experienced exotic vet is treating any of these problems. And remember, these are lifelong problems that need timely vet exams and many times requires regular anesthesia and dental care.**

---

<sup>1</sup> Safe trees: elm, ash, maple, birch, apple, orange, pear, peach trees. (Avoid cedar, plum, redwood, cherry and oleander.)

- Tear duct obstruction – treat the underlying dental problem. In many cases, the rabbit will have chronic problems.
- Traumatic injury to teeth can lead to long term problems OR if your pet is lucky, and your vet keeps the mouth balanced until the teeth grow back, many times these pets can return to normal.
- Cavities and periodontal disease in rodents – the recommendation is to avoid spreading your bacteria to your pet, but if you do, brush their teeth.
- Malnutrition and congenital diseases – chronic management to keep pet comfortable. Often involves long term pain meds and antibiotics.

**SUMMARY:**

Dental health is extremely important to your pet's happiness and well-being. Rabbits, guinea pigs, chinchillas, rats, mice and hamsters have different dietary needs and different dental physiology than dogs, cats and people. It is very important to understand that these differences exist, and it is important to have your pet regularly examined by a veterinarian that understands dental care in these species.