A Rabbit Rehab Room
Advanced Skills

16th Annual Call of the Wild
Wildlife Rehabilitation Conference
The Wildlife Center of Virginia

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WildRescue, Inc./Rabbit Rescue

Anatomy & Physiology

• How many teeth does a rabbit have?

• Metabolism: 3 times faster than dogs or cats
• Pulse: 130-325 beats per minute
• Respiratory Rate: 32-60 breaths per minute
• Hindgut fermenter
• No vomit reflex
• Vision 330°
• Highly developed olfactory and auditory senses

Rabbit Digestive Tract

Illustrations courtesy of mybunny.org
The Scoop on Poop

- Normal Poop
  - looks like cracked black pepper
  - small, hard and round

- What’s not normal?
  - plops (dark brown, green, bloody, mucus covered)
  - Yellow oozy
  - Mucus

The Scoop on Poop

- Green
  - coccidia/nonspecific enteritis
    - Biosol
    - Albon
    - Bactrim (trimethoprim sulfate)
    - Marquis (Bayer Animal Health)
- Black
  - e. coli
  - clostridium
    - Baytril
    - Flagyl (metronizazole)

The Scoop on Poop

- Yellow
  - coccidia
    - Albon
    - Bactrim

- White
  - undigested proteins/formula
    - start on Biosol
    - cut back formula ratio to 4:1

The Scoop on Poop

- Wet Tail
  - nonspecific enteritis
    - characterized by moist green to brown leakage around urogenital area
- How to treat
  - revisit formula – both ratio and composition
  - Biosol (neomycin sulfate)

Common Diagnoses

- Head trauma
  - Concussion
  - Ocular damage
  - Sinus/jaw
  - Auricular damage
- Wounds
  - Abrasions (road rash)
  - Lacerations
  - Degloving
  - Punctures
- Cuterebra
- Fractures
  - Pelvic
  - Spinal
  - Femoral
  - Tibia-fibula
  - Ulna-radius
  - Spinal

Cecotropes

- Formed in the cecum
- Rich in bacteria
- Rabbit’s “multi-vitamin”
- Grape-like cluster in mucosal sac
- Vital to rabbit’s health

How to treat

- revisit formula – both ratio and composition
- Biosol (neomycin sulfate)
**Common Diagnoses**

- Dehydration
- Ataxia
- Fed incorrect food
- Poisoning
- Burns
  - Fire
  - Chemical (pesticide/fertilizer/pollutol)
- Malnourished (underfed)
- Necrotic tissue
- Neurological
- Aspiration
- Hypothermia
- Hypoglycemic

**Common Diagnoses**

- Albinism
- Sub-albinism
- Regional variation in color
- Genetic mutation
- Alopecia

**How to Clean Wounds**

- Hydrotherapy
  - Use lukewarm water NOT cold
  - 2 times daily
  - Use spray head from kitchen sink
- Vetricyn
- Novalsan

- Sterile saline
- In a pinch, boiled then cooled water
- Use a curved tip syringe for smaller wounds

**Wound Management**

- Silvadine
- Tri-Top
- Triple Antibiotic ointment
- Telfa pads
- Bandaging materials
- Lidocaine

**Capture Myopathy**

- “White Muscle Disease”
  
  Many of the effects of stress are linked to the release of catecholamines or corticosteroids and can be life-threatening

  - Catecholamine release can cause heart failure and death.
  - Stress due to overcrowding has been used to induce cardiomyopathy in laboratory rabbits.
  - Stimulation of the sympathetic nervous system inhibits activity of the gastrointestinal tract. Gut motility is reduced, which can have a knock-on effect.
  - Gut stasis, trichobezoar formation (hairballs), enterotoxaemia and mucoid enteropathy can all be linked with stress.

**What Stress Can Do**

- Stress in rabbits causes a marked decrease in urine flow, renal plasma flow and filtration rate. Oliguria can last from 30 to 120 minutes.
- Stress can increase gastric acidity and cause gastric ulceration in rabbits.
- Stress is immunosuppressive. Rabbits suffering from dental disease have significantly lower lymphocyte counts than healthy rabbits.
What Stress Can Do

- Stress affects carbohydrate metabolism. Handling alone can cause an increase in blood glucose to the order of 8.5 mmol/l. Blood glucose levels can be very high (20-25 mmol/l) in association with intestinal obstruction and other stressful diseases.
- Stress can cause anorexia that, in combination with disruption to normal carbohydrate metabolism, can lead to hepatic lipidosis, liver failure and death.

What Stress Can Do

- Rabbits are a prey species and susceptible to the effects of adrenal hormones.
- Stress can allow the flare up of latent infections and cause gastrointestinal hypomotility, reduce renal blood flow and increase gastric acidity.
- Pain, unfamiliar surroundings, loud noises and the proximity of predators can stress rabbits that are brought to a veterinary clinic.

Zoonoses

- Not a major factor in wild rabbit rehab
- But their noses are awfully cute
- Tularemia
- Tyzzer’s Disease
- Staph
- Ringworm
- Skin mites (*Cheyletiella*)

Ectoparasites

- Da outside bugs
  - Fleas
  - Ticks
  - Lice
  - Mites
- What to use:
  - Advantage for kittens (light blue tube)
  - Revolution
  - *Never use Frontline!*

Endoparasites

- Da inside bugs
  - Strongyles
  - Tapeworms
  - Ascarids
  - Protozoas
- What to use:
  - Albion and Bactrim (SMZ) excellent for protozoas
  - Ivermectin (injectable and oral) hits all but tapeworms
  - Drontal (tablet or injectable) hits tapeworms

Cuterebra (bot fly larvae)

- Larvae tend to burrow at the base of the tail and various locations where it is hard for the rabbit to reach while grooming
- Raised area or lump with exudate
- Breathing hole visible after gentle removal of fur/crust
**Cuterebra Removal**

- Cut away fur surrounding the breathing hole
- Place a glob of vasoline, mineral oil, or any petroleum-based, non-toxic product directly on the breathing hole
- The cuterebra will surface through the vasoline
- Gently grasp the cuterebra and pull straight out, taking care to not burst the larvae inside the body wall
- Lavage the wound with sterile saline ONLY as the body wall may be compromised

**THE TOOL KIT Antibiotics**

<table>
<thead>
<tr>
<th>Antibiotic</th>
<th>Dosage</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bactrim</td>
<td>30 mg/kg, q12-24 hrs</td>
<td>Enteritis/diabetes, urinary tract/bladder infections, control of pasteurella</td>
</tr>
<tr>
<td>Baytril - both injectable and tablet</td>
<td>5-15 mg/kg, q12 hrs</td>
<td>Broad spectrum antibiotic which does not disturb the flora in the cottontail's GI tract and is a good drug for cat-caught damage. Can cause appetite suppression</td>
</tr>
<tr>
<td>Reglan</td>
<td>0.5 mg/kg, q8 hrs</td>
<td>Gut motility</td>
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<tr>
<td>Biosol</td>
<td>2mg/ml strength</td>
<td>Dose - 0.003 (Ex.: 50g rabbit x 0.003 = 0.15cc dose)</td>
</tr>
<tr>
<td>Chloramphenicol palmitate</td>
<td>50mg/kg PO, BID</td>
<td>Broad-spectrum antibiotic. This drug is extremely good for sinus/head infections and is also used in cat caught episodes.</td>
</tr>
<tr>
<td>Flagyl</td>
<td>20-40mg/kg PO, BID</td>
<td>For anaerobes, may be useful against Clostridium sp. in severe diarrhea</td>
</tr>
<tr>
<td>Procaine penicillin (penicillin G benzathine and penicillin G procaine)</td>
<td>25-50mg/kg PO, SID</td>
<td>For mycoplasma and Tyzzer's disease</td>
</tr>
<tr>
<td>Ivermectin</td>
<td>Injectable only - give SC every other day for 1 week. Excellent for susceptible Pasteurella and 30-80mg/kg is used to control adult or larval stage of disease within 12 hours.</td>
<td>Safe to use for ear mites. Also kills ascarids and pinworms.</td>
</tr>
<tr>
<td>Albomide</td>
<td>25-50mg/kg PO, SID</td>
<td>For coccidia, use for 10-14 days (may use up to 100mg/kg). First dose - 50mg/kg then reduce to 25mg/kg for remaining treatment</td>
</tr>
<tr>
<td>Diflubenzuron</td>
<td>0.25-1g/l drinking water</td>
<td>Use for 30 days for coccidia</td>
</tr>
<tr>
<td>Piperazine</td>
<td>500-1000mg/kg PO every other week</td>
<td>For pinworms</td>
</tr>
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**THE TOOL KIT**

**Analgesics and Anesthetics**

- **Acepromazine**: 5mg/kg IM Analgesia
- **Aspirin**: 100mg/kg PO Q 4-6 hours Analgesia
- **Butorphanol (Torbugesic)**: 0.1-0.5mg/kg SC TID Analgesia
- **Meloxicam**: 1-3 drops orally 1-2 times per day; 1 drop diluted by 5 drops of water delivered orally 2-3 times per day
- **Mannitol**: Osmotic diuretic for head trauma and oliguric kidney failure

**Miscellaneous Drugs**

- **Atropine**: 10mg/kg SC 2-20 minutes FOR ORGANO-PHOSPHATE TOXICITY ONLY
- **Banamine**: 0.3-2.0 mg/kg q12-24 hrs for no more than 3 days
- **Meloxicam**: 12.5-25 mg/kg, BID, TID
- **Mannitol**: Osmotic diuretic for head trauma and oliguric kidney failure

**THE TOOL KIT**

**Miscellaneous Drugs**

- **Reglan (metaclopramide)**: 0.2-1mg/kg IV, IM, SC, PO, BID Promotes GI motility
- **Simethicone Drops**: Pediatric strength – 2-3 drops BID To help relieve and dissipate gas build-up in the GI tract
- **Vitamin B complex**: 0.02-0.4ml/kg IM, SID Stimulates appetite, supports healthy nervous system
- **Panacur**: Anthelmintic – for e. cunn., all worms except tapes
- **Homeopathic Remedies**: Various
- **Rescue Remedy**: A Bach Flower Remedy used for extremely stressed wildlife

**Mom Nursing Newborns**

**Release!**
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