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HEALTH

How To Handle Bleeding Injuries: Keep calm and remember-- pressure, pressure, pressure

BY STACIE G. BOSWELL, DVM, DACVS

An accident at home or on the trail can leave your horse wounded and bleeding. Horses are very large animals, and have a large blood volume and circulatory capacity. First aid for wounds is critical, starting with applying pressure to the wound to prevent further blood loss and monitoring your horse's vital signs. The same first aid principles for stopping a bleed apply in the backcountry, on local trails, and at home.

Here's what to do — and what to expect — if your horse has a bleeding injury.

Where bleeding most often occurs

While there are many large veins and arteries in the horse's body, the largest superficial vessels are the jugular vein and the carotid artery. These lie in a groove on either side of the neck from the throatlatch to the chest.

Each leg has two digital arteries which will bleed quite a bit if cut. These run on the back of the leg from the fetlock to the heel bulb. There are also large veins

on both the front and hind legs that can bleed heavily.

What should the rider do?

If a major vessel has been affected by a cut or wound, the primary concern should be to stop the blood flow. If the horse has lost a gallon or more of blood, you will want to stop any further loss and seek veterinary care as soon as possible.

How to stop the bleeding and check vitals

Here are things to know and steps to take to stop bleeding and monitor health before a vet arrives:

- 1. Carry disposable gloves** as part of your equine first aid kit. Do not touch any wound with your bare hands. This transfers bacteria from human skin to the horse and can result in infection.
- 2. The main way to stop bleeding is pressure, pressure, pressure.** The ideal bandage includes a non-stick

pad, absorbent layer, and compression layer. If bandage material is not on hand, a diaper or sanitary pad can be used. If none of these items are available, a clean T-shirt or towel can also be used. The wound should be wrapped smoothly and snugly with an elastic bandage, such as vet wrap.

3. The wound should be wrapped tight enough so that pressure can stop the flow. Each wound is different. If the first layer isn't doing the trick, do not remove it. Simply add more padding and wrap again. Removing the first bandage will allow more seepage and disturb any clotting that may be happening underneath.

3. Check vital signs. Knowing the horse's heart rate, temperature, and status of the mucous membranes is helpful in your first aid efforts.

4. Capillary refill time is one basic vital sign that you can check in the field. To do this in horses, press an area on the gums and release. The spot should pale and become pink again in less than 2 seconds, and the gums overall should be pink and moist. As significant blood loss occurs, the gums become pale.

5. Checking your injured horse's heart rate is important. Normal heart rate in horses is between 28 and 44 beats per minute. This can increase almost ten times that, to 240 beats per minute during exercise. Other factors, such as pain, stress, and dehydration, can also increase the horse's heart rate significantly. Taking multiple readings and keeping track over time is helpful, as the heart rate is highly variable.

6. Body temperature in horses is taken with a rectal thermometer. A high-quality thermometer is essential, although it can be digital. Veterinary medicine no longer recommends glass thermometers because of the risk of exposure to mercury. Taking the temperature at intervals and monitoring the trend over time is more important than just one reading.

What not to do

Don't use a tourniquet to stem bleeding. Historically, tourniquets have been used on limbs above the blood flow to help slow it down. Today we know that tourniquets can cause direct tissue damage by bruising the tissue. Indirect tissue damage from lack of blood flow begins to occur in as little as 10 minutes after applying a tourniquet.

Usually horse owners are advised to remove debris and clean the wound as an important first step in first aid. But if the wound is bleeding profusely, your first order of business is to get the bleeding stopped. The pressure bandage will also protect any further debris from entering the wound. Cleaning the wound can wait a few hours for veterinary care. A few reasons why: If the bleeding is significant or severe, water can disrupt the natural clotting process and increase the severity of the bleed. Also if you dilute the blood coming from a wound with water, it's more difficult to estimate blood loss.

Veterinary care

Obviously, a veterinarian should evaluate any wound that is large enough to cause significant blood loss. Sometimes it is difficult to tell how much blood was lost when a horse is found in a field with a laceration. Even a small cut in the wrong place on a leg can bleed a lot. This is why first aid includes checking vitals.

The veterinarian may administer intravenous fluids to help restore normal blood volume and pressure. Some anti-inflammatory pain medications can interfere with blood clotting, but the horse will need pain relief. Large or deep wounds typically will end up infected, and antibiotics are typically prescribed. Almost any wound can result in a horse being exposed to tetanus, so a vaccine is often administered. Veterinarians may do bloodwork on the horse – this includes checking the number of red blood cells. This information can be monitored for a trend over days or weeks. A blood transfusion may be necessary in cases of extreme blood loss.

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ABOVE: Include these supplies in your equine first aid kit (and take them with you on trail rides!): latex gloves, a Telfa (non-stick pad) and cast padding (cling or crinkle white rolled gauze can also be used) to hold the Telfa in place. The absorbent layer is the Combi-roll. Compress material consists of rolled brown gauze and an elastic bandage (Co-Flex, Vetrap, or similar). Elastikon can be used to finish off the bandage.

RIGHT: Not contaminating the wound is critical. The non-stick pad should be held in place by the edges to minimize contamination.

Dangers of a Bleeding Wound

The horse's athletic capacity is supported by a circulatory system that carries blood to meet an incredible oxygen demand. The heart and blood vessels (arteries, veins, and capillaries) work in concert with the spleen to transport oxygen-carrying red blood cells to all parts of the body. The average horse has 10-12 gallons of blood.

What happens when a horse loses a lot of blood?

At any volume of blood loss, the horse's body will try to compensate for the loss. The more blood lost, the less effective the compensation mechanisms can be.

With early blood loss, less than 15% blood volume, the spleen contracts to release stored cells. Vessels contract to help maintain blood pressure.

With increased blood loss, the compensation mechanisms begin to fail. The heart rate increases as high as 100 beats per minute. The vessels constrict more, and the heart has to work much harder to maintain flow to meet the body's needs. The pulses may be strong to throbbing. The horse may become anxious or agitated and will sweat. Horses may also exhibit signs of colic.

At 30-40% of blood loss, shock occurs. The compensatory mechanisms are still present. But despite a very high heart rate, the pulses will be weak, capillary refill time is prolonged, and the horse can no longer maintain a normal blood pressure. The extremities become cold; the body works to keep the blood in its core.

Eventually the animal decompensates and the oxygen available does not meet the body's needs. The core body temperature will drop. The agitation ceases and the horse will be lethargic or obtunded, and may die.