

WHAT TO DO UNTIL THE VET GETS THERE

A Rider's Guide to Equine First Aid

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CENTRAL ONTARIO VETERINARY SERVICES

FARM AND EQUINE PRACTICE

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COMMON EQUINE EMERGENCIES

- Colic
- Wounds
- Choke
- Severe Acute Lameness – Laminitis, penetrating wounds to the foot, fractures.
- Trauma or inflammation of the eye



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FIRST AID OBJECTIVES

- ▶ To move the horse to an area safe for itself and for attendants.
- ▶ To stabilise the condition of the horse prior to arrival of a veterinarian.
- ▶ To initiate a temporary or definitive treatment if possible.
- ▶ To ensure that measures taken in emergency do not harm the long-term course of the condition.



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MOVE TO A SAFE AREA



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STABILISE CONDITON

- ▶ Control bleeding – pressure bandage
- ▶ Prevent/minimise contamination of wound – cleaning, bandaging
- ▶ Stabilise fractures – bandage/splint
- ▶ Control pain – ice, cold water, bandage
- ▶ Relax the horse – touch, speech



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DO NO HARM!

- ▶ A maxim of all medicine, but especially of first aid:

Do No Harm

- ▶ Consider how you:
 - ▶ move the animal
 - ▶ handle a wound
 - ▶ clean a wound
 - ▶ choose medication
 - ▶ give medication
- ▶ First aid measures can affect the progression of the condition, for good or for ill.
- ▶ First aid should help, not hinder, definitive veterinary treatment



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EQUINE EMERGENCIES: COLIC (Abdominal Pain)

- ▶ Spasmodic Colic (Intestinal cramping) 40%
- ▶ Tympanic Colic (gas distension of intestine) 20%
- ▶ Impaction Colic (blockage of colon) 25%
- ▶ Enteritis/Colitis (inflammation of intestine) 5%
- ▶ Displacement of colon or small intestine 5%
- ▶ Strangulating Obstruction (twisting of colon or small intestine 5%
- ▶ Infarction/Embolism (now rare)



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FIRST AID FOR COLIC?

EFFECTIVE FIRST AID MEASURES FOR COLIC ARE LIMITED!

- ▶ Walking in hand (15 minutes, rest 15 min)
 - ▶ distracts horse from pain.
 - ▶ may prevent rolling and becoming cast
- ▶ Many spasmodic colics and some gas colics resolve without treatment.
- ▶ Keep off feed for at least 2 hours after resolution of colic signs, then feed small quantities of hay.



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HOW LONG SHOULD YOU WAIT?

IF COLIC HAS NOT RESOLVED WITHIN 2 HOURS OF THE ONSET OF SIGNS, IT IS UNLIKELY TO DO SO WITHOUT TREATMENT

- ▶ If intensity of pain is increasing over 30 minutes, do not delay your call to the vet. You don't know how far away we may be.
- ▶ If colic signs return after seeming to resolve, call for veterinary examination.
- ▶ Any horse who will not eat should be considered a potential colic case.



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THINGS TO AVOID

- ▶ Do not give mineral oil by mouth – inhaling even small amounts can cause a fatal pneumonia
- ▶ Do not administer drugs without consulting your veterinarian. Analgesics modify signs sufficiently to affect the vet's interpretation of examination findings
- ▶ Do not exhaust the horse or yourself by continuous walking, unless this is necessary to prevent violent, dangerous rolling. Most colonic torsions are not caused by rolling.



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The “Don’t Waste Your Money” Department

- ▶ 911 Emergency Paste (McIntosh) – probiotic mixture of yeast culture and other microbial products claimed to treat a variety of conditions. There is no scientific evidence to support its use, and it seems unlikely that if yeast culture could treat colic, it could do so before the colic resolved spontaneously.
- ▶ Ginger is a traditional remedy that has anti-nausea effects in humans, but there is no evidence that it has any effect on equine colic.
- ▶ Preparations containing the herb *Atropa belladonna* (Dr Bell’s, for example) may relieve intestinal spasm, but can paralyse the muscles of the gut, preventing the onward movement of gas and solids.



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IMPACTION OF THE OESOPHAGUS (CHOKE)

- ▶ May cause signs of discomfort similar to colic, but also with:
 - ▶ Coughing
 - ▶ swallowing attempts
 - ▶ saliva and mucus draining from the nostrils
- ▶ ALMOST ALWAYS CAUSED BY SWELLING OF PELLETTED FEED IN THE GULLET



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FIRST AID FOR CHOKE

- Massage the left hand side of the neck from the angle of the jaw towards the chest. This may stimulate swallowing and may break up impacted feed mass
- Soak towels in hot water and wrap around the neck. This may help to soften the impacted feed mass
- Some cases resolve without treatment after an hour. Veterinary assistance is required if choke does not resolve.
- Hold off feed for 12 hours after a choke to allow inflammation of the gullet to subside.



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THINGS TO AVOID

- ▶ DO NOT FLUSH WATER INTO THE MOUTH; IF THE HORSE CANNOT SWALLOW, IT MAY INHALE THE WATER INSTEAD.
- ▶ DO NOT OFFER FEED UNTIL IT IS CERTAIN THAT CHOKE HAS RESOLVED.



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MANAGEMENT OF WOUNDS TO THE LIMBS AND BODY

- First aid measures should enhance and not hinder the natural processes that lead to healing of wounds.

Three Overlapping Phases of Wound Healing

1. Inflammation
2. Repair
3. Maturation/ remodelling



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Acute Forelimb Lacerations



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INFLAMMATORY PHASE

- Redness, heat, pain, and swelling are the cardinal signs of inflammation. All are beneficial in some way to wound healing.
- Redness and heat result from increased blood flow to an injured site, bringing white blood cells and beneficial serum proteins such as antibodies.
- Swelling results from leakage of beneficial serum proteins and fluid into tissue spaces at the injured site, aiding in the clean-up of foreign debris, damaged tissue, and bacteria from the wound.



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INFLAMMATORY PHASE

Even pain has beneficial effects:

- ▶ Alerts the animal to the fact of injury (a horse denerved below the fetlock won't know that he has a hoof abscess until the foot falls off)
- ▶ Pain prevents an animal from moving and making a serious injury worse (a fracture, for example)
- ▶ Unless pain is severe, anti-inflammatory medication such as phenylbutazone should be avoided. Your veterinarian will consider other choices for pain control, including narcotics and nerve blocks. Anti-inflammatory drugs can delay healing by interfering with the normal inflammatory process.



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REPAIR PHASE

- The wound is infiltrated by blood vessels and fibroblasts, cells which will ultimately produce a protein, collagen, which will mature into a strong, fibrous scar.
- Tissue containing blood vessels, fibroblasts, and proteins is called granulation tissue.
- Horses are excellent producers of granulation tissue, and can rapidly fill large tissue defects.
- Granulation tissue contracts and draws wound edges together (responsible for 75% of wound closure).
- Granulation tissue may grow to excess, and is known exuberant granulation, or “proud flesh”.



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GRANULATING WOUND



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MATURATION/ REMODELLING PHASE

- This can take up to 2 years to complete
- The wound contracts, pulling the edges together
- Collagen is both formed and broken down in a balanced system that replaces randomly-laid collagen fibres with those oriented along lines of stress.
- Chemical cross-linking between collagen fibres adds to wound strength, but a skin wound remains only 85% as strong as surrounding tissue.



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First Aid for Skin Wounds

- Pick visible debris out of wound
 - Straw
 - wood splinters
 - hair
- Flush wound with a solution that reduces numbers of bacteria without interfering with white blood cell function or function of fibroblasts. This is physiological saline, 0.9% sodium chloride, sprayed through an 18-gauge needle.
- We no longer add antiseptics, which delay healing and do little to reduce bacterial numbers.



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CONTAMINATED WOUND

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CLEANING WOUNDS

- ▶ DO NOT USE HYDROGEN PEROXIDE. It is a poor disinfectant and is harmful to living tissue.
- ▶ DO NOT USE COMMERCIAL WOUND CLEANING SOLUTIONS.
- ▶ Use Betadine or Chlorhexidine scrub to clean skin **around** the wound, but flush the wound itself with sterile saline.



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IRRIGATION OF WOUNDS

- ▶ Pressure jet to lift bacteria off the wound surface:
 - ▶ Use 18 gauge needle on a syringe as nozzle
 - ▶ Water Pic set on low
 - ▶ Pulsing jet is most effective.



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IRRIGATION SOLUTIONS

Order of preference

- Physiological Saline (0.9% Sodium Chloride)
- Lactated Ringer's solution (Hartmann's)
- Sterile water
- Clean tap water
- DO NOT USE HYDROGEN PEROXIDE
- DO NOT USE TURPENTINE, DMSO, ALCOHOL, OR OTHER SOLVENTS ON WOUNDS



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CLEANING SKIN AROUND THE WOUND

- Povidone Iodine Surgical Detergent
- Chlorhexidine Detergent (Hibitane Scrub)



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TO STITCH, OR NOT TO STITCH?

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TO STITCH, OR NOT TO STITCH?

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TO STITCH, OR NOT TO STITCH?

- ▶ In a study on over 500 horses and ponies with wounds stitched in a referral equine clinic, 75% of wounds on horses failed to heal after stitching (66% of stitched wounds on ponies).
- ▶ Limb wounds were less likely to heal with stitches than wounds on the body.
- ▶ Enemies of primary closure are:
 - ▶ Movement
 - ▶ Tension
 - ▶ contamination

*
*
* EQUINE WOUNDS ARE ALL MORE
CONTAMINATED THAN THEY APPEAR *
*
*



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WE RARELY STITCH WOUNDS OTHER THAN THOSE ON THE FACE

- ▶ Eyelid lacerations should be stitched in an attempt to maintain a normal lid margin, necessary for spreading an even tear film over the eye.
- ▶ Wounds to the face and lips have a higher success rate with stitching than do wounds elsewhere in the body.
- ▶ Limb wounds have much lower success rate with stitching than do wounds elsewhere in the body.



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SECOND INTENTION HEALING

- ▶ INFLAMMATORY PHASE FOLLOWED BY:
 - ▶ Filling of the wound with granulation tissue
 - ▶ Contraction of cells within granulation bed pulls wound edges together (75% of closure)
 - ▶ Epithelial growth from wound edges covers the last 25% of the wound
 - ▶ Maturation and remodelling as granulation tissue is converted to a fibrous scar.
 - ▶ Scar may achieve up to 85% of original strength by 2 years following injury



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TO BANDAGE, OR NOT TO BANDAGE

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Benefits of Bandages

- Protect wounds from contamination
- Prevent wounds from drying out, and therefore improve healing
- Absorb exudate
- Support injured tissues
- Restrict movement
- Control swelling
- Control bleeding

Problems with Bandages

- Decrease oxygenation of wound
- Increase acidity of wound
- Impede mobility
- Tighten, loosen, or slip
- Time-consuming
- Costly



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DECISION TO BANDAGE DEPENDS ON STAGE OF HEALING

- ▶ Bandage until wound has filled with granulation tissue, then dress the open wound.
- ▶ OR, bandage unless granulation tissue becomes excessive. We handle most wounds this way.
- ▶ Bandage acute wounds; chronic wounds may be treated without bandaging.



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BANDAGE FOR AN ACUTE WOUND

WET-TO-DRY BANDAGE CONSISTS OF A WET SALINE DRESSING UNDER A LAYER OF ABSORBANT COTTON

- Soak five 10cm X 10cm sterile gauze squares in sterile saline and apply directly to the wound
- Secure in place with a roll of conform gauze
- Apply a thick layer of absorbent cotton
- +/- a layer of Gamgee cotton or a quilted cotton wrap
- Elastic cohesive or adhesive bandage (ex. Vetwrap or Tensoplast), or a cloth leg bandage.



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PURPOSE OF A WET-TO-DRY-BANDAGE

- Absorb fluid out of the wound like a wick
- Provide a moist environment at the surface of the wound
- Remove debris from the wound when bandage is changed (an adherent bandage)



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LAMINITIS AND OTHER HOOF EMERGENCIES



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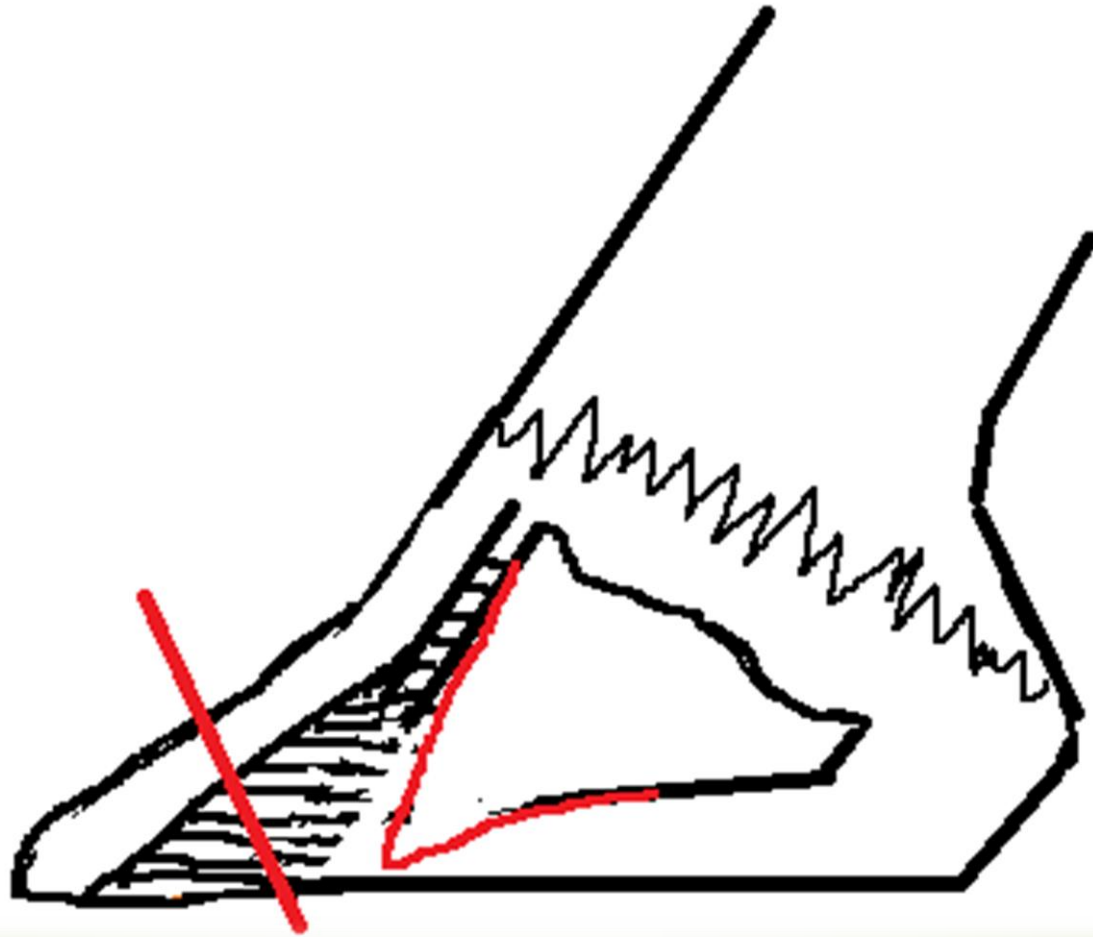


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OCULAR EMERGENCIES

INFLAMMATION



INJURY



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SIGNS OF OCULAR INFLAMMATION

- *Squinting
- *Sensitivity to light (squinting is worse in light)
- Swelling of eyelids
- Tears or mucus streaming down face
- Redness of the sclera (the white of the eye)

*THESE CAN INDICATE A SERIOUS CONDITION
REQUIRING PROMPT TREATMENT.

**** A PAINFUL EYE SHOULD BE CONSIDERED AN EMERGENCY ****



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COMMON OCULAR EMERGENCIES

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- *Corneal ulcers and abrasions: Deep or superficial scratches to the clear part of the eye
- *Equine Recurrent Uveitis: An immune reaction attacking tissues in the eye and causing severe inflammation.

*BOTH THESE CONDITIONS CAN LEAD TO BLINDNESS IF NOT TREATED PROMPTLY



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FIRST AID FOR PAINFUL EYES

- ▶ Protect the eye from light: Darken one side of a fly mask with tape or fabric. Keep horse in a darkened stall.
- ▶ Flush eye with physiological saline to remove mucus and inflammatory products and to soothe the eye.
- ▶ Apply a cold, wet tea-bag to the eye to take down swelling of lids and as a mild antiseptic.
- ▶ A VETERINARY EXAMINATION IS REQUIRED FOR ALL SQUINTING, LIGHT-SENSITIVE EYES.



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Equine Vital Signs

- Temperature: 37-38 C
- Pulse at rest: 28-40 beats per minute
- Pulse after exercise: 60-180 beats per minute
- Respiration rate at rest: 8-16 breaths per minute
- Respiration rate after exercise: 20-60 breaths per minute
- Skin tent time: less than or equal to one second
- Capillary refill time: less than two seconds

EQUINE FIRST AID KIT

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- Absorbent cotton roll
- Gamgee cotton or tall cotton quilts
- Elastic cohesive bandages
 - (3M Vetrap, Ubaflex)
- Adhesive bandage
 - (Elastoplast, Tensoplast)
- Sterile gauze sponges 4" x 4"
- Conform gauze rolls
- Physiological saline
 - (sodium chloride 0.9%)
- 60 mL syringe
- 18 gauge needles
- Povidone iodine scrub
 - (Betadine)
- Poultice boot
- Epsom salts
- Light
- Extra lead and halter
- Fly mask
- Duct tape
- Thermometer
- Bandage
- Scissors



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