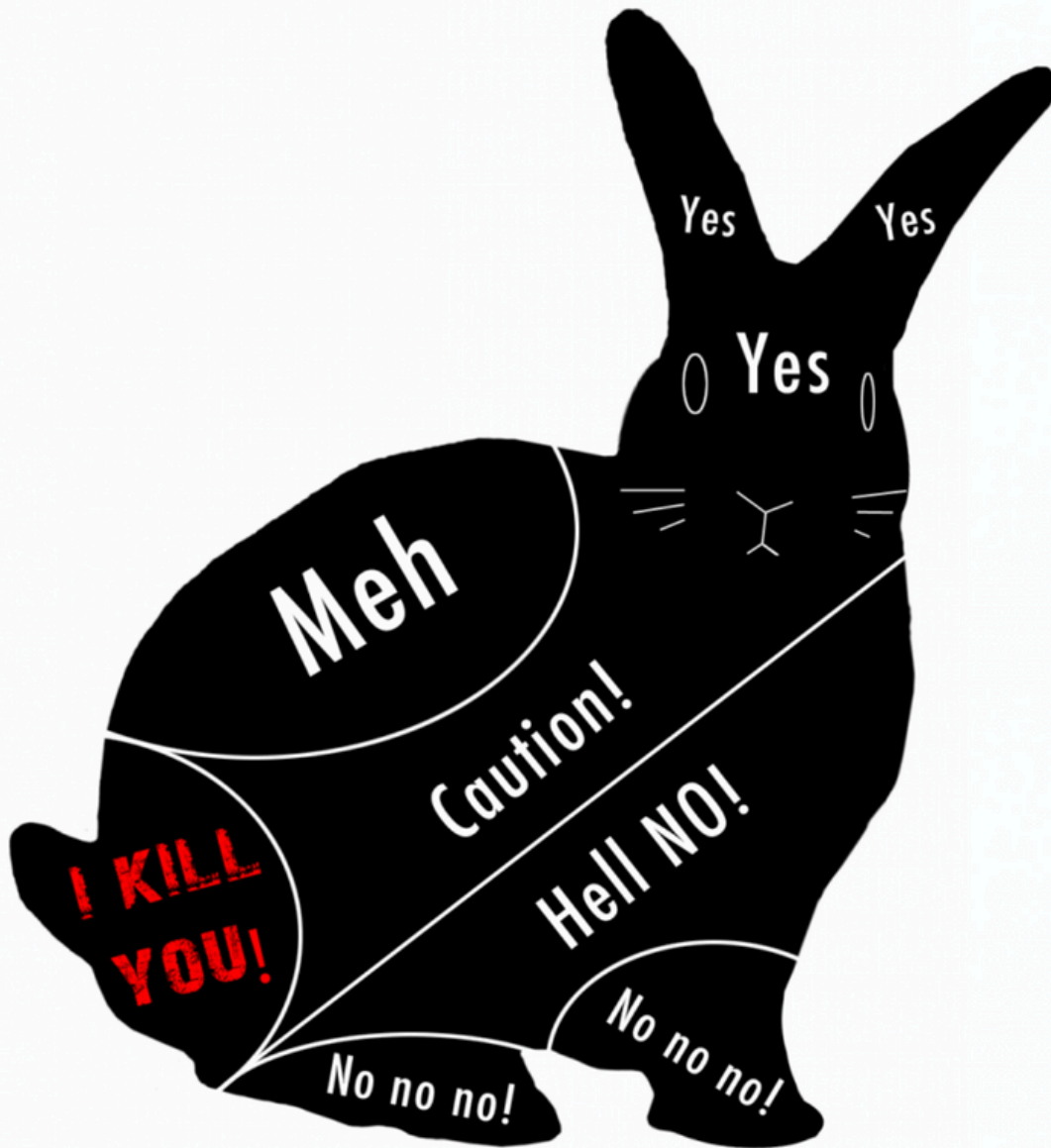


# Bunny Sweet Spots

*Petting Your Bunny*

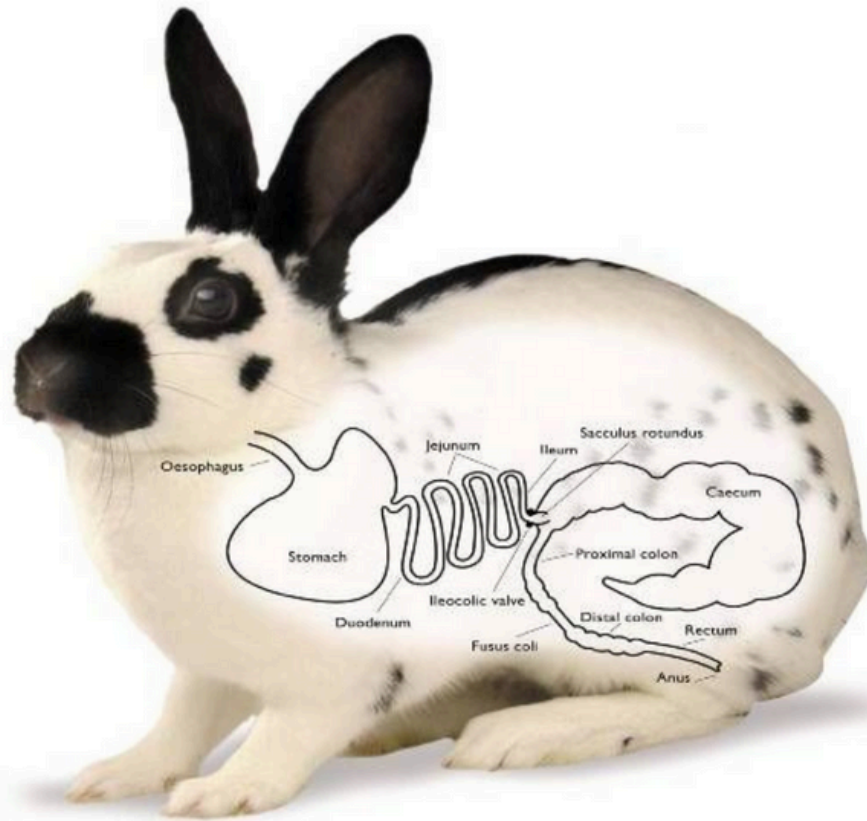


**The nose, face, and cheeks** seem like safe areas to try. Under the chin might or might not be a problem area, depending on the rabbit. The back is likely safe. The belly, feet, and rear end seem like no-go areas for most bunnies.

Many bunnies are most receptive to petting when they're relaxing after a meal. So if your rabbit doesn't appear interested in affection, wait until just after feeding time. The breed of your rabbit will also affect whether or not your bunny is more affectionate than some other breeds.



# RABBIT DIGESTIVE TRACT



Most animals can't digest fiber well, and it travels through them without much happening. Rabbits, however, have this nifty way of breaking down fibrous plant material and getting to all the nutrition stored inside.

In the rabbit GI system, food goes into the mouth, down the throat, through the stomach, through the intestines, then the colon and out the other end, just like it does for most mammals. But...the enzymes present during that process can't break down fiber well at all. So rabbits divert much of the fiber to the caecum. The caecum is where the extra steps in digestion start. In the caecum, there are special bacteria that ferment and break down digestible fiber, getting all the nutrients locked inside. Some of the nutrients can be digested right there in the caecum, but most need another pass down the small intestines for absorption, so the food has to pass through your rabbit a second time.

How does this second trip through the system work? The nutrients needing another pass move from the caecum back into the colon, and exit your bun as caecotrophs. These are larger, softer, and usually a slightly different color than the other litter box contents (they are usually together in a cluster, like a little bunch of grapes), and are a very important part of your rabbit's nutrition. Your rabbit eats these caecotrophs, giving the GI tract another chance to absorb all nutrients that are now all broken down and ready for use. Herbivores get so much more out of their food this way! And since they already spend about 75% of their waking hours eating, getting all they can out of their food is essential. They simply couldn't eat enough to get all the necessary nutrients if it weren't for this cool caecum/bacteria thing they've got going on.

All of this has to happen at a particular rate, in order to keep things working properly. If there is a lack of fiber slowing down the movement rate through the system, the bacteria in the caecum can get out of balance. For your rabbit has swallowed during grooming can begin to form a blockage. Gas can build up and cause pain and bloat. All kinds of bad things happen when fiber isn't moving through your little friend at the right speed.

So big shout of appreciation for lots of hay!



# Cachexia



Weight loss can occur in rabbits, but when they lose 10 percent or more of their normal body weight it becomes a major concern -- no longer an issue of decrease in fluid weight. It is especially worrisome when the weight loss accompanies muscle atrophy (or the wasting away of muscle mass). This state of poor health is usually referred to as cachexia, and it requires immediate medical attention.

## Symptoms and Types

The symptoms the rabbit displays are dependent on the underlying cause of the condition. However, general signs will include thinness or a reduced size and appearance. Other signs and symptoms may include:

- Lack of stool production
- Grinding of teeth
- Hunched over posture
- Drooling
- Bad breath
- Inability to eat
- Disinterest in food
- Distension or abnormal bloating in the intestinal area around the stomach
- Masses or foreign bodies present when touching (or palpating) the abdomen
- Abnormal breathing sounds
- Heart murmurs or irregular heart rhythms

## Causes

There are many different causes for cachexia (and weight loss) in rabbits. These can include increased metabolism. For example, the animal's body may start using lean muscle for energy in order to carry out its daily functions. Metabolic disorders such as organ failure or disorders associated with cancer can also bring this type of weight loss. Some other common causes may include:

- Dental diseases which can make eating difficult
- Dietary causes, including too little food or poor quality food
- Gastrointestinal disorders
- Central nervous system disorders that can contribute to anorexia or similar disorders
- Neuromuscular diseases and pain (e.g., degenerative joint disease)
- Spinal problems (e.g., spinal fractures or dislocations)



# Hematuria - Blood in the Urine

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Hematuria is defined as the presence of blood in the urine. Although dietary pigments (i.e., components of ingested food or drink) or blood from the female reproductive tract can sometimes lend a red tinge to the urine, this should not be confused with true hematuria, which is indicated by blood that has originated with the stream of urine.



## Symptoms and Types

- Red-tinged urine (due to the discharge of blood clots)
- Painful abdomen on palpation
- Development of tumor/lump
- Enlarged bladder, leading to distended abdomen
- Frequent bruising (due to excessive clotting)
- Urocystoliths (bladder stones) may be detected by abdominal palpation; often, one single, large calculus can be felt

## Causes

Sedentary rabbits, female rabbits, and middle-aged rabbits are all at risk of developing hematuria. This may be due to kidney stones, bacterial bladder infections, and/or an increase of calcium in the blood. The most common cause of hematuria in intact females, however, is the dysfunction of the reproductive tract. Coagulation, clotting disorders, or an injury to the genitals, urinary tract or bladder may also cause blood to develop in the urine.





# Idiopathic Epileptic Seizures in Rabbits

Rabbits, much like humans, can suffer from epileptic seizures. Occurring when specific neurons in the brain reach a point of "hyper excitability." This, in turn, can lead to bouts of involuntary body movement or function in the rabbit. You must be very careful with the rabbit during these periods of excited cerebral activity, as the seizures can cause brain damage.

## Symptoms and Types

The signs and symptoms of seizures may depend on the cause for the seizure. Seizures can be due to an epileptic episode or may be non-epileptic, caused by genetic malformations or lesions in the brain. Regardless of the type, some signs of epilepsy that are relatively common include:

- Rolling of the body and signs of distress
- Paddling of the hands or limbs
- Mental confusion
- Blindness
- Head tilt
- Loss of muscle tone
- Thick, white and creamy fluid or pus found in the ear
- Fainting (although this is rare in rabbits)

## Causes

Certain breeds of rabbit may be more likely to experience seizures than others. For example, dwarf breeds are more likely to have suppressed immune systems, and thus are more likely to become exposed to an infection with *Encephalitozoon cuniculi*, which can cause seizures. White, blue-eyed rabbits and lop-eared rabbits are also more likely to develop forms of epilepsy or seizures.

Other causes for seizures include:

- Metabolic causes, including low blood sugar
- Toxicities, including exposure to heavy metals and other chemicals
- Cardiovascular diseases
- Genetic or externally caused epilepsy
- A head injury leading to brain damage
- Structural causes like brain lesions, bacterial infections or parasitic infection (e.g., toxoplasmosis)



# Intoxication (Poisoning) in Rabbits

Ingestion of toxic substances has the potential for affecting many of a rabbit's body systems. Intoxication, the clinical term given to poisoning, may be due to eating poisonous substances, such as poisonous plants, or chemicals like rodent poisons, and lead. Intoxication can also occur as the result of inadvertent administration of drugs. Many antibiotics that are commonly prescribed to other mammals can be fatal to rabbits. Rabbits may also have adverse reactions to many common topical products that are safe for use in other mammals, like cosmetic soaps, shampoos, or sprays.



## Symptoms and Types

- Seizures
- Digestive signs of intestinal inflammation
- Loss of body temperature regulation – high or low
- Lethargy, listlessness
- Loss of appetite
- Depression

## Causes

### *Ingested toxins*

- Poisonous plants - especially for rabbits that graze outdoors
- Some indoor houseplants can be toxic to rabbits
- Lead poisoning - chewing or licking lead-containing household substances, especially painted surfaces or metallic objects
- Anticoagulant rat poison
- Inappropriate oral medications or overdose of medication
- Certain antibiotics
- Certain pain medications

### *Topically applied products*

- Flea collars
- Organophosphate-containing products – products used for killing insects, on the body or in the immediate environment
- Certain sprays and ointments used in high concentrations
- Insecticides and pesticides – household or outdoor



# Pruritus in Rabbits

Pruritus is the sensation that provokes the rabbit to scratch, rub, chew, or lick a certain area of its skin. This is often indicative of inflamed skin which can occur in any of the animal's many dermal layers. The condition also affects the systems used to regulate skin secretions.

## Symptoms and Types

- Scratching
- Licking
- Biting
- Chewing
- Hair loss
- Self-injury
- Skin inflammation (i.e., redness, swelling, rash)

## Causes

- Skin tumors
- Parasites (e.g., ear mites, fleas, fur mites)
- Allergies (e.g., food allergy, medication allergy, etc.)
- Irritants (e.g., soaps, shampoos, bedding, harsh cleaning solutions)

## Treatment

After identifying the underlying cause, the veterinarian will begin treatment. If allergies are thought to be the cause, they will prescribe antihistamines. Otherwise, sprays, ointments or gels for local application are given; sometimes a zinc oxide plus menthol powder is prescribed. However, it is important that during treatment the affected area should be kept clean and dry.



## Ear Mites

Ear mites are a parasite that climbs into a rabbit's ears causing them to become crusty and inflamed. They can be easily treated, but if they're not caught early enough they can cause a bacterial infection in your rabbit's ear.

### Symptoms

The very early stages of an ear mite infection are difficult to detect. The ear mites will climb down deep into the rabbits ear canal, so the crusting won't be noticed unless you're looking into your rabbits ears. As the infection progresses, you may notice these signs in your rabbit:

- Scratching or chewing on at their ears.
- Shaking their head.
- Thick brown Crusting on their ears, especially in the ear canals.
- Scratch marks or thinning fur on their ears and on the areas near the base of the ear.
- Drooping ears, or holding their ears against their back.
- Inflammation on the ears.

Do NOT attempt to peel of the crusting from your rabbits ears. This can be incredibly painful for rabbits. Instead, follow your vet's instructions. As your rabbit heals the crusts will begin to fall off on their own.

# Lameness

Lameness is defined as the disability of a limb to the point where movement is impaired. This is typically the result of a severe limb injury or as a side-effect of severe pain in the limbs. As the rabbit spends less time using the limb it may begin to favor other unaffected limbs. Moreover, the rabbit will appear to walk rather than hop, as it will not use its hind limbs to push off. The muscular, nervous, and skin systems may all be affected by lameness.



## Symptoms and Types

In addition to limited range of motion in the joints, abnormal positioning of joints, and abnormal joint sounds, a rabbit with lameness may display signs such as:

- Pain
- Depression
- Lethargy
- Hunched posture while sitting
- Reluctance to move
- Hiding
- Teeth grinding
- Grunting or crying with movement
- Decreased appetite or water intake
- Lack of self grooming
- Faulty gait — difficulty with hopping, climbing (stairs)
- Imbalanced muscle mass
- Bony prominences
- Swelling over joints
- Urine scald in the perineal region (due to inability to correctly position self for urination)

## Causes

There are a variety of causes for lameness, including:

- Congenital development abnormalities
- Injury to soft tissue, bone, or joint
- Infection — abscess, septic arthritis, pododermatitis (foot infection)
- Soft tissue or bone tumors
- Arthritis
- Shoulder or hip dislocation (dysplasia)
- Elbow dislocation (dysplasia)
- Ligament tears or injuries
- Fractures
- Spinal diseases (intervertebral disc disease)
- Spondylitis (inflammation of the vertebrae)
- Obesity, lack of exercise

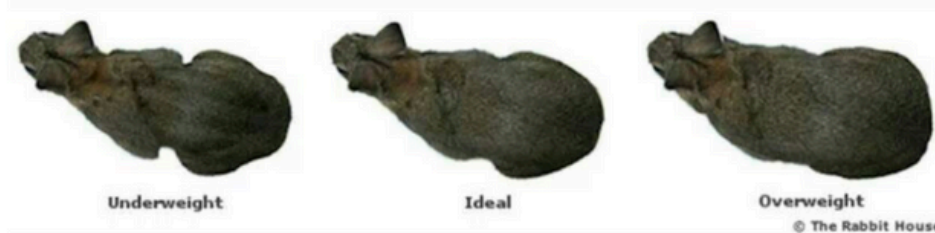






# RABBIT BODY SCORING CONDITION CHART

SCORE	GRAPHIC	DESCRIPTION/WHAT TO LOOK FOR
1		<ul style="list-style-type: none"> <li>• Sharpness of the hip and shoulder bones as well as spine and ribs can be felt when petting and may be visible through the skin and coat.</li> <li>• Visible indentation around pelvis.</li> <li>• Palpating limbs, lack of muscle can be felt.</li> <li>• Lack of fat/fold under chin (dewlap).</li> <li>• Tummy is concave (high arch).</li> </ul>
2		<ul style="list-style-type: none"> <li>• Hip and shoulder bones as well as spine and ribs are easily identifiable when petting.</li> <li>• When standing neutrally on all four legs, back is flat.</li> <li>• Palpating limbs, muscle and fat layer is thin.</li> <li>• Little fat/fold under chin (dewlap).</li> <li>• Tummy is concave (arched).</li> </ul>
3		<ul style="list-style-type: none"> <li>• Hip and shoulder bones as well as spine and ribs can be felt when petting but under a layer of fat (not sharp).</li> <li>• When standing neutrally on all four legs, back has gentle slope from shoulders to tail.</li> <li>• Palpating limbs, muscle and fat layer is noticeable.</li> <li>• Fat/fold under chin (dewlap) is present and feels like skin fold (not full of fat).</li> <li>• Tummy is flat or slightly concave (gentle arch).</li> </ul>
4		<ul style="list-style-type: none"> <li>• Pressure must be applied when petting to feel hip and shoulder bones as well as spine and ribs.</li> <li>• Palpating limbs, a thick fat layer is noticeable.</li> <li>• Fat/fold under chin (dewlap) is noticeable and has cushion (fat).</li> <li>• Tummy is slightly convex (sagging).</li> </ul>
5		<ul style="list-style-type: none"> <li>• Cannot feel hip and shoulder bones nor spine and ribs when petting, even when slight pressure is applied.</li> <li>• Palpating limbs, a thick fat layer is noticeable.</li> <li>• Fat/fold under chin (dewlap) is pronounced and has cushion (full of fat).</li> <li>• Tummy is convex (sagging).</li> </ul>



# RABBIT EYE DISEASES 1

## Encephalitozoon-associated uveitis



The dense white mass lesion in the iris with vascularisation is virtually pathognomonic for a lens-induced uveitis associated with Encephalitozoon cuniculi infection. The pathogenesis appears to be that the parasite enters the lens in utero and exits later sometimes giving cataract and sometimes a lens-induced inflammation, characteristically appearing as a variably vascularised white mass. Treatment can be by phacoemulsification of the lens, but a medical therapy if surgery is not possible, involves anti-inflammatory medication with topical steroid or NSAID and anti-parasitic systemic medication such as oral albendazole.

## Cataracts - Cloudy Eye

A cataract is an opaque film on the lens of the eye, and may mean the lens is entirely or only partially clouded. In most instances, cataracts are present at the rabbit's birth.

### Symptoms and Types

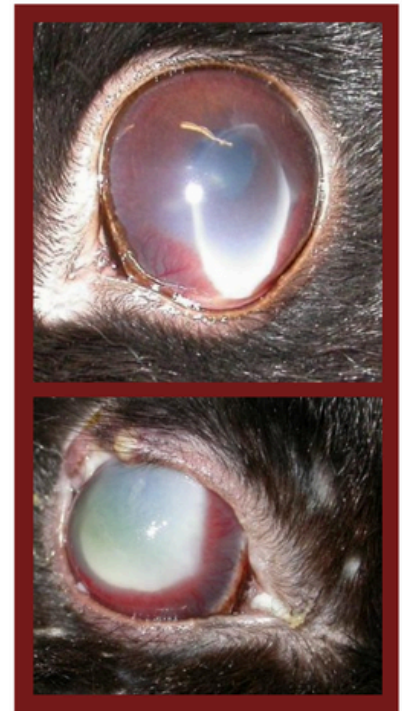
- Lens is partially or fully opaque
- Eye discharge (hyper-mature cataract)
- Swelling of the iris
- White nodule-like bumps on the iris

### Cataract types:

- Immature – lens partially covered
- Mature – entire lens covered
- Hypermature – lens liquefaction has occurred

### Causes

Cataracts are most commonly present at birth. However, it may develop spontaneously and with no known cause. It occurs for many reasons, but is usually related to a bacterial infection (encephalitozoon cuniculi). Other causes include a nutritional deficiency or elevated levels of glucose in the blood. Cataracts may also develop spontaneously with no known cause.



# RABBIT EYE DISEASES 2

## Hyperemia and Red Eye

Red eye is a relatively common condition which causes swelling or irritation in the rabbit's eye or eyelid. This appearance of blood vessels in the eyeball can develop because of various reasons, including many systemic or body diseases. If your rabbit has red eye, seek veterinary advice immediately, as it is generally a secondary symptom to a more serious condition.

### Symptoms and Types

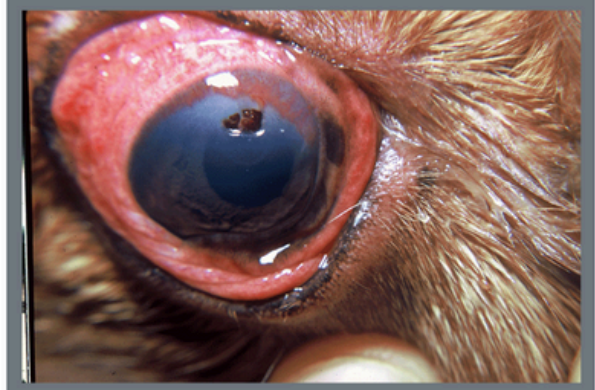
The signs and symptoms of red eye and related conditions often depend on the underlying cause. For example, if the red eye is due to a dental disorder, there may be signs of tooth decay or dental disease in the animal. Other common signs and symptoms may include:

- Impaired vision
- Swollen eyelids
- Eye discharge
- Extra tissue around the eyes
- Nasal discharge and upper respiratory infection or cold
- Hair loss and crusting in the mucous membrane, especially around the eyes, nasal area and cheeks
- Lethargy
- Depression
- Abnormal posture
- Facial masses

### Causes

Because there are many causes to rabbit red eye, it is often difficult to identify the exact cause. However, some factors may include:

- Bacterial infections, including *Treponema cuniculi* (or rabbit syphilis), which can cause swollen eyelids
- Conjunctivitis, a common disorder causing red eye that can result from allergies, bacterial or viral irritants; sometimes occurring as a side-effect of a respiratory tract infection
- Keratitis, which is usually a fungal infection of the eye, and which can follow an injury to the eye
- Glaucoma, which if left untreated, can cause blindness
- Dental diseases, which can bring debris in the eye, causing inflammation or blocking a tear duct



# RABBIT EYE DISEASES 3

## Dacryocystitis



This is dacryocystitis - inflammation (and in all probability infection) of the nasolacrimal duct. The rabbit has a narrow duct with two points at which the duct bends and narrows. This, together with the likelihood of maxillary bone involvement in nutritional bone disease and dental abnormalities, leads to this build up a pus, shown well here as it leaves the single nasolacrimal punctum. Regular flushing and probably systemic antibiotic therapy too are steps to resolution of the problem, but the road to a cure, like the nasolacrimal duct itself, is long and tortuous!!

## Glaucoma

Glaucoma is a relatively common condition in the rabbit, being inherited as a recessive trait in the New Zealand White rabbit but also seen in several other breeds with New Zealand White in their pedigree.

### **Cause:**

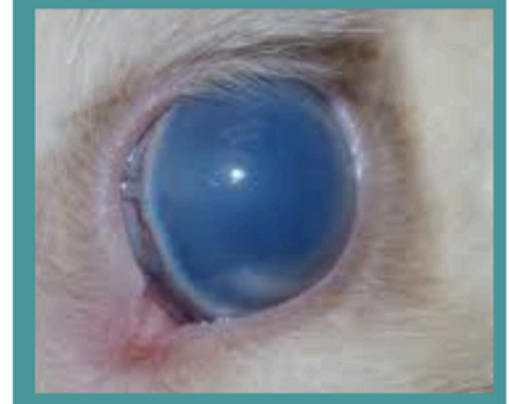
Hereditary, can occur secondary to uveitis if inflammatory debris blocks the iridocorneal drainage angle, may also occur secondary to intraocular neoplasia.

### **Signs:**

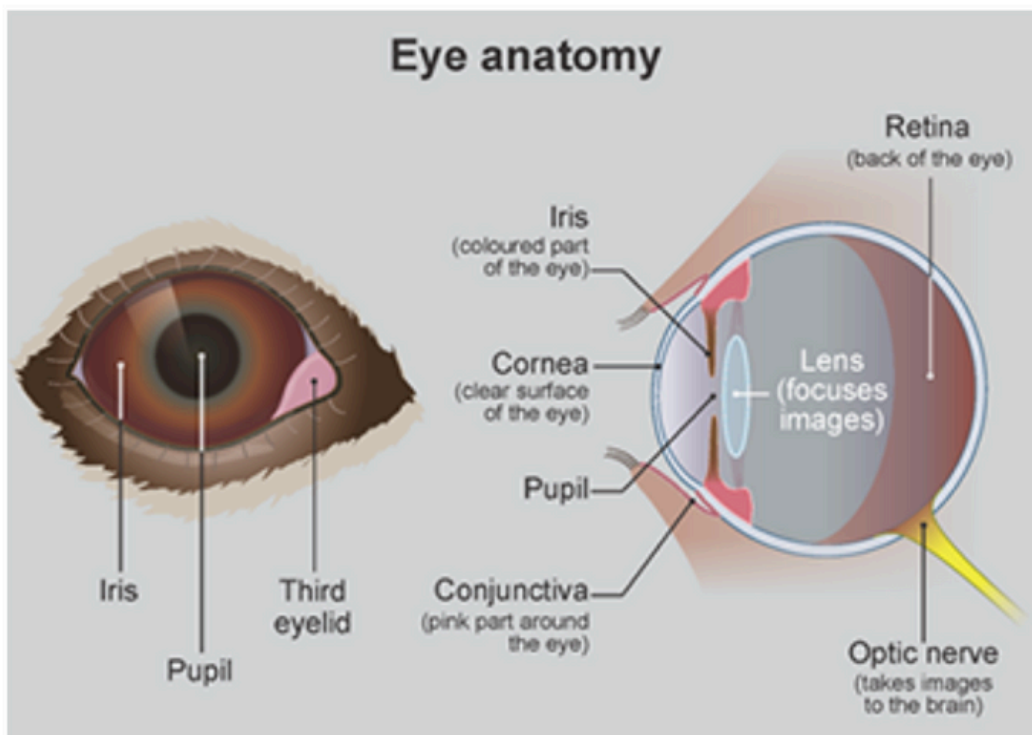
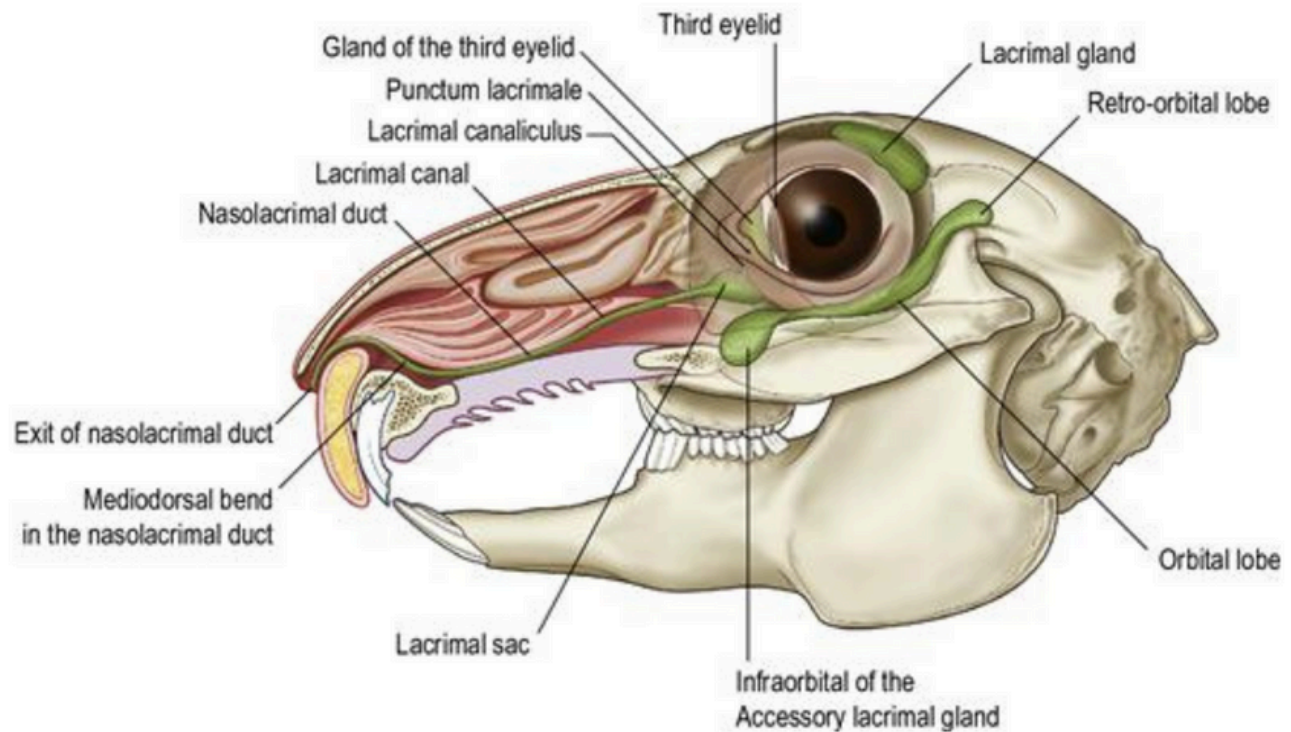
Cloudy white cornea and blindness. Secondary lens luxation may occur due to progressive globe enlargement. Secondary exposure keratitis may be seen. This may lead to corneal ulceration and globe rupture if severe.

### **Treatment:**

Topical anti-glaucoma medication, surgery.



# Rabbit Head & Eye Anatomy



# Rabbit Head Tilt

Head tilt can affect all rabbits with no predisposition in the sex, age or breed. It's a noninfectious condition which can appear gradually, or all of a sudden for a number of different reasons. No matter when or why it appears, the results are the same, your rabbit will walk around with difficulty and with lack of coordination due to his head being sideways.

However, **head tilt is not considered a disease**. It is actually considered a **symptom of a condition** that can affect your rabbit. The health issue can originate in many areas, such as his balancing system which includes his central nervous system (CNS), his vestibular apparatus in his inner ear, his visual system, as well as his pads on his feet that tell him he is standing on solid ground.



Even though head tilt in rabbits is probably one of the most difficult and distressing conditions you may ever have to witness your rabbit go through, there is good news. If your rabbit is diagnosed with head tilt, he can survive and lead a happy and healthy life. In most cases head tilt is treatable. However, the recovery process can be slow and it is dependent on whether or not it was diagnosed and treated early enough, as well as the cause.

Due to the seriousness and progressive nature of head tilt in rabbits, it is highly recommended that you immediately contact your veterinarian if you notice that your rabbit is displaying balance or coordination trouble. Head tilt in rabbits is also known as wryneck. The medical term for this condition is **torticollis**. It is a condition when a rabbit's neck twists and causes it's head to tilt to one side. Head tilt can affect male or female rabbits of all ages and breeds.

## SYMPTOMS

Depending on how long the condition has been present, the severity, and the reason why your rabbit is suffering from head tilt, you may observe one or more of the following symptoms:

- Ataxia
- Circling
- Disorientation
- Head shaking
- Head tilting
- Lack of appetite
- Nystagmus
- Paralysis or weakness in hind end
- Rolling
- Scratching at ears

In some cases, clinical signs can be very vague, or even nonexistent. If your rabbit is showing any of the symptoms listed above, you should take him to your veterinarian immediately.

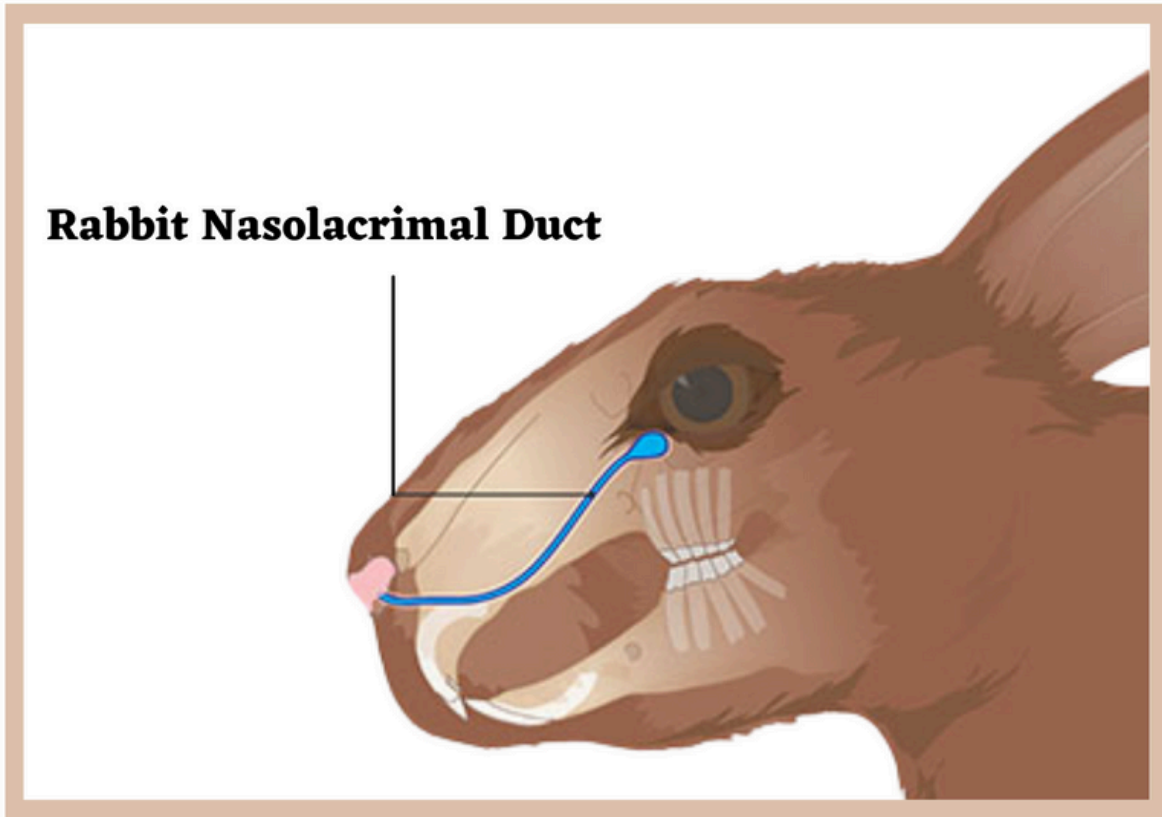
## CAUSES

While there are many different causes for head tilt in rabbits, the most common causes are an infection such as *Encephalitozoon cuniculi* (mainly observed in dwarf breed rabbits), *Pasteurella multocida* (mainly observed in standard breed rabbits), or head trauma. Other causes for head tilt in rabbits can be:

- Abscess
- Cancer
- Cerebral larva migrans
- Cervical muscle contraction
- Encephalitozoonosis
- Inner / middle ear infections
- Parasitic infection
- Poor nutrition
- Stroke
- Tumors



## Rabbit Nasolacrimal Duct



A blockage of the nasolacrimal duct is often a sign of another underlying condition in your rabbit, such as rhinitis, infections, dental issues, abscesses, or even in very rare cases, cancer. Often, treatment of the underlying problem will solve the issue, with some animals requiring lifelong care.

The nasal duct, or the nasolacrimal duct, runs from the corner of the eye to the sinus cavity. A blockage in this duct will produce signs like runny eyes or nose, wet areas of the skin, and eye and nose discharge.

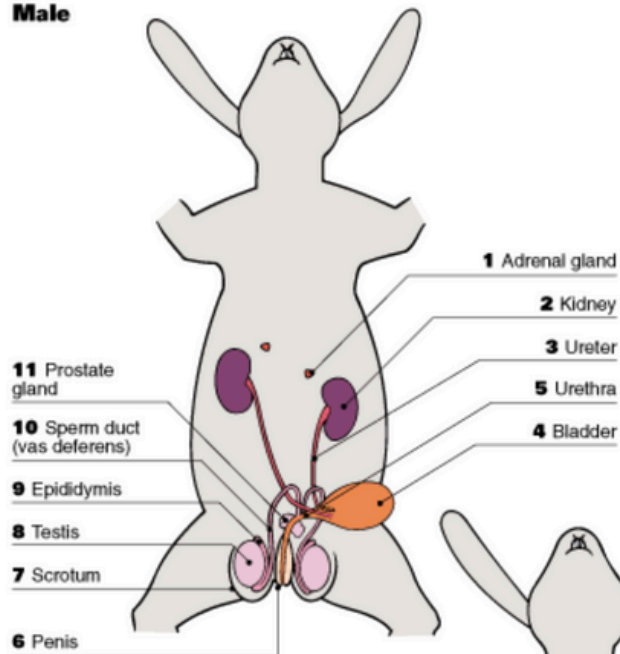
Symptoms of a nasolacrimal duct obstruction include:

- Excessive tearing, or epiphora
- Wet fur around eye, face and front feet
- Dried crusts from tears on face
- Fur loss
- Inflamed and painful areas of skin
- Bacterial infections on skin
- Tear staining of hair and skin
- Nasal discharge
- Creamy ocular discharge
- Constant sneezing

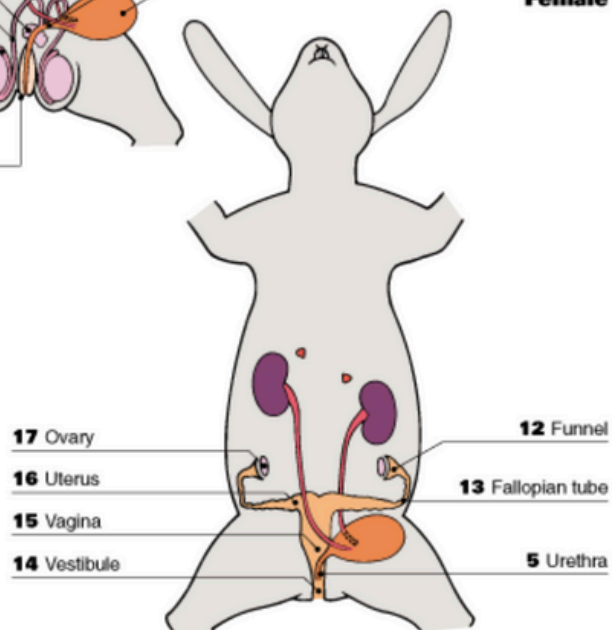


# RABBIT REPRODUCTIVE SYSTEMS

## Male



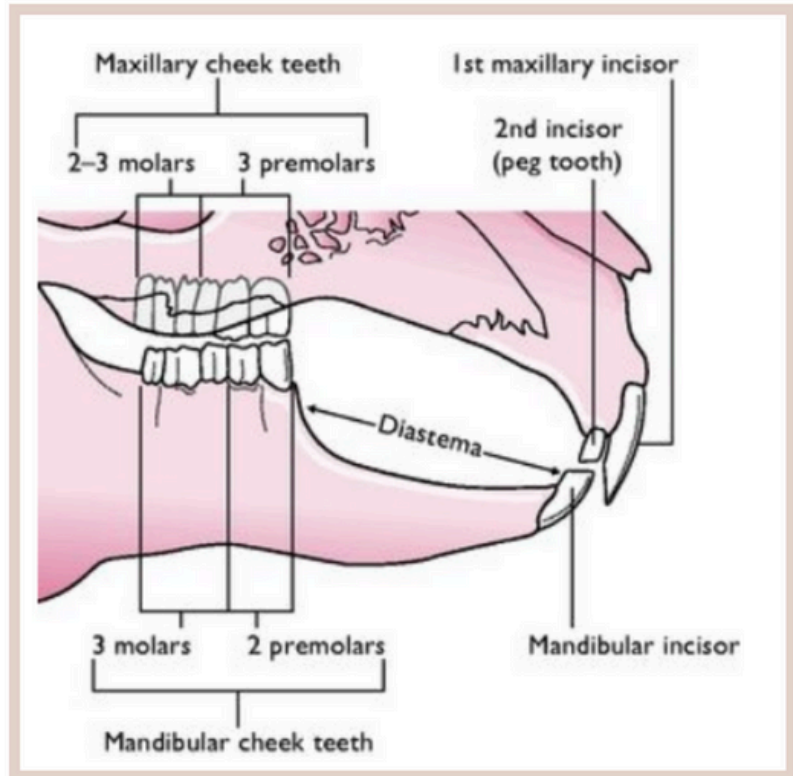
## Female





# RABBIT TEETH

**An adult rabbit has 28 teeth.** There are six incisors: two pairs of incisors on the “top” or maxilla (the second pair, often referred to as “peg teeth” are much smaller and are positioned behind the longer front incisors), and a pair of lower incisors on the jaw, or mandible. Rabbits do not have canine teeth, but do have three pairs of premolars on the maxilla, two pairs of premolars on the mandible, and three pairs of molars on the maxilla and also on the mandible. These premolars and molars are often referred to as “cheek teeth”, and there are more “cheek teeth” on the maxilla than on the mandible, and the mandible is narrower than the maxilla. The cheek teeth are separated from the incisors by a fairly long space of cleft (diastema), which is extremely helpful when syringe feeding medicines to a rabbit. All rabbit teeth grow continuously throughout the rabbit’s lifetime. The four larger incisor teeth are used to grasp, tear, and slice, while the “cheek teeth” are used to grind and chomp. When at rest, the tips of the lower incisors are normally positioned between the maxillary first incisors and the peg teeth. The cheek teeth, however, should be slightly out of alignment in the “at rest” position. The cheek teeth are brought into alignment (occlusion) when the mandible (jaw) is slightly retracted and angled so that the jaw joint (temporomandibular joint) can reposition itself, allowing the cheek teeth to come together, while at the same time, separating the incisors. This allows the cheek teeth to move laterally while chewing, without interference from the incisors. The tongue, of course, plays an important role in moving food from the incisors back to the cheek teeth where it is ground.



## DIET

Three to four millimeters of incisor tooth are worn away each week, with the cheek teeth wearing around this amount every month”. Because a rabbit’s teeth are made to wear down rapidly, an improper diet can affect the teeth in just a few days. Therefore, the type and form of food a rabbit eats is extremely important for maintaining healthy tooth wear.

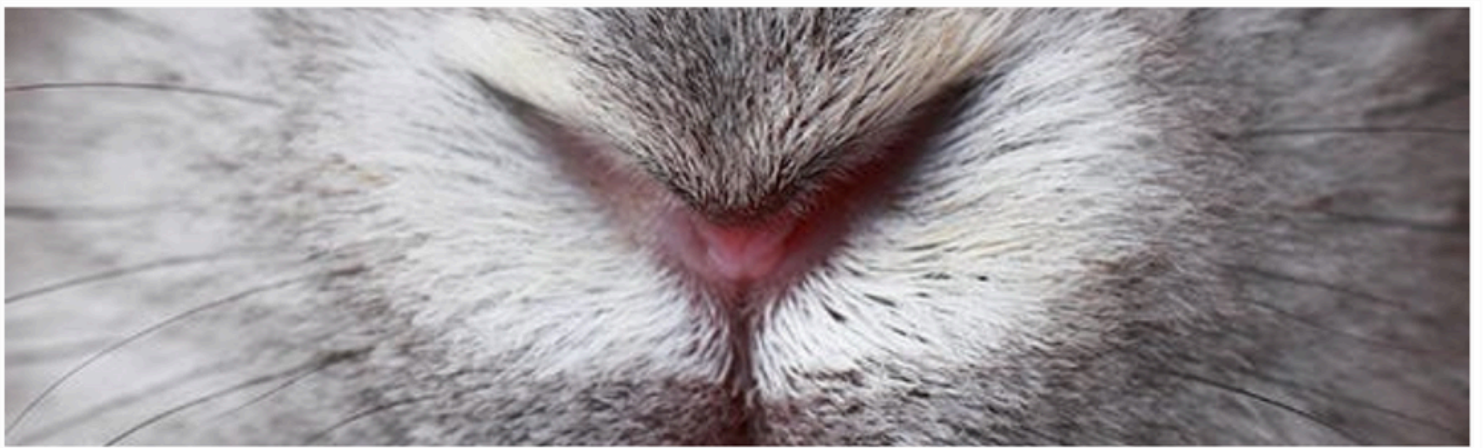
Grass and other leafy vegetation is very abrasive and full of many different mineral particles. It takes a rabbit more time and requires more effort to eat grass and hay than it does to eat commercial pellets. Therefore, a diet high in this type of vegetation will cause more tooth wear than a diet where pellets are the main source of food. The grass and hay must be sliced into short sections by the incisors, and then ground by the cheek teeth which move laterally. Pelleted foods are usually quickly crushed by the cheek teeth. Grinding the lateral chewing motion is significantly reduced, which results in only partial tooth wear, and provides the potential for the development of painful spurs. It is also important to note that the mandible teeth grow up to one and a half times faster than the maxillary teeth, and as noted previously, there are more teeth on the maxilla than on the mandible, and the mandible is narrower than the maxilla.

Some breeds, such as dwarf and lop rabbits are more prone to having dental problems due to their shape and inbreeding. Once dental problems begin to affect how efficient the teeth can chew, most rabbits will change their eating habits. Often the rabbit caretaker will notice that their rabbit is more interested in eating higher energy foods such as commercial pellets instead of hay, grass, and other leafy vegetation. If the problem is not corrected right away by a rabbit savvy veterinarian, it can lead to some serious medical consequences, which in some cases, are difficult, if not impossible, to reverse.

## POTENTIAL DENTAL CONDITIONS

- Elongation of cheek tooth crown
- Spurs on the cheek teeth
- Decay of bone or teeth (caries)
- Soft tissue lesions, often located on the sides of the tongue, underneath the tongue, or on the cheeks
- Root elongation of the cheek teeth
- Swelling along the mandible (frequently mandible abscesses will develop which can lead to osteomyelitis)
- Bulging of the eye (sometimes a retrobulbar abscess will develop as a result of dental problems)
- Ocular discharge (sometimes caused by a tooth root obstructing the nasolacrimal duct)
- Food impaction around cheek teeth which can lead to infection
- Periodontal abscesses or infection
- Incisor malocclusion
- Temporomandibular joint problems (TMJ)
- Fractures of incisor roots



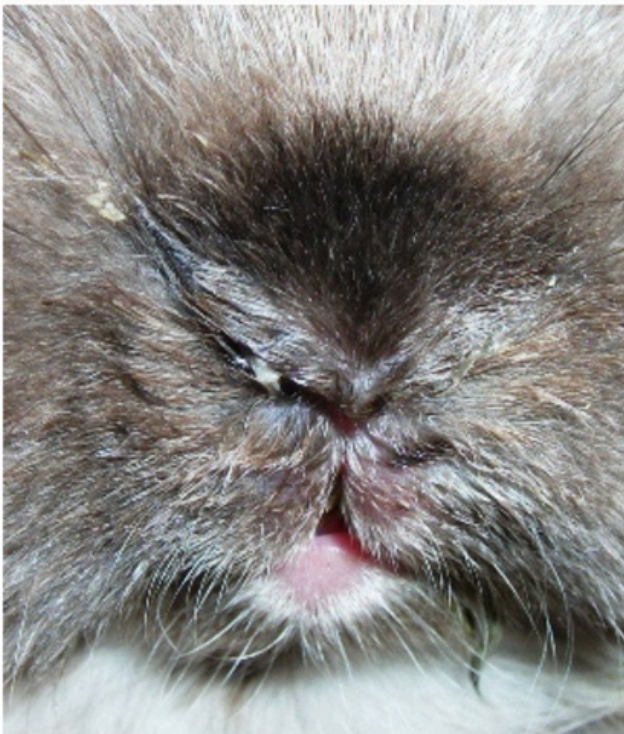


# Respiratory Tract Infections

Rabbits are obligatory nasal breathers, meaning they **must breathe through their noses and cannot breathe well through their mouths**. They commonly get respiratory tract infections that can affect both their upper airways (nose and trachea) and lower airways (lungs).

Rabbits with infections confined to their upper airways often are referred to as having “**snuffles**.” Rabbits with mucus and discharge blocking their nasal passages may sneeze repeatedly and have trouble breathing. “**Pneumonia**” is reserved for those that have an infection affecting the lower airways as well as the upper. Those with pneumonia may also have trouble breathing, and may wheeze and sneeze.

Rabbits with respiratory tract infections may have decreased appetites, eye discharge, decreased stool production, and weight loss. They may develop GI stasis secondary to respiratory tract infection. Respiratory tract infections in rabbits are most commonly caused by bacteria — especially bacteria called **Pasteurella**. **Pasteurella** bacteria are often carried by rodents, such as guinea pigs; thus, rodents and rabbits should never be housed together.

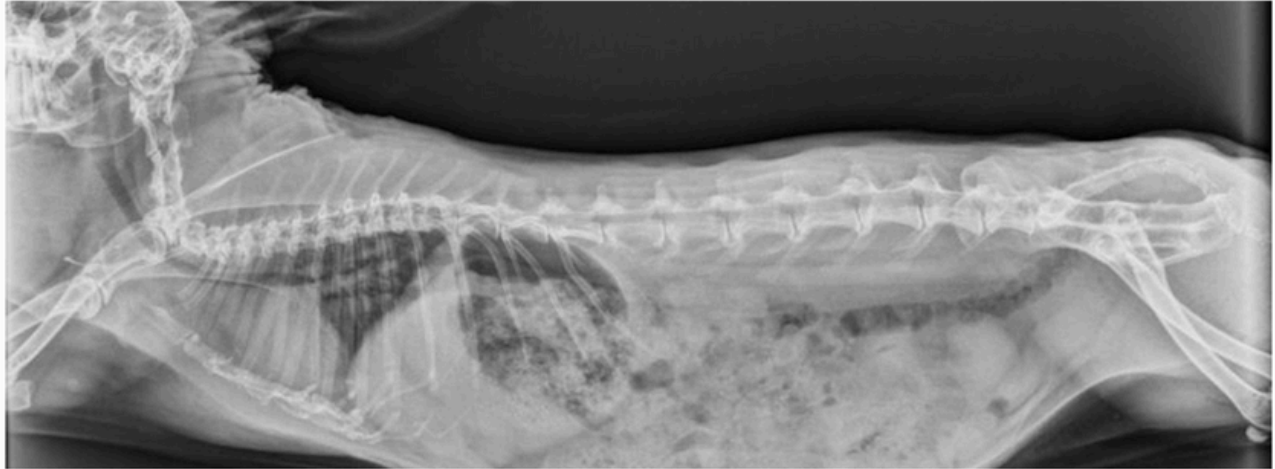


Other types of bacteria, beside Pasteurella, as well as certain viruses, and occasionally fungus, can cause respiratory tract infections in rabbits, too. Rabbits with respiratory tract infections — especially those that are having trouble breathing — should be checked by a veterinarian as soon as possible. X-rays are often necessary to assess the rabbit's lungs. Severely affected rabbits may need to be given oxygen, antibiotics, and anti-inflammatory drugs, as well as fluids subcutaneously or intravenously, and syringe feeding. Rabbits with blocked nasal passages may need their nostrils cleared so that they can breathe.

Left untreated, rabbits with respiratory infections can die. With long-term medical treatment and supportive care, however, even rabbits with pneumonia can make a full recovery.



# Vertebral Fracture or Luxation



Normally, rabbits have very strong hind legs, which they use for hopping. Vertebral fracture or luxation (dislocation) of the limbs in rabbits is a common cause for weakness and paralysis of the hind limbs.

Sometimes, often because of improper handling, caged rabbits can twist their legs right at the junction of their lumbar spine and sacrum (base of the spine), which can result in a vertebral fracture. Some develop what is called a luxation, which is a dislocation that occurs at the lumbar L7 point (the lower spine), though fractures are far more common than luxations. This type of trauma may cause the rabbit to lose control of its bladder function, and possibly lose control of its bowel movements too.



## Symptoms and Types

The signs and symptoms often depend on the severity of the condition. The following are some of the more common signs and symptoms:

- An abnormal or unusual stance, including an inability to hop
- Dragging of the legs
- Inability to get up or sit in an upright posture
- Decreased movement in the limbs and tail
- Paralysis or weakening of the limbs
- Trauma to the legs or back
- Pain may be evident
- Signs of lethargy and depression
- Rabbit appears guarded
- Decreased tone in and around the anus, urinary incontinence
- Increased muscle tone in the front limbs to compensate for loss of movement in back limbs)

## Causes

The causes for vertebral fracture and luxation are varied and may include:

- Improper handling: When restraining rabbits, it is important to restrain the hind legs and the front legs; holding just one or the other may result in dislocation or fracture
- Surprise reaction: A reflexive movement in response to being startled may cause the rabbit to move or jerk suddenly, resulting in dislocation or vertebral fracture
- Trauma: Injury may occur during medical procedures, such as when a rabbit struggles against being given gas anesthetic and attempts to jump away, falling from the table's height; while a rabbit may initially appear calm, many struggle against medical procedures, so it is important to safely restrain the rabbit prior to induction of any medications



# RABBIT CECOTROPES & FECAL DROPPINGS

WHAT GOES IN



Cecotropes



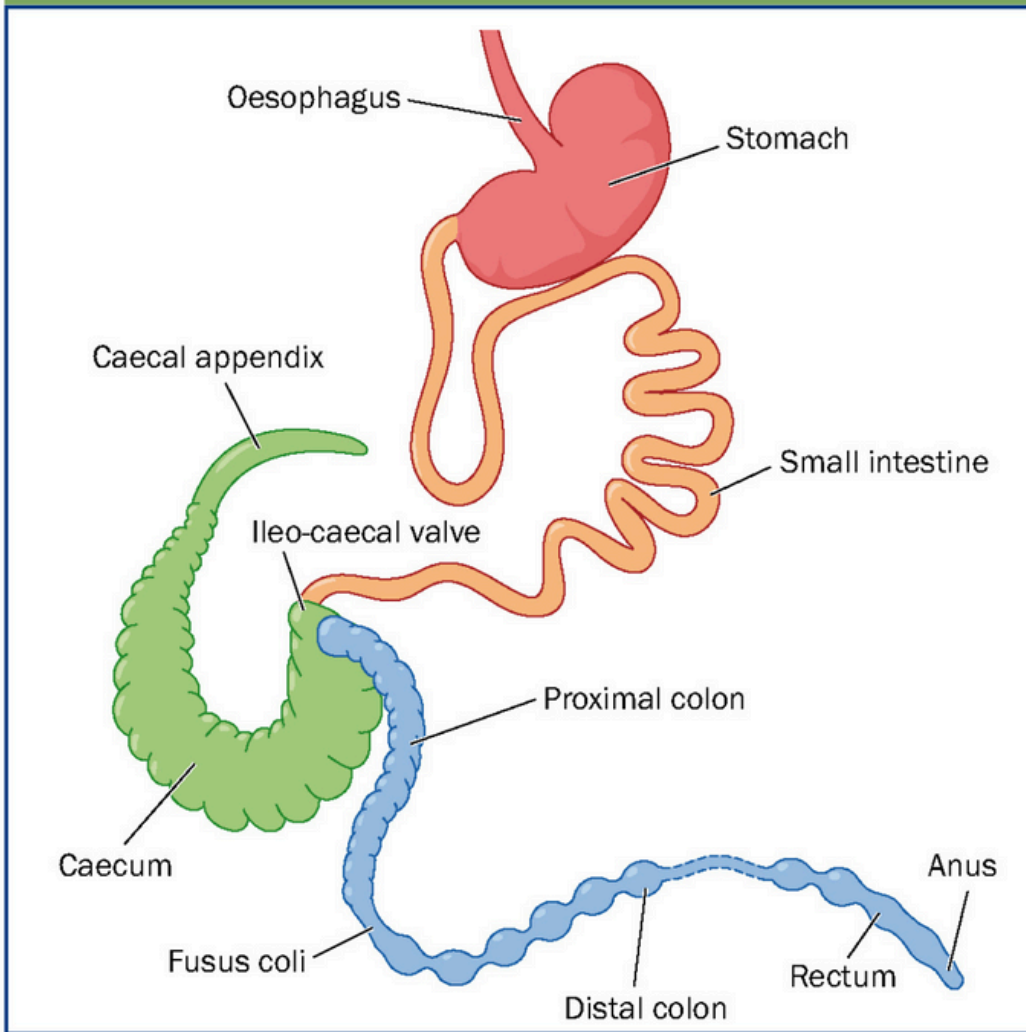
Hay/Grass



Dry Food



Fresh Greens



WHAT COMES OUT

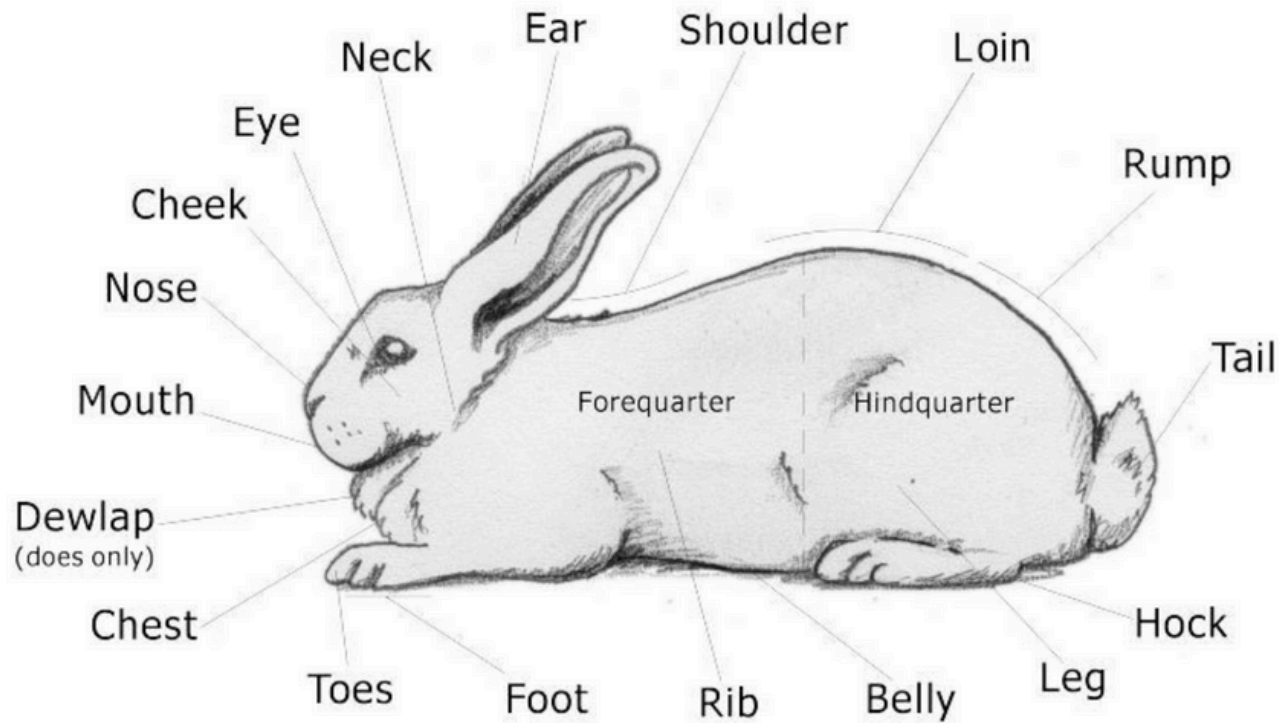
Fermented fibre back from the caecum is coated in protective mucus, then excreted as cecotropes, special droppings which are reingested so the nutrients can pass through the small intestine to be absorbed.



Large particles of indigestible fibre are formed into faecal droppings and excreted



# Simple Rabbit Anatomy



## Some Funny Bunny Anatomy

