

Stall Bandages

- Recognizing that some participants may not have placed stall wraps on a horse before this section was kept basic

Tools – available at any tack store

- Cottons – “no bow” types are easiest for novice wrappers to use
- Other types include quilted cottons and disposable cotton sheeting
- Synthetic “silky” type bandages – broader than other types, more challenging for the novice wrapper
 - Often have to start the bandage higher up the leg
- Poly-cotton blend knit bandages
 - Have good grip
 - Won’t hold water like pure cotton knit-type bandages
- Pure cotton-knit bandages
 - Not much stretch, nice to work with but I don’t like them because they hold water which can lead to rolling up and tightening of the bandage potentiating a “bandage bow” or “cord”
- Polo bandages
 - Used to protect horse’s legs during work
- **Tip:** to make sure the Velcro will be on the proper side of the bandage, stick the Velcro together and continue rolling in that direction
- **Note:** any of these can be used as part of a first-aid wound bandage if you don’t have vet wrap or even as part of the finished bandage (e.g., to help hold a spider bandage in place)

Uses

- Prevent lower limb swelling (aka edema, e.g., “wind puffs”)
- Provide support for the opposite leg if there is a bandage or a cast on the other leg
- Help keep the veterinary bandage in place
- Covering an injured area to keep it clean and protected

The “Rules” of Stall Wrap Application

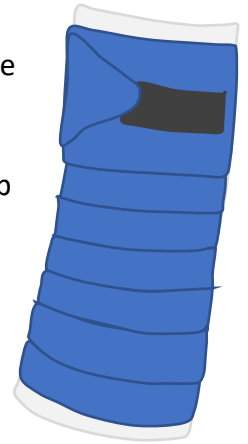
- Ensure bandage is rolled correctly
- Use clean cottons
- Leg must be clean and dry with hair smoothed down
- Always consider personal safety (e.g., crouch down and be able to leap out of the way like a frog)
- Start and finish over the cannon bone
 - See how each pass of the wrap leaves an indentation – fill that indentation with your next pass and that will ensure a snug, smooth wrap with even tension
 - It’s not really overlapping by 50% in most instances – but we certainly do overlap by 50% if we are using vet wrap on a veterinary bandage
- Where you start will depend on the length of the cannon bone and the width of the bandage – it takes practice with your own horse
 - **Remember:** the scroll of the bandage must be on top rolling away from the leg



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- Be careful not to have too sharp an angle on the bandage (see drawing to right)
- Right side – clockwise, left side – counter clockwise – or – always apply the bandage in the direction of head to tail
- Pony clubbers – leave the inverted V at the bottom over the fetlock!
- Leave ~1/2 of cotton showing at top and bottom (so that the bandage doesn't creep up or down and constrict the leg leading to a “bandage bow” or “cord”)
- **Tension**
 - Never fully stretch wrap
 - Strive for a smooth contour with even pressure over the entire length
 - People with smaller fingers – be able to slip a finger in top and bottom
 - Gently try to move the bandage down – it should not move at all
 - Neither too loose nor too tight – both situations can lead to pressure sores and “bandage bows” or “cording”



Veterinary Bandaging – First Aid

Uses

- Apply pressure to a bleeding wound
- Soak up and remove pus and dead tissue
- Protect wound from dirt
- Prevent wound drying
- Reduce swelling
- Prevent wound and leg from moving

Basic veterinary bandage has 3 layers:

1. Dressing layer
 - e.g., sterile, non-stick material like a Telfa pad, or Animalintex
 - Animalintex – contains boric acid (antiseptic) and tragacanth (poultice)
 - Has a plastic backing – place the non-plastic side to the wound, leave the plastic on the outside
 - **May use “conform” or cling gauze to hold the dressing layer in place**
2. Padding layer
 - Cushions wound
 - Absorbs fluid
 - Often we use sheet cotton (“Gamgee”) or cast padding-type material
3. Bandage layer
 - Self-adhesive elastic wrap (e.g., Vetrap, or other vet wrap types of material)
 - Remember to unroll and re-roll the entire roll prior to use – you won't be able to control the tension otherwise
 - Holds the first two layers in place
 - Applies pressure to the whole area
 - **DEFINITELY OVERLAP EACH LAYER BY 50%!**

Additional materials that can be used

4. "Conform" "Kling" or roll gauze to hold the dressing in place
5. "Spider" bandage in place of vet wrap-type material – useful over knees and hocks in place of figure-8 bandage
 - A normal stall wrap is placed on the leg below the injured knee or hock first and then the spider bandage is applied. Otherwise, there tends to be a gap between the bottom of the spider bandage and the leg and the interior layers of the bandage will just fall out.
6. Medical tape (e.g., Elastikon / Tensoplast) or duct tape or masking tape
 - Helps hold the whole bandage in place
 - Keeps dirt and debris from getting down the top or up the bottom of the bandage
 - Always unroll the tape – it should have no tension when it is being applied, and should simply be smoothed around, **half on the bandage and half on the leg**

Veterinary bandaging – how to

- Be even more careful than with stall wraps
- Find someone to help you
- Find as clean and protected an area as you can to work
 - Protects both the wound from additional contamination
 - Protects the tools from getting dirty
- If you can't get back to the barn (e.g., horse caught, or out on trail)
 - Do the best you can to keep first aid kit materials clean
 - Keep the horse shaded or warm as weather conditions dictate
- Have a list of materials – check them off as you put them out
 - Clean place to put tools
 - Gloves
 - Paramedic scissors (and other scissors good enough to cut medical tape and padding layer)
 - Dressing, padding, and bandage layers
 - Roll gauze, if you have it, to hold the dressing in place
 - Tape
 - Unroll and re-roll vet wrap and tape (can estimate the size of tape you need and cut it before hand)
 - Additional materials – fabric to make a doughnut bandage, blocks or lily pad Styrofoam to tape over the hoof leaving a hole for any foreign object – this will prevent the foreign object from changing position in the hoof as the horse walks
 - **If you are far from home and don't have anything to prevent the horse from continuing to walk on the foreign object in its sole, then remove the object and bandage the foot to keep any more dirt from getting in the wound**
- If you're at the barn, get someone to put clean / fresh bedding in the stall

Veterinary bandaging – The Rules

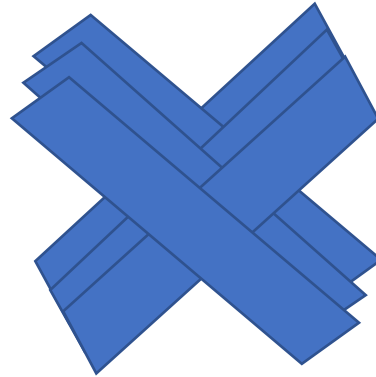
1. Stop any bleeding – keep applying new layers of absorbent material over old layers – otherwise the clot may break and the wound will start bleeding badly again
 - Hold pressure with your hands over the bandage if it's bleeding really badly

- Consider using diapers, sanitary napkins, towels, or other absorbent material for the padding layer of any badly bleeding wound
- 2. If it's not bleeding too much – clean it with sterile saline or cold water hose
- 3. First layer – place the dressing
- 4. You may want to use roll gauze to hold the dressing in place
 - Apply gauze with no tension and overlapping similar to stall wrap
 - No wrinkles – keep making sure it's smooth all the way around
 - No tucking in the ends - it will hold onto itself and the hair pretty well by itself. Tucking it in makes a pressure point that can cause a pressure wound to form
 - You can either cut the excess material off or continue with the gauze all the way up the leg until it runs out
 - General bandaging principles say that each layer should have the same thickness all the way up and down the leg, so, continuing it up is an option, but in reality, the gauze is quite thin and may not make that much of a difference to the thickness in the end
- 5. Second layer – measure out how much padding layer you will need and cut it to size – enough to just go around once, just overlapping a little bit
 - No wrinkles – keep making sure it's smooth all the way around
 - Cut out a space over the point of the hock or the accessory carpal bone
- 6. Third layer – make sure the vet wrap has been unrolled and re-rolled
 - Use enough tension to hold everything in place
 - Slightly more tension than a stall wrap, but never ever stretching the vet wrap fully!
 - No wrinkles – keep making sure it's smooth all the way around
 - Apply overlapping by 50%
 - Even tension up and down the leg
 - Even contour up and down the leg
- 7. Estimate how much medical / masking / duct tape you will need to go around the top and bottom of the bandage
 - Smooth this around – half on the bandage, half on the leg
 - Part of the job of the tape is to help keep the bandage in place, the other is to keep dirt and debris out of the top and bottom of the bandage so half of the tape needs to be on the hair.

Figure-8 Bandage – knee or hock

- Place the dressing over the cleaned wound, you'll need roll gauze to hold this in place and you'll make a figure 8 over the dressing
 - Put 1-2 wraps around the leg above the hock or knee
 - Come down on a diagonal over the front of the hock/knee
 - Put a wrap around below the hock/knee
 - Come back up over the front of the hock and over the back of the hock/knee – but avoid placing the vet wrap over the hock. If it is a knee bandage, you can try avoiding the accessory carpal bone and you can make a slit in the vet wrap over the accessory carpal bone so that a pressure sore doesn't develop
 - Repeat this figure 8 until you run out of roll gauze (remember – no tucking)
- Place the padding layer

- Use vet wrap to hold everything in place using the same figure 8 technique
- You will need tape at the top and bottom of this bandage and a stall wrap will add further support below it
- When done correctly, the gauze will make a series of off-set Xs over the front of the hock/knee and so will the vet wrap – like this diagram:



Foot bandaging

- **If you're out on the trail, you probably won't have materials to prevent the horse from walking on the foreign object, so you will have to remove the foreign object. In this case, place a bandage over the hoof to keep more dirt from getting into the hole left by the foreign object. This can even be a polo wrap if you don't happen to have 3-layer bandage material handy on the trail.**
- If you are in a location where you can tape blocks or Styrofoam (that is tall enough to prevent the foreign object from touching the ground) on the hoof (with a suitable space cut out of the Styrofoam to accommodate the foreign object, again without it being able to touch the ground) then do so. This will allow the vet to take an x-ray to see if the foreign object has penetrated any delicate structures.
- You will apply the bandaging materials however you can to get the bandage to stay in place. This may involve some figure 8s over the bottom of the foot, or going around and around with duct tape (masking tape is neither sticky enough nor durable enough for this)
- This is a good time to make a sheet of duct tape on the wall or other clean flat surface, which you then remove and use to cover the bottom of the foot
- **Always be careful not to put too much pressure over the heel bulbs or coronary band**

Recognizing bandage problems

- Any swelling above or below the bandage
- Increased lameness – lameness should improve if the injury has been properly taken care of and if the bandage is causing no problems
- Foot stomping / chewing at the bandage
- Bandage looks or feels wet

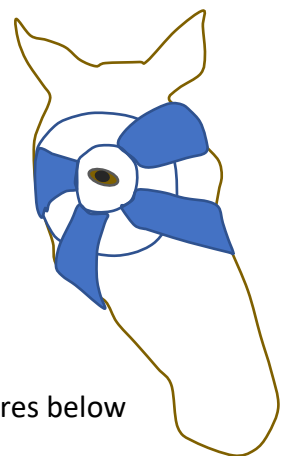
First Aid – what to do before the vet arrives

- Try to remain calm – you will handle this until the vet arrives!
- If possible, move to a clean, sheltered area – keep the wound and your tools clean and dry

- If the horse can't get up because they are stuck in something – keep them down until you get them disentangled from the gate or fence or wire, etc.
 - Consider weather conditions – if you can keep them warmer or shaded, then try to do so with a blanket or shade cloth
- If it is possible to move the horse – note any lameness
 - If they are very lame, then consider they could have a broken bone and you may not want to move them any further
- Next steps depend on the wound type
- **Badly bleeding wound** – apply the basic 3-layer bandage and pressure with your hands – consider diapers / sanitary napkins / towels or other absorbent material as the padding layer
 - If the wound bleeds through the first bandage, apply another layer of absorbent material and vet wrap directly over the first bandage
 - Removing the first layer may dislodge any clot that has begun to form, which will just return them to bleeding full force
 - Do not apply a tourniquet unless your vet tells you to – this can cause healthy tissue to die making the wound worse
- **If the wound is not bleeding too badly**, wash it off with sterile saline or most likely with a cold water hose (this will also help with swelling, so is a good option)
- Remember the broken off needle and 60 cc syringe for washing wounds, particularly around eyes – gives a lot of good pressure and is safer to use around the eye. Dispose of the needle tip safely. Apparently, these are available pre-made at some tack stores.



- Once clean, apply the 3 layer bandage with tape at the top and bottom
- For eye wounds, you could put a fly mask on them instead of a bandage until the vet gets there
- Or you could make a really large doughnut bandage that is much bigger and taller than the eye and anchor the doughnut in place with bandages tied to it as in the diagram to the right. You could try to figure 8 bandage that in place – but most gauze and vet wrap will hardly be long enough for 2 wraps around the head, so you'll have to improvise as best you can with what you've got



Wound types

- Slice or laceration – go all the way through the skin down to muscle or other structures below
 - May have smooth edges (easier to stitch) or jagged edges (harder to stitch)

- Puncture
 - A hole all the way through the skin to the muscle or other structures below
 - A small hole can be hiding big damage to muscles, joint / tendon structures / or bone below
- Abrasion – surface damage, not all the way through the skin

Once the vet arrives

- They will
 - Admire your first aid bandaging technique and then remove it to assess the wound
 - Look to see if structures like joints or bones are involved in the wound, or x-ray to see if there are any broken bones or foreign objects remaining in the wound
 - Remove damaged or dead skin and other tissues
 - Make the decision to stitch it closed or not
 - Give instructions for wound care – e.g., whether to use an ointment or not, what type of bandage they want on it
 - Bandage materials usually change as the wound heals – e.g., what starts out needing an absorbent layer may change to a less absorbent material (e.g., telfa pad) as healing progresses
- **Your role is to**
 - **Follow the vet’s instructions – show them your bandaging skills**
 - **Watch for signs of infection or complications with the bandage**
 - **Call them immediately if you have any concerns**

Recall that, especially on the legs, horses’ skin is like a tight pair of jeans – once cut open, the edges are hard/impossible to pull back together and stitching a wound, particularly on the lower leg may not be possible (or advisable).

The body’s goal with wound healing with a slice / laceration / puncture

- Make pus to get rid of bacteria and dead skin
- Make granulation tissue which allows nutrients and cells to creep into the wound that will eventually
- Put down new skin to fix or fill in the defect
- There can be a short distance between the skin edges
 - As in areas on the body of the horse where skin is not so tight and the edges of a wound can be brought together by stitching
- There can be a wide distance between the skin edges
 - As when pieces of skin are torn off
 - Or in areas like lower legs where skin is too tight to be pulled together again
 - Or when a wound dries out or gets infected and the edges of the skin and tissues below die
 - These type of wounds cannot (and should not) be stitched up

Four stages of wound healing

1. Inflammation

- When the wound first occurs, small blood vessels briefly constrict to help limit blood loss from the wound
 - Blood vessels then dilate to allow all the healing materials into the area – these include proteins and cells that deal with bacteria, dirt and dead tissues
2. Debridement
 - Pus forms and pushes bacteria, dirt and dead cells to the surface
 - This makes the area clean and healthy for granulation tissue to form
 3. Repair
 - Granulation tissue forms – tiny new blood vessels in a network of connective tissues and cells moves across the wound surface and will nourish the new skin cells that also creep in to fix the defect
 4. Maturation
 - There are lots of new skin cells present in the wound bed along with cells that make scar tissue. Scar tissue helps to pull the sides of the wound closer (making it easier for the new skin cells to fill the defect)
 - Scar formation – whatever the body can't fix perfectly with new skin cells, it makes scar tissue to finish closing the gap

A note about the repair phase in horses – their lower legs are particularly bad at it!

- Lower legs don't have a lot of skin, soft tissue and blood vessels (poor circulation) so wound healing is quite poor
- Joint movement pulls the edges of the wound apart – skin can retract, dry out and die
- They stand around in a dirty environment – risk of infection is always present
- But the main problem is that the cells that fix wounds and make scar tissue are not as good as other species (including ponies). So wounds on the lower legs take a long time to heal and are often complicated by formation of proud flesh.

The reason we bandage wounds is

- To protect this delicate process of healing
- To help make the healing process go faster
- A poor bandaging job or an improperly managed bandage can have dire consequences