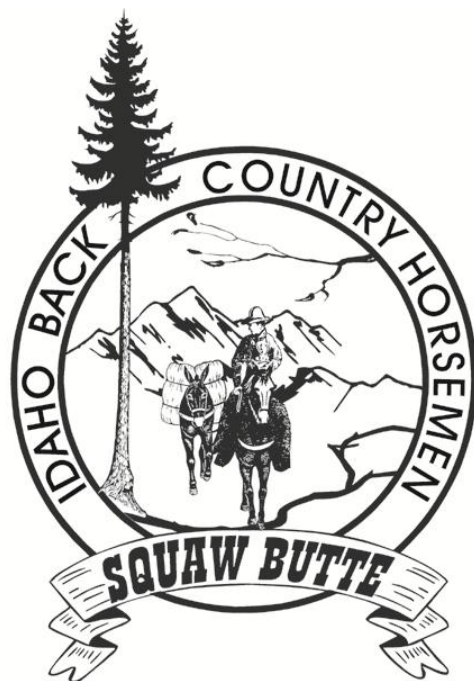


Squaw Butte BCHI
Equine First Aid
2012



By

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&

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Author Ellen Knapp



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Back Country Equine First Aid Kit Contents

Item	Count	Comments
Banamine injectable	1	For Colic. 10 cc dose IV. Peaks in 2 hours. Can give orally, peaks in 8 hours. Can give IM with VERY clean skin.
Banamine Paste	1	For colic or inflammation. Peaks in 8 hours
bicycle inner tube - 2 ft	1	Tourniquet
Brown Gauze - 6"	2	Bandaging
Bute Paste	1	For inflammation. Peaks in 8 hours
Dex powder	3	For hives
Duct Tape	1	Bandaging
Easy Boot		Very Large. For foot injuries
Electrical Tape	1	Snakebite - tape tubing to halter
Electrolytes OR 2T Lite Salt + orange Gatorade powder	1	Dehydration
Eye ointment - triple antibiotic	1	Eye injuries, non-steroidal
EZ Scrubber in betadine	1	Wound Cleaning
gloves	4	
Hemostats	1	Foreign object removal, clamp bleeding veins or arteries.
Needles	6	18 x 1 1/2" for banamine and rompum
Needles	4	20 x 1 1/2" for pen G
Pen G bottle	1	Antibiotic. 30 cc IM for 1000# body weight. Twice daily for 3 days. Needs refrigeration in camp or ice pack on trail.
PVP ointment	1	in small pill bottle, wound ointment
Razor	1	Wound Cleaning
Rompum bottle	1	Tranquilizer + analgesic; 2cc to 5 cc IV or IM. Keep this drug locked up.
Scissors	1	
Sheet Cotton	1	1 pound roll
SMZs	100 tabs	Antibiotic. 10 tabs SMZs orally, for an adult 1000# horse, twice daily for 5 days.
Sponge	1	cooling
Sterile 4x4's in Ziploc	6	Wounds
Sterile Saline Solution	1	Eye injuries
Stethoscope	1	Assessment
Syringes	6	for Pen G, Banamine, Rompum, oral meds, wound cleaning
Thermometer	1	Assessment
Tools to pull shoe		For foot injuries
TOTAL		
Tubing	2	12" x 1/2" I.D. for snakebite
Vet Wrap	1	Bandaging
War Bandage	1	For heavy bleeding or large body wounds
white tape - 1"	1	Bandaging

Equine Medicines

Dosages are based on a 1000# adult horse

To Prevent Infection: Pen-G and SMZ

- It is ideal to use both Pen-G and SMZ for wounds
- Most strep in horses (skin wound infections) are resistant to SMZ's.
- SMZs are used for upper respiratory infections.
- SMZs are used as a follow-up to Pen-G for routine skin wounds.
- SMZs may be used on humans at the dosage of 1 tablet per 100# body weight.

Dosage

1. Give 30 cc Pen G, for an adult 1000# horse, twice a day, in the butt or chest muscle, using 2 locations for each 15 cc.
 - a. Stand off to the side so you don't get kicked, should the horse kick out.
 - b. Aspirate the syringe and **SLOWLY** administer. Pen G is thick and administration is painful for the horse.
 - c. **DO NOT** give penicillin in a blood vessel as that will cause the horse to seize or go crazy, running and bumping into things.
2. Administer Pen-G twice daily for 3 days.
3. After the 3 days of Pen-G, Administer 10 tabs SMZs orally, for an adult 1000# horse, twice daily for 5 days.
4. Total days of antibiotic administration is 8 days.

To Control Inflammation thereby Decreasing Pain

- Bute (phenylbutazone) and Banamine (flunixin meglumine) are the most common non-steroidal anti-inflammatory drugs (NSAIDs).
- They are in the same category as aspirin and ibuprofen and are very effective against fever, swelling and inflammation from injuries and infections, laminitis (founder), and musculoskeletal pain.
- Bute Paste and Banamine Paste take many hours to be effective; it takes up to 8 hours for these to "peak" in effectiveness when given orally.
- In a pinch, Bute Paste and Banamine Paste can be used interchangeably. Note that "bute paste" is a 2x/day drug and works better for muscle/skeletal pain (i.e. wounds, trauma swelling, lameness) and "banamine paste" is a 1x/day drug and works better for visceral pain (i.e. colic).

Banamine (flunixin meglumine)

- Banamine is a Non-Steroidal Anti Inflammatory Drug (NSAID)
- It decreases inflammation thereby decreasing pain
- Banamine is very effective against visceral pain and is the medication of choice for colic.
- IV administration is ideal as Banamine peaks in 2 hours
- Oral administration of liquid banamine and banamine paste peak in 8 hours
- Note: Banamine slows G.I. mobility so be aware of this when used for colics

Dosage

- Administer 10cc Banamine IV for an adult 1000# horse
- The same dose of liquid Banamine may be administered orally, but will take 8 hours to peak.
- 10 cc of Banamine paste may be given instead but will take 8 hours to peak
- **If Necessary**, to provide longer term inflammation control it is ok to 'stack' **IV banamine** and **oral bute paste**.

Bute (phenylbutazone)

- Bute is a Non-Steroidal Anti Inflammatory Drug (NSAID)
- It decreases inflammation thereby decreasing pain
- Bute is very effective for musculoskeletal problems
- Bute should not be used for colic as it is less effective than Banamine and can limit the types of medication your veterinarian can use for treatment.
- Bute paste peaks in 8 hours

Dosage

1. Administer 2 grams of Butazoladin Paste, for an adult 1000# horse, twice daily for the first 3-5 days as needed.
2. Administer 1 gram bute paste, for an adult 1000# horse, twice daily thereafter as needed.

To Control Pain and/or Provide Sedation

- Note: Rompum slows G.I. mobility so be aware of this when used for colics

Dosage

1. Administer 2-5 cc Rompum IV or IM for an adult 1000# horse
2. Start with 2 cc, can then give up to 5 cc.

To Prevent Dehydration

Dehydration prevention starts at home before the trip

- Top grain with 2 Tablespoons Lite Salt for a few days prior to the trip
- Accustom the horse to hay cubes by feeding SOAKED cubes for a few days prior to the trip

Dehydration prevention continues at the Trail head and on the trip

- Feed SOAKED hay
- Feed SOAKED hay cubes
- Bring water from home for the first night
- 'Mask' unfamiliar water with orange Gatorade
- Administer Electrolytes **ONLY** if the horse is drinking well.

How to Administer an IV Injection

1. Stand on the left side of the horse's neck (If left handed, swap 'left' and 'right')

2. Identify and fix in your mind the Jugular furrow
3. Occlude the jugular with the left thumb
4. Use your right fingers to stroke the jugular and make a mental note of the location
5. Soak the area with rubbing alcohol
6. Hold the needle by the hub between the thumb and index finger
7. Place the needle in alignment with the jugular at a 20 degree angle to the skin and apply gentle pressure with the side of the needle to the skin
8. Assertively push the needle through the skin at a 20 degree angle to the hub
9. Blood should drip out of the hub. Rotate the needle 90 degrees if no blood is dripping
10. Attach the prefilled syringe and aspirate blood into the syringe
11. **Slowly** push the plunger, periodically aspirating additional blood into the syringe until all medicine is delivered.
12. Removed syringe and needle and apply gentle pressure with alcohol soaked gauze until bleeding stops.

Assessment of the Vital Signs

Vital Sign	Normal for Average Adult Horse, at rest
Body Temperature	97 to 101.5 degrees
Heart Rate	32-44 beats per minute (BPM)
Capillary Refill Time (CRT)	< 2 seconds
Gum Color	Pink and moist
Respiratory Rate	8-20 breaths per minute
Skin Tenting	< 2 seconds using upper eye lid

The vital signs give an indication of the overall state of health.

The results you obtain when you suspect a horse is ill will be much more useful if you compare them to the horse's own "normals".

Body Temperature:

Temperature might also increase when a horse is exercised, excited, in pain, diseased, or is in a hot, humid climate.

1. Lubricate the tip of the digital thermometer with petroleum jelly. Insert into rectum while standing off to the side (so you don't get kicked, should the horse kick out).
2. Thermometer will beep when the temperature is reached.
3. An increase in temperature itself is not a cause for alarm.
4. A 2-degree increase needs continuous monitoring.
5. 4 degrees above a horse's normal is cause for concern.

Heart Rate:

1. Listen with a stethoscope behind the left elbow on the chest. You may need to push forward under the elbow.
2. The heart will make a **lub-dub** sound which is **one beat**.
3. Pulse rates can also be taken anywhere an artery lies close to the surface of the skin.
 - a. The best location is the mandibular artery on the inside of the horse's jawbone and is the thickness of a pencil.
 - b. Just above the fetlock is the palmer digital artery.
4. Hold your index and middle finger over the artery. Don't put too much pressure with your fingers or you will not feel anything. **DO NOT** use your thumb; you risk getting your own reading confused with the horse's.

Capillary Refill Time (CRT):

CRT is the time it takes for blood to return to blanched tissues.

CRT is an indicator of circulation problems like shock, dehydration, or toxic reactions.

1. Place the fingertip on the gum for 2-3 seconds, pressing hard enough to create a white spot on the pink surface.
2. Release the pressure and count how many seconds pass until color returns.
3. If the CRT is prolonged, the horse is showing circulatory impairment and may be in shock or have colic.
4. 3-4 seconds or longer indicates problems.

Wounds and Trauma**Red Alerts – Consider getting horse out of backcountry and get help ASAP**

- The horse is in shock - Horse is cold, has pale membranes, appears very tired, breathing is irregular. Blanket the horse and keep as warm as possible. Clamp any bleeder with hemostats.
- Bleeding is uncontrollable even with direct pressure for over 20 minutes and/or an applied tourniquet and/or clamping with hemostats.
- The horse is very lame.
- The horse is thrashing about because of the injury.
- There is a clear yellow fluid coming from the joint wound.
- The wound is on a joint or BELOW the hock or knee. These injuries need extra attention due to the possibility of infection going into a joint, and the lack of blood supply below the knee or hock, resulting in slow healing and potential infection.

Types of Wounds

- **Punctures** – While only a small hole may be visible, these wounds often have massive contamination and possible tissue damage under the skin. **Puncture wounds almost always become infected and need special attention**, especially if on the lower leg or close to joints. Infection control will **always** be needed (refer to **Equine Medications instruction sheet**).

- **Burns** – These are usually caused by ropes or from tack. The damaged tissue dies and sloughs off or is removed via surgery. The wound is then treated as an open laceration.
- **Lacerations** – These come in all shapes and forms. Small cuts often heal with minimal treatment, but crushing wounds, large open wounds, and those of the lower limbs need help to minimize infection and scar tissue.
- **Abrasions** – a surface injury that doesn't penetrate all skin layers. 'Road Rash' and rope burns are types of abrasions. Rope wrapped around the leg, usually the pastern, can cause pressure necrosis resulting in ongoing tissue death over weeks.

General First Aid

IF bleeding is significant, control the bleeding BEFORE cleaning the wound.

1. Assess the Patient
2. Inspect the Wound
3. Control Significant Bleeding and Start Wound Cleaning
4. Clean the Wound
5. Medicate the Wound
6. Bandage the Wound
7. Prevent Infection
8. Control Inflammation and Pain
9. Return to the Trail Head
10. Care for the Bandage

Step 1 - Assess the Patient

1. Wait a few minutes for the horse to settle down after an injury before starting major treatment.
2. Check overall condition of the patient.
3. Check vital signs.
 - a. An animal experiencing severe blood loss or shock will have the following signs:
 - i. heart rate > 60 BPM
 - ii. thready, weak pulse
 - iii. CRT >= 4 seconds
 - iv. Very pale membranes
 - v. Cool Extremities
 - vi. Shivering
 - b. These patients need additional treatment beyond wound care. Take what steps you can and seek Veterinary Assistance ASAP.

Step 2 – Inspect the Wound

1. Cuts not extending all the way through the skin are rarely severe. If there is no lameness, cleaning the wound may be all that is needed.
2. Wounds that go completely through the skin layer but have not damaged tissue in other layers may heal without complications if they are ABOVE the knee or hock.

3. Wounds BELOW the hock or knee, damaging tissues below the skin layer, or near a joint or tendon need veterinary assistance as soon as possible.

Step 3 - Control Significant Bleeding and Start Cleaning the Wound

There are 3 methods for controlling bleeding:

1. Apply DIRECT PRESSURE to the wound until bleeding stops.
 - a. If bleeding soaks through the bandage, **DO NOT** remove bandage. Apply another, tighter bandage over the one that is already there.
 - b. Most wounds stop bleeding in 15-20 minutes.
2. Clamp a bleeding vessel or artery with hemostats.
 - a. Wait 10-15 minutes for a clot to form
3. Apply a Tourniquet to a limb
 - a. A tourniquet should be applied only if absolutely necessary.
 - b. Apply between wound and heart.
 - c. Wrap tightly and tape in place.
 - d. DO NOT tie or twist.
 - e. If not effective, place a cloth roll under the tourniquet in line with the wound.
 - f. Loosen every 10 minutes just enough to let the blood flow, then retighten.
 - g. Can remain in place for 30 minutes.
 - h. Seek Veterinary assistance as soon as possible

Upper body wounds

1. Cover would with large sterile compress
2. Tie in place using brown gauze or vet wrap
3. Apply additional pressure with towels or coats
4. Tie these in place using brown gauze or vet wrap
5. If hemorrhaging begins again, **DO NOT** remove bandage. Apply another, tighter bandage over the one that is already there.
6. Begin cleaning the wound

Leg and Foot Wounds

1. Place a sterile telfa pad over the wound.
2. Apply DIRECT PRESSURE to wound until bleeding stops.
3. If hemorrhaging begins again, **DO NOT** remove bandage. Apply another, tighter bandage over the one that is already there.
4. Begin cleaning the wound
5. A tourniquet should be applied only if absolutely necessary.

Step 4 –Clean the Wound

Wound Cleaning is the most important step

1. Use the surgical E-Z Scrub to thoroughly clean the wound.
2. Pick any debris out of the wound.
3. Shave the hair around the wound, if necessary.
4. Use the surgical E-Z Scrub to thoroughly clean the wound again.
5. Use a 30cc syringe filled with clean water to flush the wound.
6. Multiple flushings are very important to remove bacteria and dirt.

Step 5 - Medicate the Wound

1. With sterile gauze, blot the area around the wound dry
2. Apply PVP wound ointment.
3. If suturing is needed, do not apply wound ointment. It is best if suturing can be done within the first 12 hours.

Step 6 – Bandage the Leg Wound

Layer 1: maintains a sterile wound environment.

1. Place a sterile 4"x4" telfa pad over the wound
2. Secure the pad with 6" brown gauze dressing wrapping the leg from inside out, front to back. Wrap counter-clockwise for left legs; wrap clockwise for right legs.
3. With a gentle motion spiral the wrap down the leg from the injury, then upward past the injury and finally down the leg again.
4. Keep pressure uniform and overlap each successive turn so that it covers half or the previous turn.

Layer 2: absorbs drainage and to prevents excessive compression while supporting the limb.

1. Apply the sheet cotton roll wrapping the leg from inside out, front to back, making sure to extend above and below the wound.
2. IF NEEDED to add further stability for the injury, wood slats, branches, or other splint material can be taped to the outside of the padded wrap.
3. Secure the padding with 6" brown gauze wrapping the leg from inside out, front to back.
4. Keep pressure uniform and overlap each successive turn so that it covers half of the previous turn.

Layer 3: secures layers 1&2 and to prevents environmental contamination.

1. Using Vetwrap, start about $\frac{3}{4}$ inch above the bottom of the padding, wrapping the leg from inside out, front to back up the limb firmly overlapping $\frac{1}{2}$ the material over the previous turn.
2. Work to top of padding, leaving $\frac{3}{4}$ inch uncovered.

Layer 4: FOOT BANDAGE ONLY

- Secure these the first 3 layers with a duct tape 'boot' or use an Easyboot.

Step 7 – Prevent Infection with Antibiotics

- Antibiotics are needed for all punctures and if the wound is large, contaminated, deep, already infected, or near a joint or tendon sheath.
- Administer Pen G (refer to [Equine Medications](#) instruction sheet)

Step 8 – Control Inflammation and Pain

- Administer 2 grams bute paste (refer to [Equine Medications](#) instruction sheet)

Step 9 – Return to the Trail Head

1. Keep horse quiet.
2. Do not attempt to return to the trail head until hemorrhaging has completely stopped. This may take hours
3. When horse is capable of moving, go slow and make frequent stops to rest
4. If hemorrhaging begins again, stop. **Do not remove bandage, apply another, tighter bandage over the one that is already there.**
5. Offer small amounts of water frequently; but do not let the horse “tank up” on water
6. Offer very small amounts of feed.

Step 10 – Care for the Bandage

- Change the wrap daily for the first week, then every 2 to 3 days thereafter, cleaning the wound thoroughly and applying medication before applying a new bandage.
- With small abrasions the bandage should be removed after 2-3 days to allow a scab to form. If infection develops under the scab, remove the scab, thoroughly clean the area and reapply PVP ointment.
- **Watch bandages very closely for any slippage.** Extreme damage can be caused if bandages slip, bunch up, and cut off circulation.
- Change the wrap if it slips, gets wet, smells, is swollen above or below the wrap, or if horse seems painful.

Tack Sores

Poor fitting tack and/or soft skinned horses can result in rub sores. These sores can be mere red spots, or they can extend through the skin and cause pain.

Check the horse over at the end of the day for red areas or sores.

Signs

- During the ride, horses that are sore may exhibit discomfort, an altered gait, or even lay down.

First Aid

1. Shave the hair around the area.
2. Apply PVP ointment.
3. Cut a hole slightly larger than the wound in a 2” thick piece of foam.
4. Place the foam pad under the offending tack to protect the wound.

Punctures to the Sole of the Hoof

- Punctures are very dangerous because they are often made by a small object like a nail. The object carries manure and soil into the sole where severe infections can incubate.
- **Deep penetrating objects can also damage or infect tissues below the sole such as the flexor tendons or the coffin bone. If these structures are involved, extensive measures are needed if the horse is to be salvaged.**

First Aid

1. Cut the object level with the sole.
 - a. If the object must be removed, photo-document the foot and the object's location prior to removal, during removal, and after removal. It is important to note the depth and angle of penetration.

- b. Save the object for your veterinarian.
2. Follow the above steps for wound cleaning and bandaging
3. Prevent infection, refer to Equine Medications instruction sheet.
4. Control inflammation and pain as needed, refer to Equine Medications instruction sheet.
5. **Seek Veterinary assistance as soon as possible**

Blunt Trauma

First Aid

1. Keep the horse quiet.
2. Apply ice or cold water to the affected area to limit swelling.
3. Control inflammation and pain as needed, refer to Equine Medications instruction sheet.

Eye Injuries

Eye injuries are of special concern in the backcountry, as they can deteriorate very quickly, so these injuries need some special attention.

It is very difficult to tell the severity of eye injuries without the right equipment.

General First Aid Steps

1. Flush the eye with sterile saline solution.
2. Treat all eye injuries with Triple Antibiotic Ophthalmic ointment 3 times a day (every 4 hours) until the eye can be evaluated by your DVM. **DO NOT** use an ointment with steroid in it as it may cause the cornea to melt if there is an ulcer.
3. Protect the eye with a fly mask. **REMOVE fly mask if horse rubs its face.**
4. Control inflammation and decrease pain with Banamine IV, liquid Banamine orally, Banamine paste, or Bute paste (refer to Equine Medications instructions sheet)
5. **Seek Veterinary assistance as soon as possible**

Foreign Bodies: Foxtails, dirt, sawdust, hay, pine needles, etc. can lodge in the tissues around the eye or hide under the eyelids.

Signs

- Squinting
- Eyelid(s) may swell
- Severe tearing
- Pus discharge
- Foreign body may be visible

First Aid

1. Examine the eye and remove any foreign bodies.
2. Examine the eye from the side using a small flashlight. If the foreign body doesn't extend very far into the eye, it is best to remove it.
3. Sedate with Rompum IM (refer to Equine Medications instruction sheet)
4. Extract the foreign body with the hemostats.

5. **If the foreign body extends into the cornea or eye bulb, DO NOT remove it; seek Veterinary assistance as soon as possible. Taping the eyelid closed is an option if it will prevent any further damage to the eye.**
3. Flush the eye with sterile saline solution.
4. Administer Triple Antibiotic Ophthalmic ointment 3 times a day (every 4 hours).
5. Protect the eye with a fly mask. **REMOVE fly mask if horse rubs its face.**
6. **Seek Veterinary assistance as soon as possible**

Eyelid Lacerations: The eyelids can be easily torn or cut by brush and obstacles.

Signs

- The signs are obvious, a torn and bleeding lid

First Aid

These wounds heal well when sutured.

They do not always need Veterinary attention immediately, and often your ride can be finished.

5. Flush the eye out often with sterile saline solution.
6. Administer Triple Antibiotic Ophthalmic ointment 3 times a day (every 4 hours).
7. Administer Pen G (refer to Equine Medications instruction sheet)
8. Have your DVM debride and suture the eyelid when you arrive home.

Corneal Injury: The cornea can be scratched or punctured by foreign bodies

Signs

- Squinting
- Discharge from the eye
- Visible cloudy spot on the cornea

First Aid

1. Examine the eye for foreign bodies.
2. Flush the eye with sterile saline solution.
3. Administer Triple Antibiotic Ophthalmic ointment 3 times a day (every 4 hours).
4. **Protect the eye with a fly mask. REMOVE fly mask if horse rubs its face.**
5. **Seek Veterinary help as soon as possible.**

Acute Lameness

Sudden refusal to bear weight on a limb.

Acute lameness can have a number of causes:

1. A nail punctured the foot.
2. A tendon, ligament, or other soft-tissue structure is strained.
3. A bone is fractured
4. Joint infection (septic arthritis)
5. Tendon sheath is torn
6. Sub-solar abscess

General First Aid

1. Carefully evaluate the lame leg
 - a. Look for swelling and obvious wounds.
 - b. Check for extra fluid in the joint.
 - c. Compare the limb to the unaffected limb.

- d. Treat any wounds following the procedures for WOUNDS
- e. Apply a support wrap, as directed below, as necessary
- f. Treat fractures or suspected fractures as directed below
2. Carefully evaluate the foot.
 - a. Check foot for abscess, puncture, rocks and debris
 - b. Check the digital pulse. **POUNDING** pulse when there is an abscess
 - c. Treat any wounds following the procedures for WOUNDS
 - d. Treat sole bruises as directed below
3. Control inflammation and pain: Administer 10cc Banamine IV or 2 grams bute paste (refer to Equine Medications instruction sheet)
4. **SLOWLY** lead the horse back to the trailhead, resting every 15 minutes.

Sole Bruising or Abscess

Stones or hard ground can cause the tissues in the foot to bruise and can lead to abscesses.

Signs

- Reluctance to bear weight or lameness on the limb with no traumatic incident
- Increased digital pulse. **POUNDING** pulse when there is an abscess
- Jerk response when the foot is tapped with a hammer

First Aid

3. Rest
4. Clean the foot well.
5. Soak or poultice the foot:
 - a. Apply a sauerkraut poultice
 - i. cover with plastic wrap
 - ii. Pad sole or sound side of foot with 4X4's and cover with a duct tape boot
 - iii. Cover with a duct tape boot for
 - iv. Leave on 1-2 days
 - OR
 - b. Soak the foot in Epsom Salts (1# per gallon of water) twice daily for 20 minutes
 - i. Dry
 - ii. Pad sole or sound side of foot with 4X4's
 - iii. cover with a duct tape boot
6. Administer 2 grams bute paste (refer to Equine Medications instruction sheet)
7. Seek Veterinary assistance as soon as possible if improvement is not seen. These can abscess or involve more severe problems with the coffin bone.

Swelling in the Leg with Acute Lameness

Can be caused from a puncture wound, fracture, bowed tendons and strains

Signs

- Reluctance to bear weight or lameness on the limb with no traumatic incident
- Entire leg may be swollen

First Aid

1. Apply support bandage until horse is seen by a veterinarian. Wrap counter-clockwise for left legs; wrap clockwise for right legs.

Layer 1: Supports the limb.

- a. Apply the sheet cotton roll padding wrapping the leg from inside out, front to back.
- b. Secure the padding with 6" brown gauze wrapping the leg from inside out, front to back.
- c. Keep pressure uniform and overlap each successive turn so that it covers half or the previous turn.
- d. IF NEEDED to add further stability for the injury, wood slats, branches, or other splint material can be taped to the outside of the padded wrap.
- e. If the flexor tendon is swollen, a wedge block or round branch section taped to the heel will relieve pressure off the flexor tendon and may prevent further damage until help is available.

Layer 2: Secures layer 1 and prevents environmental contamination.

- a. Using Vetwrap start about $\frac{3}{4}$ inch above the bottom of the padding, spiral the wrapping the leg from inside out, front to back up the limb firmly overlapping $\frac{1}{2}$ the material over the previous turn.
 - b. Work to top of padding, leaving $\frac{3}{4}$ inch uncovered.
2. Administer 2 grams bute paste (refer to [Equine Medications](#) instruction sheet)
 3. If the horse's temperature > 101.5 F, Administer Pen G (refer to [Equine Medications](#) instruction sheet)

Fractures

- Can sometimes only be found with radiographs
- Often very poor prognosis
- Most often the horse will need to be euthanized
- **Seek Veterinary assistance as soon as possible**

First Aid

1. Apply support bandage until horse is seen by a veterinarian
 - Splint the limb to immobilize fracture
 - Immobilize the joint above and the joint below the fracture site
 - If you don't the splint will act as a fulcrum and make the fracture worse

Layer 1: Supports the limb. Wrap counter-clockwise for left legs; wrap clockwise for right legs.

- a. Apply the sheet cotton roll padding wrapping the leg from inside out, front to back.
- b. Secure the padding with 6" brown gauze wrapping the leg from inside out, front to back.

- c. Keep pressure uniform and overlap each successive turn so that it covers half or the previous turn.
- d. Tape splint material to the outside of the padded wrap.

Layer 2: Secures layer 1 and prevents environmental contamination.

- a. Using Vetwrap start about $\frac{3}{4}$ inch above the bottom of the padding, spiral the wrapping the leg from inside out, front to back up the limb firmly overlapping $\frac{1}{2}$ the material over the previous turn.
 - b. Work to top of padding, leaving $\frac{3}{4}$ inch uncovered.
2. Administer **NO MORE THAN 2** grams of Butazoladin Paste as the horse may become comfortable and use the leg

Colic

NOTE: Older horses may be more stoic and not show the more severe signs

Mild Signs

- **No appetite**
- **Looking at flank**
- **Laying down**
- **Fleaman response** (particular type of curling of the upper lip)
- Heart rate 40 BPM or more
- **No intestinal sounds**
- excessive intestinal sounds, but this may be normal
- CRT \leq 2 seconds
- Pink membranes
- May pass no manure, minimal manure or pass very hard, dry fecal balls

Moderate Signs

- Pawing at the ground
- Sweating
- Laying down, getting up
- Stretching - looks like the horse can't pee
- Backing up – as if backing away from the pain
- Heart rate high 40's - 60 BPM
- No or poor intestinal sounds

Severe Signs

- The above signs
- Wildly thrashing, rolling
- Heart rate 60 - 80 BPM
- CRT 3 seconds or greater
- Membranes pale
- If the heart rate 80, the horse needs surgery.
- If the heart rate is above 100, horse almost always will die.
- If the heart rate is over 120 and the membranes are blue, the horse is close to death

First Aid:

1. Blanket the horse to keep it warm, unless the ambient temperature is hot
2. Walk the animal if it wants to go down, but **DO NOT** walk to exhaustion
3. Control inflammation and provide pain relief (refer to Equine Medications instruction sheet)
 - a. Administer 10 cc Banamine IV
 - b. Administer 2-5 cc Rompum IV
4. Withdraw all feed
5. If the horse has been symptom free for 6-8 hours, give a **HANDFUL** of hay.
6. If the horse remains symptom-free continue feeding a handful of hay every 30 minutes for 2 hours.
7. **SLOWLY** re-introduce small amounts of hay thereafter.
8. If relief is not achieved after 12 hours and the horse cannot yet get veterinary care, administer another dose 10 cc Banamine IV. **Seek veterinary care ASAP.**

Gum Color:

1. Gum membranes should be pink and moist.
2. Pale membranes need monitoring. Persistently pale membranes indicate the beginning stages of colic.
3. Splotchy, muddy membranes may indicate a toxic situation.
4. Blue membranes can indicate cyanosis.

Respiratory Rate:

1. Watch the rib cage. You should see a regular, rhythmic pendular motion. Count every time he breathes **in and out** as **one breath**.
2. Respiration increases with hot, humid weather, exercise, fever, pain, pregnancy, age, and excitement.
3. The respiration rate should never exceed the heart rate. If they match this is an indication of thumps. Seek veterinary assistance ASAP.

Skin Tenting:

The pliability and resiliency of the skin is a good indication of the level of hydration.

1. Pick up a fold of skin on the upper eyelid and then release it. It should return to its flat position almost instantaneously, within a second or two.
2. If the skin remains peaked for more than two seconds, this is termed a “standing tent” and indicates some degree of loss of body fluid.
3. If the standing tent is 5 to 10 seconds or longer, the horse is suffering from severe dehydration and needs immediate veterinary attention.

Intestinal Sounds:

The abdomen usually produces sounds indicating roughage and fluids are moving in the intestines.

1. Put your ear or stethoscope to your horse's flank. With practice, you should be able to determine if the gurgling, gaseous sounds are normal, in excess, or absent.
2. The mixing sounds are normally short in duration (2-5 seconds) and rapid in rate (2-5 per minute).
3. The propulsive-retropulsive sounds are 15-30 seconds long and occur every 2 to 3 minutes post feeding.
4. Gas sounds like wind chimes.
5. Hypermotile sounds occur with an irritated gut.
6. Excess gut sounds are generally less indicative of a problem than the absence of sounds.
7. You may not hear any sound if the gut quits moving.

Shock

Can occur as a result of severe blood loss, pain, or severe illness such as systemic infection.

Seek veterinary care ASAP

Signs

- Depression
- Weakness
- Loss of appetite
- Initial fever, later the temperature will drop and the extremities will feel cold and clammy
- Increased heart rate
- Thready, weak pulse
- CRT > 2 seconds
- Increased respiratory rate
- Very pale membranes indicate blood loss
- dark red membranes that become muddy purple indicate systemic infection
- In later stages the horse may be unable to stand

First Aid

5. Do not stress the horse
6. Move the horse as little as possible
7. Keep horse comfortable and draft free
8. Allow access to water
9. **Seek veterinary care ASAP**

Hives

Allergic reaction resulting in localized edemas or swellings in multiple sites. The swellings result when the capillaries beneath the skin leak a clear fluid from the blood into the tissue spaces below the skin's surface.

Signs

- Welts on neck and shoulder, but can be all over the body
- Welts are firm to the touch
- Firm finger pressure will leave a 'dent' in the welt
- Welts can converge, forming a larger area
- Depression (sometimes)
- Itchiness (sometimes)
- May, potentially, have mild fever (but usually not)
- Swelling in the throatlatch area or lower jaw (sometimes)
- Swelling in the limbs and/or along the abdomen and sheath or udder (sometimes)
- Restlessness (sometimes)
- Difficulty breathing (rare)
- Sweating (rare)
- Can involve the tissues that line the respiratory and digestive tracts. There may also be respiratory distress (like a severe asthma attack, with wheezing and an increasingly anxious struggle to get air) and colic pain that leads to diarrhea.

First Aid

1. Monitor condition for respiratory distress.
2. Administer 1 packet Dexamethasone powder packet.
3. Administer 2 grams bute paste to reduce inflammation and minimize swelling. (refer to Equine Medications instruction sheet)
4. Sponge down with cool water.
5. Slowly lead the horse back to the trail head if the horse is having difficulty breathing or if the hives are present in the saddle and/or girth area.
6. If hives persist the second day, administer 1 packet Dexamethasone powder packet.
7. If hives persist the **fourth** day, administer 1 packet Dexamethasone powder packet.
8. DO NOT administer Dexamethasone if horse has a fever or to pregnant mares.
9. In the case of an acute allergic reaction (anaphylactic), death is likely due to its rapid progression.
10. Seek veterinary assistance if symptoms progress beyond just hives or if the hives do not respond to the Dex treatment.

Exercise Intolerance

- This problem is evidenced by the horse's inability or refusal to go any further on the trail.
- Pushing the horse at this point can cause severe and perhaps life threatening problems.
- Often mistaken as colic because the horse is so painful and gut sounds are diminished
- Heat stress illness is separate from muscle fatigue issues; though both can lead to exercise exhaustion
- Both heat stress and muscle disorders lead to potential fluid and electrolyte losses and deficiencies.
- **Do not give electrolytes if the horse is not drinking.**
- **Do not give Bute if the horse is dehydrated.**

Recovery is the key to knowing if the horse has been overworked

Know your horse's recovery rate

1. Ride up a steep hill
2. At the top, dismount immediately and take the heart rate
3. Wait 5 minutes
4. Take the heart rate again. It should be ≤ 60 BPM

Exertional Myopathy - Tying-up, Azoturia

- A horse developing ER will usually begin showing signs right after the beginning of exercise, although for mild cases, signs may not be seen until after the horse is cooled out.
- Can occur quickly if exercised way over fitness levels acutely or gradually if just slightly over fitness levels for prolonged periods.
- Symptoms can be missed but generally the horse will start sweating more than would be expected for the stage of ride, the horse might slow down and not want to go normally. This is the time to stop and assess symptoms before going to exercise exhaustion.
- If signs of ER are seen, the horse should not be moved. Movement can cause further muscle damage.

Signs

Mild to Moderate

Do not push on with these early signs and you won't need to deal with these severe signs that can lead to extensive vet costs, kidney failure, or a dead horse.

- Sweating
- Reluctance to move
- Stiffness or shortened gait
- Muscle spasms or cramps
- Palpate for hard, painful muscles, especially in the hindquarters

Severe – generally seen right after work has begun

- Reluctance to move

- Sweating
- Pain
- Shifting of weight from side to side
- Standing hunched and tense
- Dehydration
- Loss of appetite
- Low grade fever
- Elevated heart rate > 60 BPM
- Elevated respiratory rate > 30
- Anxious attitude
- May have coffee-colored urine

First Aid

1. Get the horse into the shade and **STOP**
2. If possible, stand the horse in a creek and sponge the jugular furrows, under the arm pits and inside the thighs w/ cool water.
3. Wait for muscles to be cleansed by blood flow which can take all day.
4. **IF the horse is eating and drinking**
 - a. Administer 10 cc Banamine IV or 2 grams Bute paste (refer to Equine Medications instruction sheet). (Acepromazine is a vasodilator and can be given as well)
 - b. Administer Electrolytes
5. Provide free choice food and water
6. Make camp, monitor vitals (HR, temp, RR, CRT) and muscle suppleness or tenseness.
7. If improvement is seen, **SLOWLY** lead the horse back to the trailhead
 - a. Stop in 30 seconds, assess horse, rest for a few minutes
 - b. Stop again after 1 minute, assess horse, rest for a few minutes
 - c. Stop again after 5 minutes, assess horse, rest for 5 minutes
 - d. Stop again after 10 minutes, assess horse, rest for 5 minutes
 - e. Stop every 15 minutes, assess horse, rest 5-10 minutes
 - f. **STOP if symptoms get worse**
8. If a trailer is accessible, seek Veterinary assistance as soon as possible

Heat Stress Illness

- Heat Stress Illness is separate from muscle fatigue issues; both can lead to Exercise Exhaustion.
- Heat Stress Illness can come from high ambient temps without exercise but usually it comes from strenuous exercise in hot and/or humid conditions.
- Both heat stress and muscle disorders lead to potential fluid and electrolyte losses and deficiencies.

Exercise Exhaustion or Heat Exhaustion

- Can occur after relatively brief maximal exercise or after prolonged submaximal exercise.
- Exhaustion rarely occurs unless lots of initiating symptoms get missed and the horse is really pushed beyond its physical fitness levels by quite a bit.

- Do not push on with these early signs and you won't need to deal with these severe signs that can lead to extensive vet costs, kidney failure or worse a dead horse.

Signs

May show any combination of the following signs, but will rarely show all of them

- Depression
- dehydration with a lack of thirst
- increased capillary refill time
- decreased gastrointestinal sounds
- Persistently elevated body temperature, heart rate, and respiratory rate that do not return to normal when rested
- Little interest in surroundings
- Eyes dull, sunken, and glazed
- Ears hang limply
- Tense facial muscles
- Anxious expression, especially if accompanied by colic or muscle problems
- Dry mouth
- Temperature up to 106 degrees F
- Muscles of the anus are loose
- Anus will not respond to pinch by puckering closed. This is one of the best indications of severe exhaustion.
- Hard and dry feces
- Urine output is decreased
- Respiration rate faster than heart rate
- an irregular heart rhythm
- muscle cramps and spasms
- the presence of "thumps"
- May or may not have profuse sweating

First Aid

First aid is OK, but horses in this level of trouble really need Veterinary and Intensive Care and even then, prognosis can still be guarded.

1. Get the horse into the shade and **STOP**
2. If possible, stand the horse in a creek and sponge the jugular furrows, under the arm pits and inside the thighs w/ cool water.
3. Wait for muscles to be cleansed by blood flow which can take all day.
4. **IF the horse is eating and drinking**
 - a. Administer 10 cc Banamine IV or 2 grams Bute paste (refer to Equine Medications instruction sheet)
 - b. Administer Electrolytes
5. Provide free choice food and water
6. Make camp, monitor vitals (HR, temp, RR, CRT) and muscle suppleness or tenseness.
7. If improvement is seen, **SLOWLY** lead the horse back to the trailhead
 - a. Stop in 30 seconds, assess horse, rest for a few minutes
 - b. Stop again after 1 minute, assess horse, rest for a few minutes
 - c. Stop again after 5 minutes, assess horse, rest for 5 minutes

- d. Stop again after 10 minutes, assess horse, rest for 5 minutes
- e. Stop every 15 minutes, assess horse, rest 5-10 minutes

f. STOP if symptoms get worse

8. Seek Veterinary assistance as soon as possible

Heat Stroke

- Heat Stroke is a severe problem with thermoregulation problems that affect multiple organs including the brain
- Result of prolonged exposure to excessive heat, over exertion in a hot humid climate, or confinement in a hot, poorly vented trailer.
- Lack of water contributes to the problem.
- Very Rare

Signs

- Major central nervous system involvement – seizing, blindness, etc.
- Temperature > 105 degrees F
- Dry skin; the horse ceases to sweat
- Weakness
- Stumbling
- Refusal to continue to work
- Depression
- Loss of appetite
- Increase respiratory rate > 40
- Dog-like panting
- Increased heart rate > 60 BPM
- Dark red or purplish membranes

First Aid

1. Place the horse in shade
2. Sponge the horse with cold water, especially the regions of the head, neck, and large veins – belly and inside the hind legs
3. If water is unavailable use ice and rubbing alcohol
4. If the horse appears disoriented, apply ice to the head
5. Continue cooling as rapidly as possible until the temperature is < 105 degrees F
6. Then cool the horse at a rate of 1 degree F every 30-40 minutes
7. If cooled too quickly, the horse may become severely chilled which can contribute to shock
8. Offer water.
9. If the horse is sweating excessively and willing to drink, administer a dose of electrolytes
10. Walk the horse back to the trailhead monitoring vital signs every 15 minutes.
11. Rest if the horse shows signs of distress.
- 12. Seek Veterinary assistance ASAP**

Choke

- An obstruction in the horse's esophagus.
- The horse is still able to breathe, but it is unable to swallow, and may become severely dehydrated.
- A secondary condition, aspiration pneumonia, may also develop if food material and saliva accumulate in the pharynx, spilling into the trachea and into the lungs.
- Most likely to occur when the horse is fed pellets or similar dry, coarse material such as hay leaf debris in the trailer manger or grass clippings.
- May occur in the trailer.
- Risk increases if the horse is slightly dehydrated.
- Risk increases if the horse bolts his feed or is competing for food.

Prevention

- Soak hay and hay cubes prior to feeding
- Place river rocks in grain mangers to prevent bolting of grain
- Don't feed grass clippings and dispose of hay leaf debris in trailer mangers and feed bags.

Signs

- Will not eat or drink
- Discharge of mucus mixed with green frothy material from nostrils
- Repeated gagging and coughing
- Distressed
- May act colicky
- Difficulty swallowing (horse may try to swallow without success)
- Extending the neck and head, usually in a downward direction
- Increased salivation, saliva drooling from the mouth
- Heart rate may increase slightly, due to the distress of the animal
- Occasionally, a lump on the side of the neck is visible or can be palpated, where the esophagus is blocked. This is normally most obvious on the left side of the neck.

First Aid

11. Withhold food and water
12. Place horse on incline with the head pointing down hill
13. Control inflammation: Administer 10 cc Banamine IV (see Equine Medicines instruction sheet)
14. If the horse begins showing interest in eating give a small **HANDFUL** of green grass.
15. Allow the horse to drink if he is interested.
16. If the horse can swallow that then continue SLOWLY feeding additional handfuls of grass.
17. The horse will cough and will continue to cough for awhile
18. If improvement is not seen in 1 – 1 ½ hours seek Veterinary assistance ASAP

Snake Bite

- Bite wounds are found most frequently on the nose, head, legs, and chest, in that order.
- Bites to the nose and face are extremely serious since the horse cannot breathe through its mouth.
- Horses should be examined by a veterinarian 3-6 months after the snake bite to examine for heart murmurs and metabolic disease

Signs

- Dependent on the type of snake, location of the bite, and amount of venom injected.
- Extreme swelling at the site
- Heat and pain at the site
- Weakness
- Depression

First Aid for the Nose and Face

The nose will swell, blocking the nostrils

1. Keep the horse quiet, move the horse as little as possible.
2. Keep the airway open
 - a. Insert an 12"x1/2" piece of hose into each nostril into the lowest of the 3 nasal passages
 - b. You should feel air coming through the hose after insertion
 - c. If hose pieces fall out the horse is not swollen enough to need them
 - d. If the swelling is getting worse attempt to insert again in 30-60 minutes
 - e. Leave the hose in the nostrils until they fall out
 - f. Use electrical tape to secure the hose pieces to the halter
3. Control inflammation: Administer 10 cc Banamine IV (see Equine Medicines instruction sheet)
4. **DO NOT** give any oral medication
5. Apply ice to the affected area.
6. Control infection: Administer Pen G (refer to Equine Medications instruction sheet)
7. **SLOWLY** lead the horse back to the trailhead, stopping every 15 minutes
8. If the nose continues to swell seek veterinary assistance as soon as possible.

First Aid for the Leg

1. Move the horse as little as possible.
2. Control inflammation: Administer 10cc Banamine IV or 2 grams bute paste (refer to Equine Medications instruction sheet)
2. Stand the horse in a cool stream or apply ice to the affected area.
3. Control infection: Administer Pen G (refer to Equine Medications instruction sheet)
4. If the leg is very swollen apply a support bandage. Wrap counter-clockwise for left legs; wrap clockwise for right legs.

Layer 1: Supports the limb.

 5. Apply the sheet cotton roll padding wrapping the leg from inside out, front to back.

6. Secure the padding with 6" brown gauze wrapping the leg from inside out, front to back.
7. Keep pressure uniform and overlap each successive turn so that it covers half or the previous turn.

Layer 2: Secures layer 1 and prevents environmental contamination.

3. Using vetwrap, start about $\frac{3}{4}$ inch above the bottom of the padding, spiral the wrapping the leg from inside out, front to back up the limb firmly overlapping $\frac{1}{2}$ the material over the previous turn.
4. Work to top of padding, leaving $\frac{3}{4}$ inch uncovered.

Euthanasia

Everyone who goes into the backcountry with equines needs to know how to perform humane euthanasia should an unfortunate event occur and it becomes necessary.

There are 2 quick and humane methods – a pistol shot to the head or the severing the caudal rectal artery

Pistol Shot

- If you do not wish to carry a firearm yourself, you should always ride with someone who will for many reasons.
 - Should you need to euthanize an animal with a firearm, pistols work best.
 - The anatomy of a horse does not place the brain “between the eyes” as in the western movies.
 - **NEVER attempt to shoot an animal in the heart** as you would if you were hunting. Many euthanasia’s go very badly this way and it is very distressing for all involved.
1. The preferred location is a frontal shot
 - a. Draw an “X” across the forehead crossing the left ear to the right eye and the right ear to the left eye.
 - b. Place the shot just slightly above the “X” aiming towards the neck.
 2. A second, less preferred location is to place the shot from the side, just below the ear hole aiming towards the opposite ear.
 3. A third, less preferred location is to place the shot behind the head just below the poll aiming towards the muzzle.

Rectally

- If an animal is lying down and not thrashing about, you can humanely euthanize it without a firearm.
1. Insert your arm into the rectum with a sharp blade in your palm.
 2. Feel for the caudal rectal artery.
 3. It is located on the **spine side** of the rectal wall and should have a strong pulse.
 4. Cut the artery from side to side.
 5. This area doesn’t have a lot of nerves and shouldn’t be very painful.
 6. The animal will bleed out internally very quickly and without much stress.

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