

*First aid in rabbits is often overlooked but is a very important concept that every breeder needs to be aware of. This article takes time to set up some basics regarding first aid, discusses the typical first aid kit that should be around, and finally discusses some routine everyday situations that breeders could be presented with.*

### A SPECIES OF PREY

It is often times ignored that rabbits are a species of prey. The same gusto and force used on dogs and cats cannot be done with rabbits. Patience and a gentle hand will be important points to consider when handling them. Our typical predator species, dogs and cats, will resist rough handling because they are accustomed to fighting due to their overriding parasympathetic nervous system. Rabbits, on the other hand, are a species that will flee when a stressor is added. Because of this, rabbits "pushed to the limit" will often times simply give up and may end their life prematurely.

### HANDLING

Domestic rabbits have one of the lowest percentages of body weight devoted to their skeleton (8%). In comparison, the skeleton of a cat (another lightly boned animal) is 13%. Rabbits account for this discrepancy by having a very powerful and well developed muscular system. The combination of powerful muscles and a light skeleton place rabbits at a much higher risk of injuring themselves when they struggle excessively. Care MUST be taken when rabbits are held to ensure they are safe. Adequately supporting the hind legs and midsection must be done. The traditional "football hold" is a great method of restraint as it provides good

control and hides the rabbits face from its possible stressful surroundings.

### WHAT IS NORMAL?

- Respiratory rate: 30-60 breaths / minute
- Heart rate: 130-325 beats / minute
- Rectal temperature: 101.3 - 104°F
- Food consumption: 5 grams of food / 100 grams of body weight / day
- Water consumption: 5-10 mL (cc's) / 100 grams of body weight / day
- GI Transit Time: 4-5 hours

There are parameters here that should be emphasized. Rabbits are obligate nasal breathers. They MUST breathe through their nose when they respire. Because of this, they have a high resting respiration rate. As an animal decreases in body weight, the heart rate generally increases as the animals moves from predator to prey. As mentioned before, a rabbit must rapidly adjust its situation when it is in the wild. In general, heart beats above 250 are difficult to measure.

### THE FIRST AID KIT

What defines a first aid kit? The average rabbit breeder is NOT a veterinarian. Therefore, it is useful to know some items that can be obtained WITHOUT a veterinarian's prescription. Here are some common items that should be in every breeders arsenal:

- Antibiotics: PPG (Penicillin-Procaïne G), Terramycin ophthalmic ointment (oxytetracycline with polymixin B), Terramycin soluble powder (oxytetracycline)
- Anthelmintics (Anti-parasites): Ivermectin, Fenbendazole, Corid
- Anticoagulants: Kwik Stop (Styptic), corn starch
- Bandages: Gauze pads, vetwrap, ace bandage
- Critical Care: Sub-Q fluids (LRS, Plasmalyte, 0.9% NaCl), Oxbow Critical Care, Rabbit Nutri Drops, Acid Pack 4-Way, Fast Track
- Hypodermic needles & Syringes: 22 gauge for injections, 20 gauge for SQ fluids
- Healing: Silver Sulfadiazene, Preparation H
- Teeth & Nails: Toenail clippers, wire cutters


### FIRST AID: FROM NOSE TO TAIL

What follows are a series of situations where a breeder could be potentially presented with. The scenarios follow the typical physical exam on a rabbit beginning at the nose and ending at the tail.

### Nose & Respiratory

- Nasal discharge is perhaps the most common situation a breeder could be presented with. This can also be associated with a harsh sound produced when the rabbit breathes at rest.

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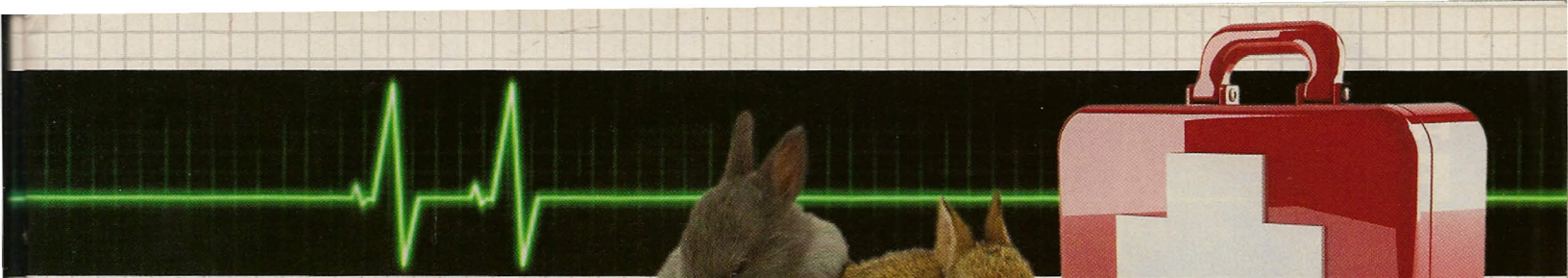
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Please be aware that chronic nasal discharge in groups of rabbits may benefit from being culled as this may be a herd immunity problem. Regardless, treatment is warranted especially in first time offenders. The only antibiotic that is easily accessible without veterinary intervention is Penicillin Procaine G (PPG). This is a subcutaneous injectable drug (*NEVER NEVER orally!*) that has good efficacy against common bugs living in the rabbits upper respiratory tract.

#### Eyes

- Traditional “weepy eye” is a very common occurrence in domestic rabbits. The causes are too numerous to count. Weepy eye that is left idle can develop into severe matting, redness, and dermatitis around the orbit. For a quick solution, application of a small amount of Terramycin ophthalmic ointment to the surface of the cornea (do not let the applicator tip touch the eye) twice a day for seven days is a very effective treatment.

- Cataracts, masses, and other intraocular lesions are difficult to treat without proper diagnosis of the actual cause (bacterial, viral, protozoal, cancer, fungal, physiologic, etc.). Veterinary intervention or assistance from a healthcare professional is advisable here.

#### Ears

- Ear mites are common in outdoor rabbits. This is easily remedied with administration of ivermectin (injectable) in a subcutaneous injection 10-14 days apart. The dose to administer will vary based on the concentration of the drug – **ALWAYS** remember to double check the concentration! For a typical 1% ivermectin preparation, 0.02 mL (cc’s) per pound is sufficient. Please be aware that 0.02 is a **SMALL** volume!

#### Integument & Fur

- Fur mites, like ear mites, are common pests in rabbits housed outdoors. Luckily they respond to ivermectin administration described above very well!

- Sore hocks (pododermatitis) plague rex breeds and breeds over 7 pounds typically. A severe case of sore hocks involves the entire layer of skin on the plantar surface of the hind foot abraded off, active bleeding, scabbing, and/or swelling. A generous amount of a solid surface should be placed in the cage to prevent further damage. In addition, a healing agent should be applied daily. Preparation H is a great first product to reach for. If you have a good relationship with a veterinarian, request a prescription for a tube of Silver Sulfadiazene cream.

- Lacerations are common in rabbits because they have very fragile skin (an adaptation for a species of prey). Small, linear lacerations that **DO NOT** involve muscle can be easily put together after cleaning with skin glue. I do not recommend ever suturing or skin stapling skin on a rabbit unless they are heavily sedated first.

#### Musculoskeletal

Fractures are very common in rabbits due to their light percentage of skeletal body weight described earlier. Common areas that rabbits fracture include:

- The tibiotarsal joint or the “hock”
- The radius and/or ulna of the front leg
- The metacarpals, metatarsals, and phalanges of the front and back legs (the toes)
- The spine

The first two fractures, which occur in the front and hind legs, can be stabilized with novel instruments. For small breeds of rabbits, a splint can be constructed of popsicle sticks and firmly put into place with vetwrap or an ace bandage. The joint must be stabilized prior to and after the injury so the splint should span well beyond both ends of the fracture. Please be aware that most rabbits are miserable with this apparatus attached to their leg and will actively try to remove it! The third fracture, to the toes, are unable to be splinted. Cage rest will help the fracture heal. Most fractures in rabbits take on average 4-6 weeks to heal fully. Please be aware that this is a “best guess”

method of fracture repair. A mal-union or deformity may result after the joint is healed. The fourth fracture, unfortunately, is generally associated with a poor prognosis in most rabbits. Spinal fractures usually do not respond well to immobilization and the back cannot be easily splinted in most rabbits. The quality of life for this rabbit must be strongly considered before anything else is done.

#### Digestive

- Broken teeth are a common problem in rabbits. A rabbits dentition continuously erupts throughout life. As long as there is not active bleeding, simply allow the new tooth to erupt fully.

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• Malocclusion is a very common problem in domestic rabbits. There is a hereditary component to it and therefore care must be taken to cull rabbits that are passing this trait down. "Wolf teeth," the more severe of the two forms of malocclusion, must be addressed with regular clipping of the teeth. Reflect the cheeks back and stabilize the rabbit. Use a regular pair of toenail clippers or wire cutters (cleaned beforehand) to clip the excessively growing teeth. Ideal occlusion of the teeth have the front incisors just barely laying over the bottom incisors.

The enteropathy is NOT a disease rather a group of signs all associated with various ailments in rabbits. Signs include:

- Anorexia (no appetite) or anorectic (reduced appetite)
- Lethargy (can range from mild to severe)
- Hiding and exhibiting signs of pain
- Decreased stool production
- Excessive gas and/or bloating
- Quick progression (rabbits can be dead within 24-48 hours)

#### Genitourinary

- Vent disease is common in breeding bucks and

occasionally does. The genital area is scabbed, reddened, malodorous, and painful. To treat this condition, the antibiotic mentioned for the upper respiratory disease (PPG) is the drug of choice. It is NOT necessarily an emergency but certainly stop using these animals if you are breeding them temporarily!

- Dystocia or a difficult birth is common in small breeds, mothers with a large number of kits, and many more reasons. If a mother has not given birth after 36 days, intervention is needed. This involves intramuscular injection of oxytocin that will stimulate uterine contraction and is sometimes all that is needed to help the doe give birth. Oxytocin is obtained via a veterinarian.

#### Neural

A head tilt is most commonly caused by the following conditions:

- An ascending middle ear infection usually from *Pasteurella multocida*
- The protozoal parasite *Encephalitozoon cuniculi*
- Trauma (the rabbit has blunt trauma to the head)
- Cancer (chance generally increases with age)

Middle ear infections will respond well with a treatment regiment similar to treating an upper respiratory infection. Infections with *E. cuniculi* are treated with Fenbendazole once a day for 28 days. It can be obtained via a veterinarian and is sold in the two common forms of Safeguard (horses) and Panacur (dogs and cats).

This list is not exhaustive. It is merely a brief tour of the major organ systems in rabbits and problems that can commonly occur. A more in depth description of any of these problems can be obtained via the author.

Despite our best efforts, many times what we have at our disposal is not sufficient to bring a rabbit back to adequate health. These situations include advanced infections that are refractory to the antibiotics at hand, fractures that are complex and cannot be splinted, injuries where significant pain control is needed, and situations where advanced diagnostics are needed (x-rays, ocular exam, skin scrape, etc.). For situations like these, the breeder will need to seek advanced help from a veterinarian. Before bringing your rabbit to a veterinarian, please make sure he or she is comfortable seeing rabbits! Clinics that are "exotic" friendly are a good place to start.

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