Introduction to Rabbit Care

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Rabbits are wonderful pets. They are often easy to litterbox train and many enjoy being out of their enclosure to spend calm, supervised time with their people. This handout covers the basics of rabbit care and is written with the same priorities we use in AAHA-style preventive medicine: safety, good husbandry, and catching problems early.

Handling

Proper handling is essential for rabbit safety. Always support your rabbit's hind end when you pick them up. Never pick up a rabbit by the legs or ears. Rabbits can seriously injure their spine if they kick while unsupported.

Handle your rabbit often when they are young so they become more comfortable with gentle interaction as they mature. Children under 12 should not handle rabbits without close supervision. A safer option for younger children is to sit on the floor with legs crossed and let the rabbit rest in the child's lap.

Housing

Rabbits are curious and explore by chewing. Many rabbits are injured by chewing electrical cords or other unsafe items. Your rabbit should be securely confined any time you are not actively supervising. Wire cages and exercise pens can work well, but rabbits must always have a solid surface to sit and lie on. Rabbits kept on wire continuously can develop sore hocks, a painful skin condition that can become infected and serious. Keeping the environment clean and dry is also important because prolonged contact with urine can worsen sore hocks.

Bedding and flooring should be rabbit-safe. Line the enclosure with newspaper, shredded paper, or a paper-based bedding from a pet store. Eco-Bedding is an excellent option. Do not use wood shavings of any kind.

Your rabbit will appreciate having a hide box inside the pen. It should have multiple entry and exit holes, be large enough for your rabbit to stretch out underneath, and be sturdy enough to sit on top of for rabbits who like to perch and watch what is happening.

Litter Box Training

Rabbits can be litter box trained. Start in a small space with the litter box placed where your rabbit naturally urinates and defecates. Once they use it reliably, gradually increase the space they can access. If your rabbit has access to multiple rooms, place a litter box in each room.

Rabbit litter boxes are not the same as cat litter boxes. Do not use clumping cat litter. Rabbits generally prefer a shallow rectangular litter box. Use the same paper-based bedding used in the enclosure or a baked paper pellet product such as Yesterday's News.

Rabbits pass many dry, round fecal pellets daily. They also pass a special type of feces called cecotropes at night or in the early morning. Cecotropes are softer, stickier, and darker than regular fecal pellets. They contain nutrients produced by bacterial fermentation, including vitamin B, vitamin K, and proteins, and rabbits eat them to absorb these nutrients.

Overweight rabbits may have trouble reaching and ingesting cecotropes. It is very important to monitor fecal output. Changes in the size or number of fecal pellets, or an accumulation of cecotropes, can be a sign of a medical problem and should be addressed promptly.

Indoor vs Outdoor Housing

Until recently, it was common to house rabbits outdoors in backyard hutches. This is no longer recommended. What we now understand about domestic rabbit needs points strongly toward indoor housing as a key factor in long-term health and wellbeing.

Outdoor rabbits are at risk from temperature extremes such as heat stroke and frostbite. They are more susceptible to fleas and fly strike, and they are at higher risk from predators. Rabbits allowed to graze outdoors may also pick up intestinal parasites.

Outdoor rabbits are also observed less closely, meaning early signs of illness may be missed until the rabbit is critically ill. Rabbits are social animals. In the wild they live in large warrens and have a strong need for interaction. Outdoor housing can lead to isolation, stress, depression, and illness.

Diet

Fresh water should always be available. A raised sipper bottle or a raised bowl is more sanitary than a bowl on the floor.

In the past, rabbits were commonly fed unlimited pellets. This is not recommended. Pellet-heavy diets are associated with obesity, urinary disease, soft stools, and reduced hay chewing, which can contribute to serious dental disease. Rabbits are designed to eat large amounts of fiber from grasses and vegetation. Pellets are too rich to be the main diet.

Pellets
Limit your rabbit's intake of pellets to no more than 1/8 cup per 5 pounds of body weight per day. Choose plain timothy-based pellets only. Avoid pellet mixes with seeds, colorful pieces, or "treat" ingredients. Sherwood pellets are a great option. You do not need to feed pellets at all, they are not necessary for good nutrition. We often eliminate pellets for rabbits that are overweight or have teeth issues.

Hay
An unlimited amount of fresh, clean, dry timothy hay should be available at all times. Orchard grass or Meadow hay is also an excellent everyday hay. Alfalfa hay is not recommended for rabbits over four months of age because it is higher in calcium and calories.

Greens
Offer fresh greens daily. Provide one heaping cup per 5 pounds of body weight of a mixture of at least three greens such as red leaf lettuce, green leaf lettuce, dandelion greens, carrot tops, parsley, romaine, or fresh picked non-chemically treated grass. Vary the greens over time to support a balanced diet. Spinach and kale can be offered sparingly.

Carrots and treats
Contrary to popular belief, carrots are not a rabbit's best friend. A baby carrot one to two times per week is fine as a treat, but carrots are high in sugar and should not be offered regularly. Wash produce thoroughly and choose organic when possible.

Many pet stores sell rabbit treats such as yogurt drops, dried fruit, seed bars, corn cobs, and mineral blocks. These products may be inappropriate or even dangerous for rabbit digestion. Short-term consequences include gas, diarrhea, and GI stasis. Long-term consequences include obesity, fatty liver disease, and shortened lifespan. Do not waste money on these products. If you must give a treat, offer a small amount of pellets or a tiny piece of fresh fruit or carrot. Many rabbits value gentle head scratches or a fresh salad just as much, if not more.

Unlimited **Moderate Quantity** **Small Quantity**

Spay and Neuter

Spaying and neutering are very important for rabbits. Spaying females prevents uterine cancer, and neutering males prevents testicular cancer. These cancers are commonly seen in intact middle-aged and older rabbits.

Spayed and neutered rabbits also tend to be easier pets, with fewer hormone-driven behaviors such as aggression, spraying, and mounting. We recommend spaying around 6 months of age or 5 pounds of weight.

Teeth

Rabbits are prone to dental disease. The most important preventive step is unlimited access to hay, which helps wear down teeth naturally.

If your rabbit ever stops eating, call immediately. Not eating is an emergency for rabbits.

Check your rabbit's front teeth periodically. Some rabbits have misalignment that causes abnormal overgrowth. If you notice uneven or excessive tooth length, schedule an exam.

Grooming

Rabbits groom themselves extensively. You should never bathe a rabbit. Full immersion in water can cause shock.

If urine or fecal material is stuck on the hind end, spot clean with a gentle, fragrance-free shampoo such as oatmeal shampoo.

Rabbits shed seasonally. Because rabbits cannot vomit, ingesting too much hair can contribute to hairballs and GI stasis. Brush at least once daily during shedding periods. Flea combs and slicker brushes work well.

Rabbit skin is thin and sensitive. Watch for discomfort when brushing and be cautious with firm bristles. For significant mats, schedule a grooming appointment with the veterinary team rather than trying to cut them at home. We see several rabbits every year where owners have unknowingly cut the skin trying to remove a fur matt.

Nail Trims

For nail trims, many owners find it helpful to wrap the rabbit snugly in a towel, leaving one foot out at a time. This can reduce kicking and improve safety.

Nails can be trimmed with human or dog nail clippers. We recommend not trimming nails unless we have shown you how to do it safely. Our team can also trim nails for you if you prefer.

Common Medical Problems

Common issues we see in rabbits include:

- Skin disease, often starting as hair loss, redness, or itchiness. Mites and lice are common causes.
- Respiratory disease, often showing as sneezing or discharge from the eyes or nose.
- Dental disease, often showing as reduced appetite, drooling, tooth grinding, or difficulty eating.
- Digestive disease, often beginning as decreased appetite, smaller stools, soft stools, or reduced fecal output.
- Ear problems, often showing as scratching or head shaking.
- Eye problems including conjunctivitis, excessive tearing, blocked tear ducts, cataracts, and corneal ulcers.
- Lameness or dragging legs, which may indicate sprains, bruising, fractures, or spinal problems.

Digestive warning
If your rabbit stops eating or stops producing normal fecal pellets, *call immediately!* This may indicate ileus or GI stasis. Rabbits can deteriorate quickly and there is no time to wait if eating and stool production change.

Rabbit hemorrhagic disease virus type 2 (RHDV2)
Why it is important to keep your rabbit indoors!

RHDV2 is a highly contagious and often fatal viral disease that affects domestic and wild rabbits. In many cases, the only signs are sudden death and blood-stained noses due to internal bleeding. Infected rabbits may also develop fever, reduced appetite, and respiratory or nervous system signs.

RHDV2 was detected in a domestic rabbit in New York City in February 2020, with additional isolated cases reported in Connecticut and Pennsylvania. The virus has been reported mainly in the Southwest and has spread across multiple states including New Mexico, Arizona, California, Colorado, Nevada, and Texas. To date, there have been no reported cases in New Hampshire.

RHDV2 is very resistant to extreme temperatures and can be spread through direct contact, exposure to blood or excretions, contaminated food and water, carcasses, and contaminated materials. People can spread the virus indirectly on clothing and shoes.

A vaccine has been developed and is provisionally approved in some states. The vaccine is available in Massachusetts at this time. The vaccine requires two injections the first year followed by yearly vaccination.

In addition to vaccination, biosecurity is essential. Limit exposure to other rabbits, domestic or wild, and avoid shared items such as bowls, toys, and litter boxes. Wash produce thoroughly, provide clean water, and source hay from suppliers without a current outbreak.

If you suspect RHD in a domestic rabbit, notify your veterinarian immediately. Do not bring your rabbit into the clinic unless instructed. If you suspect RHD in a wild rabbit, notify your veterinarian and state wildlife officials.

Preventive Care

We strongly recommend a yearly wellness exam for rabbits. Rabbits often hide illness until they are very sick. Routine exams help identify problems earlier when treatment is more likely to be successful. This is a core goal of preventive care.

At yearly visits we record weight, examine teeth, eyes, and ears, listen to heart and lungs, palpate the abdomen, and assess overall condition. These exams often identify problems before they become advanced. We also review any updates in rabbit care and prevention. We also recommend a yearly fecal for rabbits and sometimes bloodwork if indicated.

Additional Resources

The House Rabbit Society is a helpful educational resource for rabbit owners.

Rabbit Hemorrhagic Disease

Alexandra Kilgore, DVM

Rabbit Hemorrhagic Disease (RHD) is a highly contagious and often fatal viral disease that affects both domestic and wild rabbits. It is caused by Rabbit Hemorrhagic Disease Virus (RHDV).

The virus spreads very easily through direct contact between rabbits, contact with bodily fluids such as urine, feces, or nasal secretions, and through contaminated objects including food bowls, bedding, cages, clothing, shoes, and hands. Insects such as flies can also spread the virus.

RHDV2, the currently circulating strain in the United States, is especially concerning because it is very hardy in the environment and can survive for prolonged periods of time. The exact length of survival is unknown. Rabbits that are exposed and survive may continue to carry and spread the virus.

Clinical Signs

Some rabbits show no warning signs and may die suddenly.

When signs are present, they may include:

- Fever
- Lethargy or weakness
- Loss of appetite
- Difficulty breathing
- Nasal discharge
- Seizures
- Sudden death

The virus causes severe liver damage, internal bleeding, and rapid organ failure. Mortality rates are extremely high and may reach 70 to 100 percent.

Virus Strains

There are two major strains of rabbit hemorrhagic disease virus:

- RHDV1
- RHDV2

RHDV2 is the newer strain and can affect a wider range of rabbits, including young rabbits. Some infected rabbits may develop a more chronic or milder illness, but many still experience severe disease or death.

Treatment and Prevention

There is no cure or specific treatment for rabbit hemorrhagic disease. Supportive care is often unsuccessful due to how rapidly the disease progresses.

Prevention is critical and includes:

- Strict biosecurity

- Avoiding contact with wild rabbits
- Quarantining new rabbits
- Proper cleaning and disinfection
- Vaccination where available

Rabbit hemorrhagic disease is a reportable disease in many regions, meaning suspected cases must be reported to state or federal authorities.

Vaccination Information

An experimental Rabbit Hemorrhagic Disease Virus Type 2 (RHDV2) vaccine manufactured by MedGene has received emergency use authorization from the USDA.

This vaccine is currently approved for use in New Hampshire for one year.

Veterinarians administering the vaccine are required to report any adverse reactions to both the New Hampshire State Veterinarian and the MedGene company.

Vaccinated rabbits must have an individual form of identification, such as a microchip or tattoo.

The House Rabbit Society in MA is also vaccinating rabbits.

Human Health Risk

Rabbit hemorrhagic disease does not pose a known risk to humans. However, it can have devastating consequences for pet rabbits, wild rabbit populations, and ecosystems where rabbits play an important role.

Reporting Suspected Cases

If Rabbit Hemorrhagic Disease Virus Type 2 is suspected:

- Immediately quarantine the affected rabbit or rabbits
- Contact your veterinarian right away
- Contact your state animal health officials

Veterinarians and owners may also contact:

USDA APHIS Veterinary Services
National Center for Animal Health Emergency Management
1-800-940-6524 (available 24 hours a day)

In New Hampshire, the **State Veterinarian's office** can be reached at:
603-271-2404

Cleaning and Disinfection for Rabbit Hemorrhagic Disease Virus

Rabbit Hemorrhagic Disease Virus is extremely resistant in the environment. Thorough cleaning and proper disinfection are essential to reduce spread and risk of exposure.

Environmental Persistence

RHDV can survive for extended periods outside the body. Under certain conditions, it may persist for up to three months on fabrics and within contaminated organic material.

The virus is shed in urine, feces, and respiratory secretions. Bedding, cages, food, water bowls, and surrounding surfaces can all become sources of infection. Insects, birds, rodents, and scavengers may also mechanically spread the virus.

Effective Disinfectants

The following disinfectants are effective against RHDV when used correctly:

- Household bleach (sodium hypochlorite) diluted to a 10 percent solution, made by mixing one part bleach with nine parts water
- Potassium peroxymonosulfate products such as Virkon S at a 1 percent solution with a 10-minute contact time
- Accelerated hydrogen peroxide products such as Rescue with a 5-minute contact time

Always follow manufacturer instructions for dilution, contact time, and safety.

Cleaning and Disinfection Steps

Step 1: Pre-cleaning

Remove all organic material such as bedding, feces, fur, and food debris by sweeping, brushing, or scraping.

Dispose of contaminated materials safely. Options include deep burial where permitted, or double-bagging in plastic bags, disinfecting the outer bag, and disposing of it at a licensed landfill.

Step 2: Washing

Wash surfaces, cages, bowls, and equipment thoroughly with soap and potable water. Rinse well and allow to dry.

Step 3: Disinfection

Apply the chosen disinfectant at the correct dilution. Ensure the surface remains wet for the full required contact time:

- Five minutes for diluted bleach or accelerated hydrogen peroxide
- Ten minutes for Virkon S

After disinfection, rinse with potable water and allow items to dry completely before reuse.

Fallow Period

After cleaning and disinfection, a fallow period is recommended during which no rabbits are introduced to the area. The exact duration should be determined by the State Animal Health Official.

When guidance is unavailable or cleaning is difficult, a minimum fallow period of 90 days is recommended.

Safety Precautions

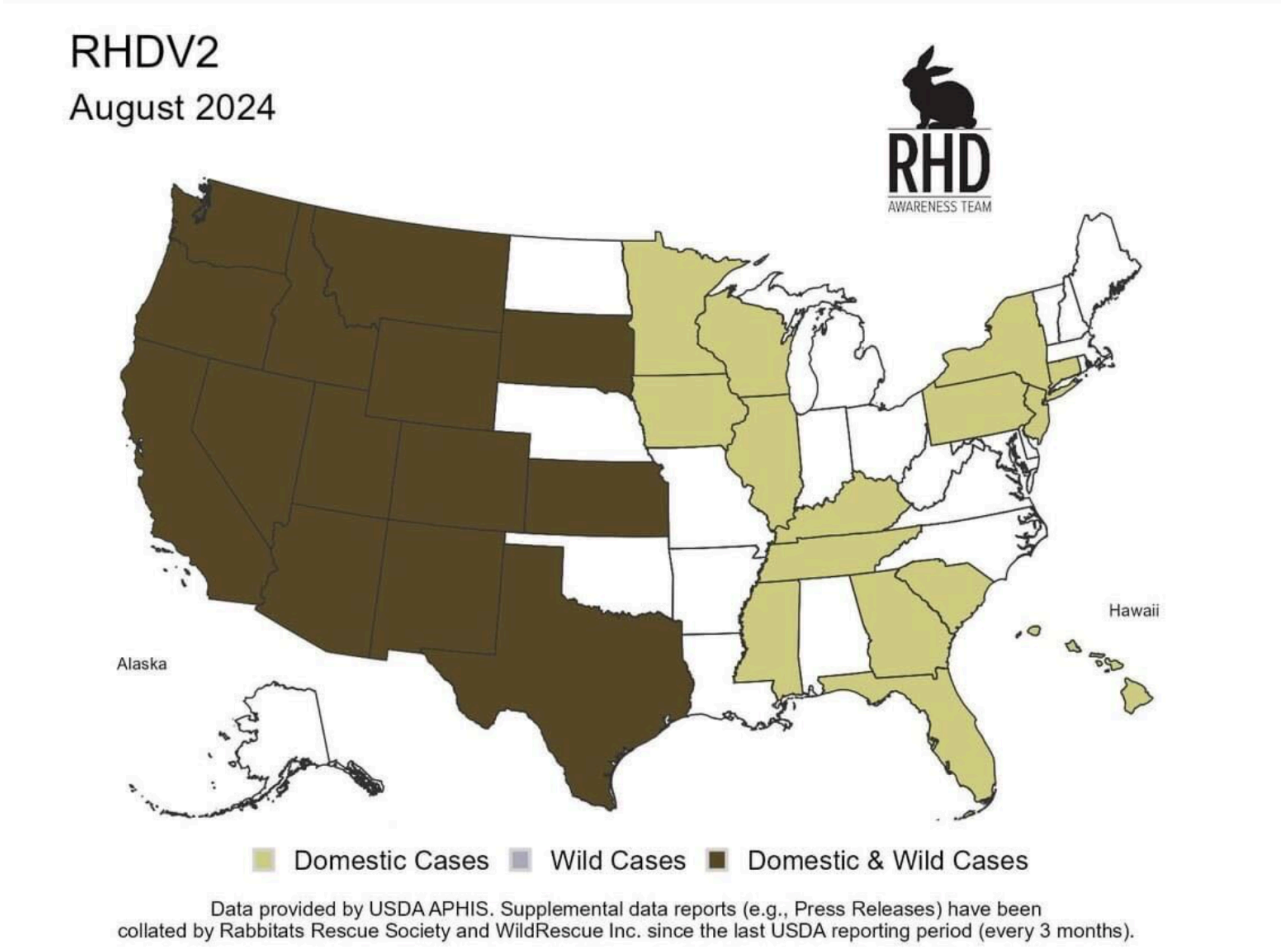
When cleaning and disinfecting:

- Wear gloves and eye protection
- Ensure good ventilation
- Never mix disinfectants
- Follow all label instructions carefully

Additional Guidance

For detailed and up-to-date information, refer to USDA guidance on cleaning and disinfection of RHDV-contaminated premises or call our office for assistance.

https://www.aphis.usda.gov/livestock-poultry-disease/rabbit-hemorrhagic



Abscesses in Rabbits

Alexandra Kilgore, DVM

Abscesses are a common and often challenging medical problem in rabbits. They differ significantly from abscesses in dogs and cats and require specialized treatment. This handout explains why abscesses occur, how they are diagnosed, and the treatment options available.

What Causes Abscesses in Rabbits?

Many people associate rabbit abscesses with Pasteurella bacteria. Pasteurella can live in rabbits without causing illness, but under certain conditions it may lead to infections such as:

- Respiratory disease ("snuffles")
- Ear infections
- Abscess formation

While Pasteurella is commonly found, it is not the only cause of rabbit abscesses. Other bacteria frequently isolated include:

- Staphylococcus
- Pseudomonas
- Proteus
- Bacteroides

Because different bacteria respond to different antibiotics, veterinarians often recommend culture and sensitivity testing. This test identifies:

- Which bacteria are present
- Which antibiotics are most likely to be effective

This information is critical, as rabbit abscesses are often resistant to treatment.

Medical Management

Antibiotics are always part of abscess treatment and are often required long term. Rabbits are very sensitive to many antibiotics, so medication choice is extremely important.

Commonly used antibiotics may include:

- Enrofloxacin (Baytril)
- Trimethoprim-sulfa (Bactrim)
- Chloramphenicol
- Metronidazole (Flagyl)

Some antibiotics that are unsafe to give orally to rabbits, such as penicillin, may be administered by injection under veterinary supervision.

Rabbits receiving long-term antibiotics must be closely monitored for side effects, including appetite changes or gastrointestinal upset.

Even with appropriate antibiotic therapy, recurrence is common.

Surgical Treatment

Surgery is generally considered the treatment of choice for rabbit abscesses.

Rabbit abscesses are treated more like tumors than simple infections because:

- They form thick capsules
- Pus is thick and toothpaste-like
- Antibiotics alone rarely penetrate effectively

When possible, the entire abscess and its capsule are surgically removed. Even when surgery is successful, recurrence is still possible.

When Surgery is more Complicated

Some abscesses cannot be fully removed, including:

- Jaw abscesses
- Foot abscesses

Additional surgical techniques may include:

- Placement of antibiotic-impregnated beads or gauze
- Use of specialized dental materials in infected areas

In severe cases, particularly with advanced foot abscesses, amputation may be recommended. Rabbits often adapt remarkably well to life on three legs.

Topical and Supportive Therapies

Some abscesses are managed with topical treatments, especially when surgery is not an option.

These approaches may include:

- Flushing with antiseptic solutions such as chlorhexidine or iodine
- Use of strong sugar solutions or medical-grade honey
- Application of silver sulfadiazine (Silvadene) cream
- Bandaging to promote healing

Alternative or supportive therapies may also be used in selected cases:

- Herbal treatments
- Acupuncture
- Physical therapy (especially for foot-related abscesses)

Frequent re-evaluation is essential with any non-surgical approach.

Prognosis

Rabbit abscesses are often:

- Time-consuming to treat
- Costly
- Prone to recurrence

The prognosis varies widely depending on:

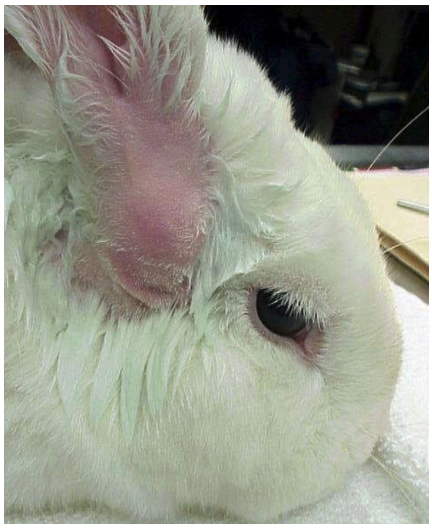
- Location of the abscess
- Bacteria involved
- Ability to surgically remove the lesion
- The rabbit's overall health

Unfortunately, many rabbit abscesses are resistant to treatment. In severe or non-responsive cases, euthanasia may be the most humane option.

Final Thoughts

Rabbits with abscesses benefit greatly from care by veterinarians experienced in rabbit and exotic animal medicine. Each case must be evaluated individually to determine the most appropriate and realistic treatment plan.

If you notice swelling, wounds, lameness, or changes in appetite or behavior in your rabbit, seek veterinary care promptly. Early intervention offers the best chance for a positive outcome.



Dental Disease in Rabbits

Alexandra Kilgore, DVM

Dental disease is one of the most common medical problems in rabbits and is now recognized as the underlying cause of many other serious conditions. Understanding rabbit dental health is essential for both veterinarians and rabbit owners, as early detection greatly improves outcomes.

Why Dental Disease is so Common in Rabbits

Rabbits are herbivores designed to eat large amounts of fibrous vegetation. A unique and important feature of rabbits is that all of their teeth are open-rooted, meaning they grow continuously throughout life.

In a healthy rabbit eating a proper diet and chewing frequently, tooth growth and tooth wear stay balanced. When this balance is disrupted, dental disease develops.

Signs of Dental Disease

Signs of dental disease can be subtle at first and may progress slowly. Early signs are often overlooked.

Early signs may include:

- Changes in food preferences
- Avoiding harder foods
- Dropping food while eating
- Mild weight loss
- Decreased grooming or an unkempt coat

Advanced signs may include:

- Excessive salivation or drooling
- Loss of appetite
- Foul-smelling breath
- Severe weight loss
- Wet or matted fur under the chin

Rabbits often present for secondary problems caused by dental disease, such as:

- Gastrointestinal stasis
- Facial or jaw abscesses
- Blocked or infected tear ducts

Causes of Dental Disease

The most common causes of dental disease in rabbits are genetics and nutrition.

Genetic Factors

Genetic predisposition is very common, especially due to inbreeding. Some rabbits are born with:

- Malocclusion, where the teeth do not meet properly
- Overgrown incisors that curl or cross
- Elongated skull shapes that interfere with normal tooth alignment

These rabbits often require frequent dental care, including regular trimming or surgical extraction of affected teeth.

Dietary Factors

Many rabbits are fed diets that are too high in pellets and too low in hay.

- Pellets are calorie-dense and require minimal chewing
- Reduced chewing leads to inadequate tooth wear

As molars grow continuously:

- Lower molars develop sharp points that cut into the tongue
- Upper molars develop points that cut into the cheeks

These changes develop gradually and can eventually cause pain, infections, and sudden loss of appetite.

Acquired Dental Disease

Some rabbits develop deterioration of tooth quality over time, leading to:

- Malocclusion
- Elongation of tooth roots
- Periapical infections and abscesses

Possible contributing factors include metabolic bone disease, genetics, and diet.

Diagnosis

Dental evaluation should be part of every annual physical examination for rabbits.

During an exam, the veterinarian will assess:

- Body condition and weight
- Coat quality
- Saliva staining under the chin
- Eye discharge
- Swelling along the jaw

The incisor teeth are evaluated by lifting the lips to assess length and alignment. The cheeks are palpated for abnormal protrusions. A speculum or otoscope may be used to visualize the molars.

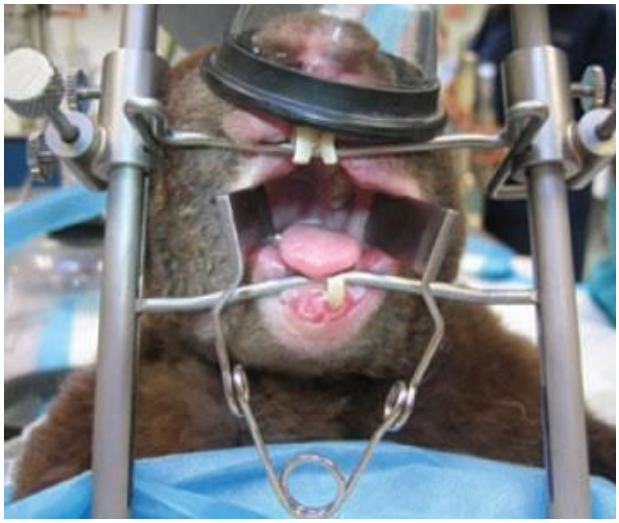
If abnormalities such as molar points or spurs are seen, a complete dental examination under anesthesia is often recommended.

Dental Exam Under Anesthesia

When indicated, a full dental exam is performed under anesthesia after a physical exam and pre-anesthetic bloodwork to minimize risk.

During the procedure:

- Specialized instruments are used to fully visualize the mouth
- Diamond files, rongeurs, and low-speed dental burs are used to remove points and reshape teeth
- Pain medication is provided to reduce stress and improve recovery



Dental radiographs may also be taken to:

- Evaluate tooth root elongation
- Identify periapical abscesses
- Grade the severity of dental disease

Treatment

Treatment depends on the stage and severity of dental disease.

Stabilization

Rabbits suffering from anorexia, gastrointestinal stasis, or severe infection must be stabilized first. This may include:

- Fluids
- Nutritional support
- Pain management
- Antibiotics

Once stable, anesthesia for dental treatment can be safely performed.

Incisor Disease

Severely overgrown incisors may be trimmed using a dental drill. This often requires repeat procedures at regular intervals.

For some rabbits, incisor extraction is the best long-term option. This surgical procedure removes all incisors and upper peg teeth under anesthesia. Postoperative care includes pain control, antibiotics, and short-term feeding support. Rabbits generally adapt well and can eat normally using their lips.

Tear Duct Blockage

Overgrown incisor roots may block the tear duct, causing tearing or discharge from the eyes.

Diagnosis may include:

- Contrast radiographs of the tear duct

- Fluorescein dye testing

Treatment may involve flushing the tear duct, sometimes repeatedly, and using antibiotic eye medications. Keeping the skin under the eyes clean and dry is essential.

Molar Disease and Abscesses

Overgrown molars or sharp points are corrected using a low-speed dental drill.

In advanced cases:

- Tooth root infections may cause abscesses
- Surgical removal of abscesses and infected bone is required
- Antibiotic-impregnated beads or drains may be placed
- Diseased molars may need to be extracted

Prevention

Most dental disease in rabbits is chronic and progressive, but proper management can slow progression and improve quality of life.

Key prevention strategies include:

- Feeding unlimited high-quality grass hay daily
- Offering leafy greens every day
- Avoiding pellet-heavy diets
- Monitoring eating habits closely

Regular yearly veterinary exams with a dental evaluation are essential. Early detection leads to simpler treatment, less pain, and a better prognosis.

When to Seek Veterinary Care

Contact your veterinarian promptly if you notice:

- Changes in appetite or food preferences
- Drooling or wet fur under the chin
- Weight loss
- Eye discharge
- Reduced grooming
- Signs of pain or lethargy

Early intervention is the most important factor in successful management of dental disease in rabbits.

Giving Medications to Rabbits

Alexandra Kilgore, DVM

Your veterinarian or a veterinary technician will usually demonstrate how to give oral medications, apply eye or ear treatments, or syringe feed your rabbit. However, many rabbits that are calm in the clinic can be surprisingly resistant at home. This handout provides practical tips to help make medicating your rabbit safer, easier, and less stressful for both of you.

Getting Set Up

Choose the right location

Some rabbits cooperate best when medicated on the floor, especially when they are relaxed. If you use a table or countertop:

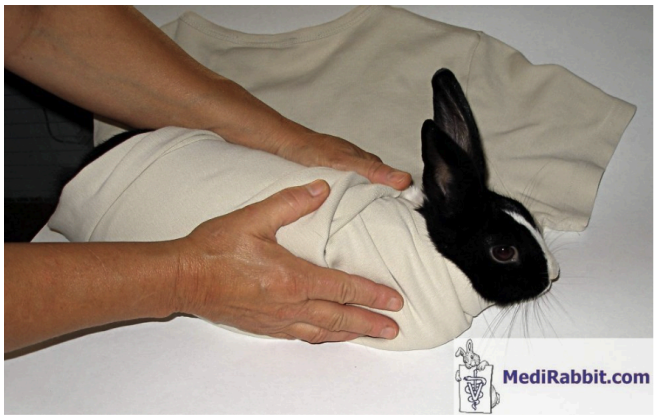
- Clear the area completely
- Remove glasses, knives, or sharp objects
- Never leave a rabbit unattended on a raised surface

Bunny burrito (towel wrap)

Rabbits that squirm, kick, or nip may need to be wrapped in a "bunny burrito."

How to do it:

- Place your rabbit on a flat towel
- Wrap the towel snugly (but not tightly) around the body and legs
- Wrapping diagonally (from shoulder toward hip) helps keep the towel secure



Some people prefer to:

- Gently place the towel over the rabbit
- Pick the rabbit up from behind
- Wrap the towel around the hind legs and abdomen

The goal is gentle restraint, not immobilization.

Prepare everything first

Before bringing your rabbit to the area:

- Gather all supplies: towel, medications, syringes, treats
- Unscrew caps
- Measure doses
- Pre-load syringes

This ensures you always have both hands free and avoids scrambling mid-procedure.

Create a routine

Consistency helps reduce stress.

- Medicate in the same place
- Follow the same order
- End the session clearly

Many rabbits respond well to a small reward afterward, such as a raisin or a sprig of parsley.

Administering Medications

Most rabbit medications are given as liquids or topical treatments. Occasionally, injections may be prescribed. If injections are needed, your veterinary team will either administer them or teach you how to do so safely.

Oral medications and syringe feeding

- Position the rabbit facing away from you, with the hind end snug against your body
- This prevents backing up or sudden escapes
- Gently lift the head
- Insert the syringe into the side of the mouth, behind the front teeth

Important tips:

- Avoid the front incisors—some rabbits can bite off syringe tips
- Slowly depress the plunger
- Allow the rabbit time to swallow

This same technique is used for syringe feeding.

Ear medications

- Gently lift the ear flap
- Place the applicator tip into the ear opening
- Administer the prescribed amount
- Gently massage the base of the ear to help the medication travel down the canal

Eye medications

Eye medications may be ointments or drops.

Ointment:

- Use the same positioning as for oral medication
- With the rabbit supported against you, move the tube toward the eye
- Gently hold the eyelid open with your pinky
- Apply a small ribbon of ointment directly onto the eye

Do not touch the tip of the tube to the eye, as this can damage the cornea.

Once applied, allow the rabbit to blink. The ointment will spread naturally.

Drops:

- Lift the eyelid
- Hold the bottle just above the eye
- Apply the prescribed number of drops

Drops are sometimes easier for rabbits than ointment.

Important Safety Note on Restraint

One of the most serious risks when handling rabbits is back injury.

- Always keep all four feet supported
- Avoid sudden movements
- Never allow a rabbit to kick forcefully while unsupported

Proper positioning and calm handling greatly reduce risk.

When to Ask for Help

Your safety and your rabbit's safety are always the top priorities. If at any point:

- You feel uncomfortable
- Your rabbit becomes too stressed
- You are worried about injuring your rabbit

Please contact the clinic. There may be alternative medications, techniques, or support options available.

With patience, preparation, and practice, most owners become very comfortable giving medications at home—and many rabbits learn to tolerate it quite well.

Resources

- How to Give Oral and Eye Medications to Rabbits:

  https://youtu.be/KQiklr9iSKI?si=uExPzWnAoh3SssNu

- How to Give Oral and Eye Medications to a Reactive Bunny:

  https://youtu.be/_e2PVjaaL7Q?si=kho5i0jDnLj1O15I

Bladder Sludge in Rabbits

Alexandra Kilgore, DVM

Bladder sludge is a fairly common condition that can affect rabbits of any age or breed. While it is often manageable, it can be difficult to cure completely and may recur. This handout explains what bladder sludge is, how it is diagnosed and treated, and what you can do at home to help prevent or manage it.

Note: Urinary calculi (bladder or kidney stones) are a different condition. Although related, stones usually require surgical treatment and are not discussed in this handout.

What causes bladder sludge?

The exact cause of bladder sludge is not fully understood, but it is closely linked to how rabbits process calcium.

Most animals absorb only the calcium they need and eliminate the rest through the digestive tract. Rabbits absorb calcium in proportion to how much is in their diet, regardless of what their body needs. Excess calcium is then excreted by the kidneys into the urine as calcium carbonate crystals. These crystals are what make normal rabbit urine appear cloudy.

Some rabbits develop hypercalcinuria, meaning they produce an excessive amount of calcium crystals. When these crystals accumulate, they form thick, pasty urine known as bladder sludge.

Factors that may contribute include:

- Diets high in calcium
- Decreased water intake
- Infrequent urination
- Underlying urinary tract disease
- Genetic predisposition
- Conditions that interfere with normal posture for urination, such as arthritis of the hips or spine

Diet alone does not fully explain bladder sludge. Studies have shown that even rabbits fed very high-calcium diets do not always develop sludge, indicating that multiple factors are involved.

Signs of bladder sludge

One of the earliest signs is abnormal urine.

Normal rabbit urine can range from pale yellow to rust-colored due to natural pigments (porphyrins) and may look sandy when dry. In rabbits with bladder sludge, urine is:

- Extremely thick or pasty
- Chalky or grey-white when dry
- More likely to stick to fur and skin

Additional signs may include:

- Straining to urinate or passing only small amounts of urine
- Urinating more frequently or outside the litter box
- Involuntary urine dribbling
- Reduced appetite
- Teeth grinding
- Hunched posture due to pain
- Red, irritated skin on the belly or inner thighs (urine scald)

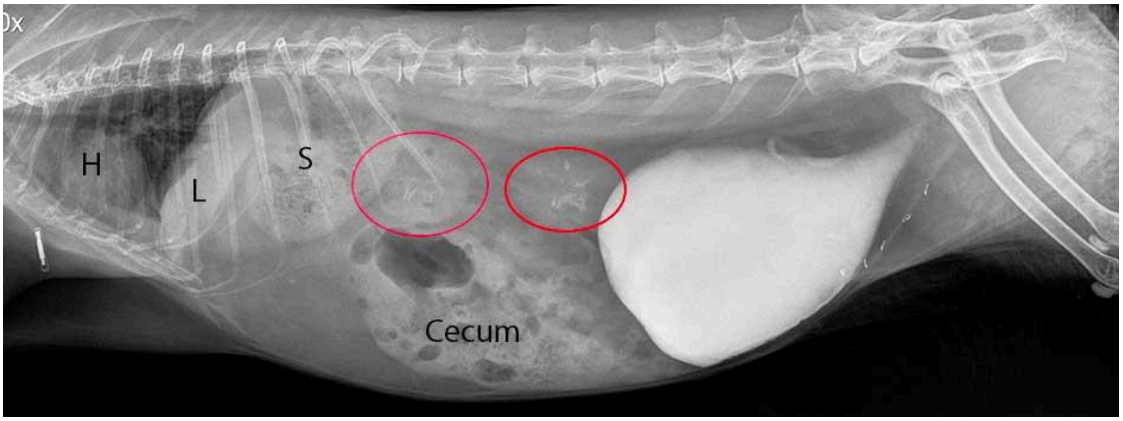
If the bladder becomes infected or severely inflamed, blood may be present in the urine. Because normal rabbit urine can appear reddish, true blood must be confirmed through laboratory testing.

Diagnosis

In some cases, the combination of clinical signs and physical examination is enough to strongly suspect bladder sludge. However, diagnostic testing is usually recommended.

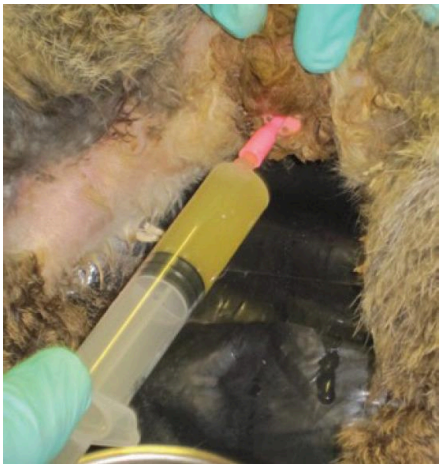
Common diagnostics include:

- **Radiographs (X-rays):**
  Used to confirm sludge, assess bladder size, estimate the amount of material present, and check for urinary stones. X-rays can also reveal other abnormalities in the abdomen, chest, or skeleton.



- **Urinalysis:**
  Evaluates urine concentration, looks for infection, and checks for abnormal cells.
- **Urine culture and sensitivity:**
  Performed if infection is suspected. A sterile urine sample is obtained directly from the bladder via cystocentesis, a quick procedure that can usually be done awake with minimal discomfort.
- **Bloodwork:**
  May include calcium levels, kidney and liver values, and screening for infection or other underlying conditions, especially if anesthesia is required for treatment.

Immediate treatment



Most rabbits cannot empty a bladder full of thick sludge on their own. For this reason, treatment often requires anesthesia.

During treatment:

- A soft catheter is placed into the bladder through the urethra
- Sterile saline is flushed into the bladder to dilute the sludge
- Thick material is suctioned out with a syringe
- Flushing is repeated until the urine runs clear

A urine sample can be collected during this process if needed.

After flushing:

- Fluids are given to keep urine dilute
    - Intravenous fluids may be used if the rabbit is dehydrated or hospitalized
    - Subcutaneous fluids may be given in the hospital or at home
- Pain and anti-inflammatory medications are essential, as the bladder is often sore
- Antibiotics are prescribed if a bacterial infection is present

Ongoing management and prevention

Once home, long-term management focuses on reducing calcium load, increasing urine dilution, and encouraging frequent urination.

Diet changes

- Eliminate alfalfa hay and alfalfa-based pellets
- Feed grass hay (such as timothy) as the primary hay
- Limit or eliminate pellets
- Avoid feeding large amounts of high-calcium vegetables, including:
    - Kale
    - Broccoli
    - Turnip greens
    - Chinese cabbage
    - Collard greens
    - Mustard greens
- Do not give mineral supplements

Increasing water intake

- Offer plenty of fresh, leafy greens
- Flavor water with a small amount of natural fruit juice with no added sugar if needed

Supplements

- Cranberry and vitamin C supplements may help support urinary tract health
- There is limited research in rabbits, but these supplements may reduce irritation or bacterial adherence
- Avoid products with added sugar

Exercise

- Encourage daily movement and activity
- Exercise helps stir up sludge so it does not settle and increases water consumption and urination

Monitoring and long-term outlook

Regular rechecks are important to:

- Monitor response to treatment
- Detect recurrence early
- Manage urine scald or urinary tract infections

Even with appropriate care, bladder sludge commonly recurs. The goal is to keep your rabbit comfortable, pain-free, and enjoying a good quality of life.

Ongoing research may help clarify why some rabbits are more prone to this condition and how it can be better prevented in the future.

Ileus (Gastrointestinal Stasis) in Rabbits

Alexandra Kilgore, DVM

Ileus, also called gastrointestinal (GI) stasis, is one of the most common and serious medical problems seen in pet rabbits. Under normal conditions, coordinated muscle contractions move food through the digestive tract. When these contractions slow or stop, ileus occurs.

Ileus is not a disease itself. It is a sign of an underlying problem. Unless the primary cause is identified and addressed, ileus can recur or become chronic.

Common underlying causes include:

- Pain (especially dental disease)
- Stress
- Poor diet
- Illness or infection
- Any condition that causes decreased appetite or discomfort

Diagnostic testing is often needed either at the time of treatment or once the rabbit is stable to identify the root cause.

Signs of Ileus

The earliest and most important signs include:

- Decreased fecal output or no feces
- Very small fecal pellets
- Feces covered in mucus (a sign of intestinal inflammation)

Other common signs:

- Decreased or absent appetite
- Lethargy
- Hunched posture
- Teeth grinding due to pain
- Low body temperature (normal is 101–103°F)
- Loud gurgling intestinal sounds or no gut sounds at all

Any rabbit that stops eating or producing feces for 12 hours is experiencing an emergency. GI stasis can progress rapidly and may become life-threatening.

Ileus vs. Obstruction

Ileus can be:

- A medical condition, or
- A surgical emergency if there is a true intestinal obstruction

Obstruction is often associated with:

- Severe bloating

- Intense pain
- Rapid deterioration

X-rays are usually required to distinguish ileus from obstruction. Intestinal surgery in rabbits carries a poor prognosis and is avoided unless absolutely necessary.

Treatment

Rabbits often recover best in their familiar home environment, especially if they have a bonded companion. When possible, treatment is managed at home if the owner can administer medications as directed.

Recovery requires patience and persistence. Improvement may take days to weeks, and setbacks are common before full recovery.

1. Fluids

Rehydration is one of the most critical aspects of treatment.

- Oral fluids
- Subcutaneous fluids (under the skin)
- Intravenous fluids (in severe cases)

At home:

- Syringe-feed water if early signs are noticed
- Offer leafy greens or herbs soaked in water

2. Pain control

Pain can severely suppress appetite and movement. Commonly used medications include:

- Meloxicam
- Buprenorphine
- Gabapentin

Adequate pain relief is essential to encourage eating and activity.

3. Keep warm

A rabbit with a temperature below 100°F must be seen by a veterinarian immediately.

Supportive warming may include:

- Hot water bottles
- Heating pads on the lowest setting
- Warmed subcutaneous fluids

Monitor closely to prevent overheating or burns.

4. Anti-gas medication

Gas buildup is painful and worsens ileus.

- Infant anti-gas medication (simethicone, e.g., Mylicon®) is safe
- Dose: 1–2 cc every hour for 3 doses, then 1–2 cc two to three times daily

5. Syringe feeding

A rabbit that is not eating is at risk for:

- Stomach ulcers
- Liver damage

As long as there is no obstruction, syringe feeding is essential.

- Oxbow Critical Care for Herbivores® is strongly recommended
- Softened pellets mixed with vegetable baby food may be used if needed

Feed small amounts multiple times daily.

6. Abdominal massage and movement

- Gentle abdominal massage several times daily can help move gas and stimulate motility
- Do not massage if the rabbit is very tense or in obvious pain
- Slightly raising the hind end may help gas move
- Encourage gentle hopping and movement as tolerated
- Tutorial: https://youtu.be/eROOr-lz8q8?si=xIGCFeM2ZfzFqzYK

7. Additional medications

Depending on the case, your veterinarian may prescribe:

- Motility agents (cisapride, metoclopramide) Do not use if obstruction is suspected
- Appetite stimulants (vitamin B-complex, transdermal mirtazapine)
- Maropitant injections to reduce inflammation and visceral pain

Treatment myths

Hairball remedies

Rabbits normally have hair and food in their stomachs at all times. Problems arise only when dehydration and lack of eating cause this material to harden.

- Petroleum-based laxatives coat the mass and prevent fluid absorption
- Pineapple or papaya enzymes do not dissolve hair
- Sugars may worsen bacterial overgrowth

These remedies are not recommended.

Antibiotics

Unless an infection is suspected, antibiotics are unnecessary and may worsen intestinal imbalance by promoting resistant bacteria.

Probiotics

While not harmful, there is no clinical evidence that powdered probiotics are effective in treating GI stasis.

Prevention

Diet and routine care are the foundation of prevention.

Key dietary guidelines:

- Unlimited grass hay (timothy or similar) available at all times
- Daily leafy greens for hydration
- Limit pellets to no more than ¼ cup per 5 lb of rabbit per day, if fed at all
- Avoid sugary or starchy foods

Foods high in sugar and starch can promote overgrowth of harmful bacteria such as Clostridium, which can be fatal.

Regular veterinary care is also essential:

- Annual wellness exams
- Routine dental evaluations to detect problems early

Final note

GI stasis is a medical emergency and should never be ignored. Early recognition, prompt treatment, and addressing the underlying cause offer the best chance for recovery. If your rabbit stops eating or producing feces, seek veterinary care immediately.

From Minnesota Companion Rabbit Society:

GI STASIS IN RABBITS
Immediate Steps to Take

- Encourage exercise. This will not be easy in a very sick rabbit, but be forceful – they NEED to stretch out their body and hop. By lengthening, they will allow things to begin moving.
- Give tummy massages. Gently massage your rabbit's belly from the chest to the tail.
- Syringe feed water and medications: Baby gas drops (Simethicone), one dose of pain medications such as Rimadyl or Metacam, and .75 ml Metoclopramide (Reglan).
- Use a syringe to force feed a slurry of Critical Care for Herbivores, water, and baby squash.
- Call your vet if your rabbit does not start to poop after several hours. If your vet's office is closed, locate your nearest emergency clinic, bring them this GI Stasis printout, and request IV Fluids, Metacam, and Reglan. A cat/dog vet will know how to administer this treatment and these medicines.

Head Tilt in Rabbits

Alexandra Kilgore, DVM

Head tilt in rabbits, also called torticollis or wry neck, is a sign of vestibular disease. The vestibular system is the part of the nervous system responsible for balance and coordination. When this system is affected, rabbits may lose their sense of orientation and balance.

Head tilt can range from subtle to severe. In some cases, a rabbit's head may appear dramatically rotated, even nearly upside down.

What Does Head Tilt Look Like?

Rabbits with vestibular disease may show one or more of the following signs:

- Head tilted to one side
- Loss of balance or unsteady walking
- Circling or falling over
- Rapid back-and-forth eye movements (nystagmus)
- Difficulty standing or righting themselves

Understanding the Vestibular System

The vestibular system has two main components:

1. **Peripheral vestibular system** – nerves of the inner ear
2. **Central vestibular system** – nerves within the brainstem

Determining where the problem is located helps veterinarians understand what is causing the disease and how best to treat it.

Common Causes of Head Tilt in Rabbits

Inner ear infection (peripheral vestibular disease)

One of the most common causes of head tilt in rabbits is an inner ear infection. Many bacteria can cause ear infections, but Pasteurella (often associated with "snuffles") is frequently involved.

Pasteurella can spread from the nasal passages to the inner ear through the eustachian tube. Rabbits with inner ear infections are often:

- Bright and alert
- Strong and responsive
- Eating normally (at least initially)

Inner ear infections are difficult to diagnose by looking into the ear, as the infection is deep and usually not visible unless the eardrum has ruptured.

Encephalitozoon cuniculi (central vestibular disease)

Another very common cause of head tilt is Encephalitozoon cuniculi, a microscopic parasite.

This organism most commonly affects:

- The nervous system
- The lens of the eye
- The kidneys

Rabbits may become infected through exposure to contaminated urine or in utero. Many rabbits carry E. cuniculi for years without showing any signs.

When a rabbit becomes stressed and its immune system is weakened, signs may appear suddenly. Stressors can include illness, surgery, or even routine veterinary visits.

Rabbits with E. cuniculi may show:

- Head tilt
- Loss of balance
- Nystagmus
- Depression or lethargy
- Weakness
- Inability to properly sense limb position or correct posture

Compared to rabbits with inner ear infections, these rabbits are often less alert and may appear neurologically compromised.

Diagnosis

Diagnosis begins with a thorough history and physical examination. Certain findings may point toward one cause over another:

- A history of respiratory disease or ear discharge may suggest an inner ear infection
- Neurologic weakness or depression may suggest E. cuniculi

Additional diagnostics may include:

- Blood tests for Pasteurella and E. cuniculi
    - These tests indicate exposure but cannot reliably distinguish active infection
- Radiographs (X-rays), which may show changes in chronic ear infections
- Advanced imaging such as CT or MRI, when available, which provides the most accurate diagnosis

Because inner ear infections are difficult to culture, it is not always possible to identify the exact bacteria involved.

Treatment Options

Inner ear infections

If an inner ear infection is suspected:

- Rabbits are typically started on broad-spectrum antibiotics that are safe for rabbits
- Treatment often lasts several weeks or longer
- Complete cure can be difficult
- Some rabbits require long-term or repeated antibiotic therapy

Encephalitozoon cuniculi

The most common treatment is fenbendazole (Panacur):

- Given once daily for approximately 30 days
- Generally well tolerated with few side effects

Some rabbits improve without treatment, while others require more aggressive therapy.

Because symptoms are caused by inflammation as infected cells rupture:

- Anti-inflammatory medications are often used
- Non-steroidal anti-inflammatory drugs such as meloxicam are commonly prescribed

Corticosteroids are controversial. While they may provide short-term benefit in some cases, they carry potential risks and are generally not routinely recommended.

Anti-nausea medications

The use of anti-nausea drugs is debated. While dogs and humans with vestibular disease often experience nausea, rabbits cannot vomit, making nausea difficult to assess.

Medications such as diphenhydramine (Benadryl) or meclizine are sometimes used in severe cases. Their effectiveness in rabbits is not well established but may help with vertigo.

Supportive care at home

Supportive care is critical and often determines outcome.

Key considerations include:

- Nutrition: Rabbits that are not eating require assisted feeding, such as syringe feeding with Critical Care for Herbivores
- Accessibility: Food and water should be easy to reach
- Environment:
    - Restrict to a single level
    - Provide padding to reduce injury from falls
    - Modify litter boxes for easy access

Some rabbits need to be supported in an upright position while eating.

Additional therapies

Alternative therapies may be helpful in some cases:

- Acupuncture
- Physical therapy

These approaches are becoming more common, though their effect on long-term prognosis is not fully understood.

Prognosis

The prognosis for rabbits with head tilt is variable and difficult to predict.

- Rabbits that are depressed and not eating tend to have a poorer prognosis
- Rabbits with mild signs often improve and may recover fully

- Many rabbits respond to treatment but may retain a permanent head tilt

Even with a residual tilt, many rabbits can adapt and go on to live comfortable, happy lives with appropriate care.

In severe cases where quality of life continues to decline despite treatment, euthanasia may need to be considered.

Final Thoughts

Head tilt can be frightening to see, but it does not always mean a poor outcome. Early veterinary care, appropriate treatment, and dedicated supportive care can make a significant difference. If you notice head tilt or balance problems in your rabbit, seek veterinary care as soon as possible.