House rabbits have many health advantages over their wild jackrabbit cousins – no predators, a controlled climate and a greatly diminished potential to pick up unhealthy parasites. But try as we might to protect our domestic friends, veterinary science hasn't yet conquered one pesky ailment – the Encephalitozoon cuniculi parasite, commonly known as E. cuniculi. It's common, mysterious and often frustrating bug that can present a variety of symptoms. Here, Dr. Vickie Joseph of the Bird and Pet Clinic of Roseville explains more about what it is and what it does … and reminds us that although E. cuniculi cannot be "cured," it can be lived with. – Ed.

Encephalitozoon cuniculi is a complicated disease that can lie dormant in rabbits for years before symptoms begin to present. For some rabbits, E. cuniculi can cause debilitating problems, but in others, it causes only minor inconvenience for both bunny and human companion. Although E. cuniculi is difficult to prevent and impossible to cure, with careful monitoring and maintenance, a bunny who tests positive can still live a long and fruitful life.

E. cuniculi is a microscopic animal parasite that is commonly found in the rabbit. Rabbits become infected with this parasite by ingesting or inhaling spores shed in the urine of infected rabbits. An infected doe can pass it on to her babies in the nest or through the placenta while she is pregnant.

In the early stages of infection, the E. cuniculi parasite typically replicates in the lung, liver and kidney; however with chronic infections, it is possible for the parasite to also affect the central nervous system, heart or lens of the eye. By far, the kidney is the most common organ infected (many rabbits are first diagnosed with E. cuniculi when their veterinarian is investigating kidney dysfunction). Weight loss, drinking a large volume of water, increased urination with urine scalding, sludgy urine or urinary incontinence are all signs of kidney disease that can be caused by E. cuniculi. Other symptoms of an active E. cuniculi infection could include:

- Eye infections, cataracts, inflammation inside the eye (uvetits) or pus in the anterior chamber of the eye (hypopyon).
- Neurologic signs, including vestibular diseases like head tilt, rolling, or muscle

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Two SHRS fosterers recently traveled to the Oakland SPCA to participate in a one-day adopt-a-thon sponsored by the National HRS. The February 17 event featured Sacramento foster rabbits Dash, Rosie, Mimi and Pudge, and gave volunteers Margaret-Rose Batterman and Susan King a chance to swap stories with members of other rabbit rescue groups, including Harvest Homes, SaveABunny, and the Contra Costa animal shelter. “It was a pleasure to meet other rescue groups,” says Margaret-Rose. “Each group has challenges that are unique to the community they live in, but we’re all working towards the same goals.” Although there haven’t been a lot of opportunities to participate in events with other rabbit adoption groups in the past, there’s reason to believe that there’s some truth to the “strength in numbers” theory – foster bunny Dash, who entered the SHRS foster program through the Sacramento City Shelter, was one of five rabbits who found a loving home at the event!
Rabbits Available for Adoption

Smudge, Mimi and Rose are 3-month old sisters who love the company of each other and their human friends.

Sugar and Pepper are a young bonded pair. Pepper is an acrobat who kicks his heels up when he plays. Sugar loves to cuddle when she’s not exploring.

Elvira is an active adult girl who enjoys attention and lap time!

Eleu is a male Mini-ryx who loves to play with toys.

Rhett Bunnler is young, active and curious. He loves to explore, but also enjoys being held and petted.

Buttercup is a shy adult female lop with lots of love to share. She loves to explore. She needs a quiet home with no dogs or cats.

Hoppy Gilmore is an active and playful boy.

Eliza (left) and Sophie are bonded sisters with lots of energy and big appetites!

Dexter wins the bunny olympics for the high jump and loves to play. He is still learning to use the litter box outside of his pen.

Misty is a diminutive but spunky girl who loves to be held. She may have some medical needs in the future and is looking for a loving family to help her out.

Eliza (left) and Sophie are bonded sisters with lots of energy and big appetites!

Mocha (formerly Lucia) enjoys some lap time with new family members Melissa and Kindle Arpin.

Recent Adoptions

Ziggy was adopted by Marya Steiner
Jasper and Ihop were adopted by Aaron Warner

Mocha (formerly Lucia) enjoys some lap time with new family members Melissa and Kindle Arpin.
uncoordination (ataxia), posterior paresis or paralysis, or seizures.

- A docile nature, a slowed reaction to external stimuli, and mild ataxia with the inability to make the quick movements typical of healthy rabbits. (These signs may be difficult to acknowledge with rabbits confined to a hutch or cage.)

Diagnosis is challenging because there are a variety of conditions and diseases that must be differentiated from \textit{E. cuniculi}. Rabbits presenting with the above signs should have a complete blood count and chemistries performed, including a urinalysis. Abdominal radiographs are recommended to evaluate kidney size and shape and to rule out stones that may be present in the kidney or bladder. Rabbits with neurologic signs will often also require head radiographs to rule out inner ear infections and spinal radiographs to evaluate paresis or paralysis.

If your veterinarian suspects that your rabbit’s symptoms may be related to \textit{E. cuniculi}, a blood titer test may be ordered; a laboratory test that will evaluate which antibodies are present in your rabbit. Antibody titers to this disease have received lots of attention in recent years. Interpretation of the titers can be confusing due to the fact that many rabbits carry a titer without showing any clinical signs of the disease. It has been shown that rabbits who are demonstrating neurologic signs have higher titers than rabbits who are only experiencing kidney problems (renal dysfunction). Combining titer results with protein electrophoresis (a blood test that evaluates certain proteins in the body and their response to disease) usually proves to be the most accurate tool to help the veterinarian diagnose an active infection of \textit{E. cuniculi}.

Treatment for \textit{E. cuniculi} may be as confusing as diagnosing the disease. It has been suggested that drugs available are not able to eliminate the infection completely. Treatment should be aimed at reducing the parasite load, suppressing inflammation and treating the symptoms. Albendazole or fenbendazole – both antiparasitic medications that come in liquid form – have been used on a regular basis with success. They can be administered at home and duration of treatment may last one to three months. Regular complete blood counts are recommended to evaluate the rabbit’s condition and monitor possible bone marrow suppression (which can be a side effect of the drugs). Activity level, eating habits and liver enzymes should also be monitored, as with any long-term medications.

Anti-inflammatory agents may also be prescribed for rabbits with neurologic signs. Steroids must be used with extreme caution and are often ill advised. Fluid therapy may be necessary in rabbits with secondary bacterial infections. Treating the whole patient is a necessity. Keeping up with the rabbit’s nutritional needs as well as symptomatic treatment for clinical signs will give the rabbit the best chance to respond.

If one rabbit in the household is positive for \textit{E. cuniculi}, or has signs suggestive of infection, it is recommended to look at the titers of all rabbits in the household.

There is also a zoonotic potential with rabbits infected with \textit{E. cuniculi} – meaning that human companions can pick up the parasite. In humans, \textit{E. cuniculi} can manifest as respiratory, neurological or gastrointestinal disease, just to name a few. Although the risk appears to be small, individuals with a challenged immune system are particularly susceptible and should be cautious around infected rabbits.

Some rabbits can live a lifetime with this parasite without ever showing clinical signs. For others it can mean a life of constant health challenges. However, with regular human interaction and proper husbandry and medical care, this disease is often manageable allowing the rabbit to live a quality life.

– Vickie Joseph DVM, Dip. ABVP/avian
In the summer of 2001, I was walking my dog through a church parking lot in Woodland when I came across a rabbit on the road, hugging the tarmac with its head to one side. Immediately I scooped up the rabbit and carried him home, dog in tow. I set the rabbit up in a laundry basket with towels and gave him some lettuce and water, and after a few pets he started to eat and drink. He was a beautiful grey and white Dutch rabbit with blue eyes (most unusual!). I decided to call him Churchill.

Over the next few days, he settled into his new surroundings and the head tilt seemed to improve a little. Then I took him to see veterinarian Dr. Kris Cordino. We took a blood sample for an *E. cuniculi* test, and we went home with a course of antibiotics. Within a day of this visit, Churchill’s symptoms got worse; he developed an involuntary wobbling and shaking of the eyes (called nystagmus) and started rolling uncontrollably. Dr. Cordino added an anti-motion sickness medication to his daily regimen. Meanwhile, the blood test came back positive for *E. cuniculi*.

With this new information, Dr. Cordino ordered a different type of antibiotic that had to be specially made up by a pharmacy. Around the same time, I found (and caught) another rabbit that was loose in the very same parking lot where I’d found Churchill. The maintenance man on the grounds told me that both bunnies had been running loose for about a year. I brought the second bunny home and named him Winston.

For the first few months, Churchill and I fought hard to try and make him better. I would make sure he was comfortable and well padded in the laundry basket. At night I frequently woke up to check on him as he stayed in the basket beside my bed. During the day I would bring him to work. The *E. cuniculi* caused some incontinence problems, so in order to keep clean and dry, he wore an infant diaper much of the time. Despite his physical challenges and the daily medications, Churchill always had a happy spirit. He tolerated the medication and handling very well and often showed affection by licking my hand.

During the second course of specially formulated antibiotics, it became apparent that the bad days were becoming more frequent than the good days. I noticed the sparkle in Churchill’s eyes grow dim over time. He was getting tired of fighting. Then he stopped eating and I knew that we couldn’t overcome this disease. As hard as it was, I knew the most humane thing to do was euthanize him.

I still have Churchill’s brother Winston. Interestingly enough, he has never been sick (other than a botfly infestation when I first caught him – yuk!). Today he is a happy, healthy boy who lives with three cats and two dogs. I’ll never know why he was spared from the *E. cuniculi* virus, especially when he lived near Churchill for so long. But I’m glad he never caught it, just as I’m glad I had the opportunity to have had the time with Churchill that I did.

– Claire Allen
New on the SHRS Web Site!

Did you know that you can now access old issues of “All Ears in Sacramento” on the SHRS Web site? Just hop on over to http://www.allearssac.org/newsletters.html and you can download nine years’ worth of valuable tips on grooming, feeding, bonding, health issues and feel-good stories about rabbits. And while you’re there, be sure to check out our other new offerings on our main page, including a link to a web-based survey by the UC Davis School of Veterinary Medicine, all about the effects of spaying and neutering on rabbit behavior. The information they collect will later be published as part of a study, and they’d love to hear your “two cents” about your experiences with your companion rabbit. Take 15 minutes out of your day to share your own wisdom, and potentially help other bunnies in the future!

Milo Statheros, The Boss

Frossula and Tom Statheros of Gold River share their home with a spunky little lop named Milo, who’s got them trained very well. Here’s Milo, supervising Tom’s efforts to make breakfast (we hear Milo likes his coffee black and his fruit at room temperature).

Once he’s satisfied that the house is in order and all his human companions are staying out of trouble, Milo likes to spend his afternoon lounging on his fuzzy rug with his favorite toy. Running a household is an exhausting job!

We’d love to hear from you!

Send us photos and stories of you and your bunny to be featured in an upcoming issue of All Ears in Sacramento.
Upcoming Events

Adoption and Information Clinics

Are you thinking about adding a bunny to your household? Or are you just looking to learn more about the one you’ve already got? Regardless of whether you’ve had a rabbit for years or if you’re new to the joys of rabbit companionship, you’ll have a great time at our monthly Adoption and Information Clinics. Come ask us questions about bunny behavior, care, grooming, nutrition, or anything else you can think of. We have free printed information on a variety of topics, and, of course, we also have our fabulous fosters on hand, waiting for just the right family to come along! The adoption donation is $50 ($75 for two), and includes a copy of The House Rabbit Handbook.

If you already have a bunny, you’re welcome to bring him or her to the Clinic in a secure carrier. We do offer nail trims for a $5 donation, but please call our hotline at least 48 hours in advance to set an appointment time (so we’ll be sure to have someone available for you!). Please also bring your own, sterilized clippers. Grooming and de-matting services are also available outside of Clinic hours, but by appointment only. Call our hotline for more information.

March 8
10:00 am – 3:00 pm
Fair Oaks PetCo
8840 Madison Avenue

April 12
10:00 am – 3:00 pm
Folsom PetCo
855 E. Bidwell Street

May 10
10:00 am – 3:00 pm
Arden PetCo
1878 Arden Way

June 14
10:00 am – 3:00 pm
Fair Oaks PetCo
8840 Madison Avenue

Run For the Buns
T-Shirts Available Soon!

In just a few weeks, our very own, limited-edition “Run for the Buns 2008” t-shirts will be available for sale. They sell for $18 and come in small, medium, large, XL and XXL. To get your very own, sign up for the March 22 fun run in Midtown Sacramento (see the insert in this newsletter for details!). One t-shirt is included with every individual entry, and two t-shirts are included with a family entry. If you can’t make it to the run, stop by an upcoming adoption day, where they will be available while supplies last. Many thanks to our own Jill Walker, former SHRS chapter manager and graphic designer extraordinaire, for her original and adorable logo!

Do You Enjoy All Ears in Sacramento?

Then pass it on! Help us spread the word about proper rabbit care, and about bunnies in need. Once you’ve enjoyed this issue, please give it to a doctor’s office, a school, a community center, or anywhere else that it can be picked up and read by others.
Not a Member?
Sacramento House Rabbit Society depends on donations to keep running. Please fill out the form below to keep receiving All Ears in Sacramento, and to support local rabbits in need! SHRS does not sell or share our member’s information with any other organizations or companies.

Keep in Touch!
Time to renew your membership? New to the House Rabbit Society? The annual membership to the House Rabbit Society is $18. This includes a subscription to the quarterly House Rabbit Journal. The annual membership fee for the Sacramento Chapter, which includes the quarterly All Ears in Sacramento, is $20. The House Rabbit Society is an all-volunteer, non-profit organization. All membership fees are tax-deductible and go towards care expenses for the rabbits and for providing educational materials, such as these newsletters.

☐ Please sign me up for the National Membership, $18
☐ Please sign me up for the Sacramento Membership, $20
☐ Please sign me up for both for $35
☐ I have enclosed an additional donation of $___________
☐ My employer ____________________ will match my donation to SHRS

Name: __________________________________________

Phone: __________________________________________

Address: __________________________________________

email address: ____________________________________

Return with check payable to House Rabbit Society to:
Sacramento House Rabbit Society, P.O. Box 19850, Sacramento, CA 95819-0850

Volunteer!
Would you like to help local rabbits and bunny-lovers? We could use volunteers in the following areas:

☐ Public Events (staffing education tables)
☐ Fundraising Events
☐ Distributing Literature
☐ Working with Shelters
☐ Transporting shelter rabbits to local adoption days
☐ Fostering