EQUUS

What to do until the veterinarian arrives

From America's Leading Horse Care Magazine

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EQUUS

What to do until the veterinarian arrives

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LARGE LACERATION

As you wait for the veterinarian to tend to your horse's large open wound, keep him calm, slow the bleeding and scope out a suitable treatment area.

Immediately: Apply direct pressure to staunch bleeding. Use a clean cloth---a towel, your shirt, even a saddle pad---to press gently but firmly on the wound. If the cloth becomes soaked with blood, place another directly over it. An alternative is to use a bandage to hold the cloth in place. However, do not apply a tourniquet unless specifically instructed to do so by the veterinarian.

Immediately: Move your horse to a safe treatment area, if possible. Ideally, your veterinarian will be able to tend to the wound in a well-lit, quiet area with access to running water. At the very least, the treatment area needs to be clear of obstacles and debris. If your horse is not in an area where treatment can be safely delivered, see whether you can slowly walk him to a better space. Do not try to move him, however, if you are having trouble controlling his bleeding or you're worried that a bone or tendon has been injured.

DUSTY PERIN

Make an initial inspection

Flush the wound. A gentle stream of cold water will not only clear dirt from the injured area, but will also help keep inflammation in check. Keep the water pressure low and don't use a spray attachment---you want to avoid driving debris deeper into the wound.

Look for foreign objects. Small sticks, gravel or other objects stuck in a wound can complicate or stall healing. Do not attempt to remove anything you see; instead make a mental note to tell the veterinarian. If anything happens to fall from the wound, keep it to give to the veterinarian.

Examine your horse for other injuries. The attention a large wound demands makes it easy to overlook smaller injuries, particularly puncture wounds, sustained in the same incident. Punctures may look minor, but they can quickly seal and trap bacteria below the skin.

Resist the temptation to give your horse any medication while you wait. A horse who receives oral painkillers may end up waiting longer for relief: The veterinarian may not be able to give him a faster-acting intravenous analgesic because of overdose risk.

HOW **BAD** IS IT?

DUSTY PERIN

Any bleeding wound is cause for concern, but some are worse than others. Whenever you're in doubt about the severity of an injury, call your veterinarian. Wounds are classified from superficial to severe based on these characteristics:

- **Age:** If a wound goes undiscovered or untreated for more than eight hours, bacteria have had time to proliferate, increasing the risk of infection and other complications.
- **Bruising:** The area around a laceration caused by a kick, collision or other high-impact trauma is likely to be bruised. The same healing resources needed to repair open wounds are required to heal bruises, which occur when blood vessels beneath the skin rupture.
- **Complexity:** Clean cuts from sharp objects typically heal faster and better than torn flesh with ragged, uneven edges.
- **Contamination:** Foreign material such as wood, glass, gravel, grass, bedding, manure and hair can irritate a wound and introduce bacteria.
- **Location:** Wounds on the lower leg are more likely to jeopardize a horse's soundness than his life, barring complications such as infection. Wounds to the abdomen and neck can be life-threatening if bleeding is uncontrolled or a major organ is damaged. Head wounds that are more than skin-deep are serious.
- **Size:** The length, width and depth of a wound are all important. Deep wounds are of particular concern because they can introduce bacteria to vital tissues. Note: It can be difficult to determine the extent of an injury, and underestimating the depth of a wound is a common mistake that makes treatment more difficult later.

Call your veterinarian with an update if:

- bleeding worsens or does not appear to be slowing at all.
- the horse is significantly lame or unwilling to move.
- the horse becomes lethargic, shocky or otherwise mentally unstable.

CHOKE

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As you wait for your veterinarian, keep a horse with choke as calm as possible. Watch him carefully but resist the urge to intervene.

Immediately: Prevent the horse from eating or drinking. Remove or empty feed and water buckets and do not allow the horse to graze. Anything ingested will come up against the blockage, making the situation worse.

Immediately: Encourage the horse to stand quietly with his head lowered. This will reduce the likelihood that material from the blockage will be drawn into the lungs, which can result in pneumonia. Do not force the horse's head down. Instead, let him stand in a quiet area of the barn; bring in a companion if that will help.

BOB LANGRISH

Monitor the situation

Keep an eye on nasal drainage. In most cases of choke, backed-up grain will eventually start leaking from the nostrils. Wipe away the discharge with a clean rag and repeat every five minutes or so. Pay attention to the volume, color and consistency of the material so you can describe it to your veterinarian. Also note if the drainage stops, which can be a sign the blockage has cleared on its own.

Don't do anything beyond comforting the horse. Resist the temptation to try to ease the condition: Do not administer medication, and avoid home remedies for choke, including massaging the horse's neck or using a garden hose to "flush" away the blockage ---none are effective. In fact, these measures will likely make the situation much worse. Remember that, unlike people, horses can still breathe with a blocked esophagus, so there is no immediate, lifesaving need to resolve the choke.

DUSTY PERIN

CHOKE TREATMENT: Your veterinarian may use a nasogastric tube to flush water into the esophagus in hopes of softening the blockage.

IN FOCUS CHOKE

▶**Definition:** obstruction of the esophagus, usually by feed.

▶**Causes:** bolting food, attempting to swallow a corncob, apple or large carrot pieces, inadequate mastication due to poor dental health, eating after sedation, a physical condition that restricts the esophagus.

▶**Signs:** A horse with choke stops eating and looks anxious—coughing, retching or shaking his head. He may also stretch his neck and paw. As material backs up, it may come out of his mouth or nose.

▶**Treatment:** Sedation and/or medications can help to relax the esophageal muscles so the obstruction can pass. The veterinarian may also flush water into the esophagus through a nasogastric tube to help soften the mass.

▶**Prevention:** Slice apples and carrots into small pieces before offering them as treats and slow down a horse who bolts his feed by placing large rocks in his feed tub. Keep your horse's dental care up-to-date. If your horse has been sedated, wait several hours before allowing him to eat.

After the crisis

In the days after an episode of choke, have the veterinarian come back if your horse develops a cough, fever or runny nose. These may be signs of aspiration pneumonia, a rare but serious secondary problem.

Call your veterinarian with an update if:

- anything other than food—such as blood or foreign objects—drains from the horse's nostrils or mouth.
- the horse becomes dangerous.

SWOLLEN EYE

As you wait for your veterinarian to treat a puffy, closed eye, you need to protect your horse from further injury while trying to keep him as comfortable as possible.

Immediately: Carefully halter the horse and hold him so he cannot rub his eye on anything, including his own knees. Rubbing can worsen the eye's condition, particularly if a foreign object is embedded in it.

Immediately: Inspect the eye and surrounding area. If the horse allows you, gently pry the eyelid open to look for a foreign object. If you see one, do not remove it---simply inform the veterinarian when she arrives. Also, press gently on the bones around the eye, head and poll, looking for tenderness. Tell your veterinarian what you find.

DUSTY PERIN

DUSTY PERIN

IN FOCUS
EYE INJURY

▶**Signs:** excessive tears, redness, squinting, repeated shaking of the head, cloudiness or swelling of the cornea or eyelids

▶**Causes:** a foreign object, such as a splinter, in the eye or tear in the surface. Uveitis, swelling of the colored portion of the iris, and conjunctivitis, swelling of the membranes around the eye, can produce the same acute signs as an injury.

▶**Treatment:** Some eye injuries require surgery. Others may heal with antibiotic ointment alone, but hourly, round-the-clock administration may be necessary.

▶**Prognosis:** from full recovery to permanent loss of vision and even the eye itself, depending on the severity of the injury, the level of contamination and how quickly treatment begins

If nothing is embedded in the eye:

Rinse with saline solution. Flushing dust, grit and debris from an injured eye can provide immediate pain relief. But use only sterile saline that has been properly stored.

Apply a cold pack. Place a bag of ice, a commercial ice pack or even a bag of frozen peas directly over the closed eyelids. This will usually reduce swelling and make the horse more comfortable, particularly if the problem is conjunctivitis—a swelling of the membranes around the globe—or blunt trauma like a person's "black eye," which affects only the skin around the eye.

Call your veterinarian with an update if:

- anything other than clear tears runs from the eye.
- you notice a foreign object in the eye or a tear or change in the color of the globe.

RESIST THE **TEMPTATION**

Do not apply ointment or other preparations to any injured eye. Not only will the presence of medication make it much harder for the veterinarian to assess an injury, but using the incorrect type of medication in an eye can lead to a devastating fungal infection much worse than the initial injury.

JANIS TREMPER

HELP NEEDED: Eye injuries, such as this cut, require immediate veterinary attention.

HIVES

If your horse develops this allergic reaction, keep him comfortable, watch his breathing closely and begin to gather clues that might help pinpoint the cause.

▶**Immediately: Make sure the horse's nostrils are clear.** If the hives are part of a systemic allergic reaction, his airway may swell shut. Look for signs of puffiness around the nose and mouth, listen for strained, raspy inhalation, and watch the horse's sides to see if he is taking even, deep breaths.

▶**Immediately: Rinse the affected area.** Many cases of hives are a reaction to something on the surface of the skin (contact dermatitis). If the wheals appear to be localized, douse the area with cool water or cleanse it with a mild soap and rinse thoroughly.

DUSTY PERIN

If wheals appear on only a small area of skin, douse them with cool water.

DUSTY PERIN

JANIS TREMPER

Consider possible causes

Hives are an immune response to a topical or systemic allergen. Investigate whether something in your horse's environment may have led to the reaction. The first exposure to a new allergen won't trigger a reaction, but the second or even third might. Consider any recent management changes you may have made.

- Have you started using a new fly spray?
- Is the horse on a new medication?
- Has he been moved to a different pasture?
- Is he being fed a new grain or hay?

Look for other clues as well. If the hives are limited to the saddle area, for instance, the trigger may be the detergent used to wash the saddle pad. Jot down your ideas to share with the veterinarian when she arrives.

Call your veterinarian with an update if:

- the horse develops any difficulty breathing.
- other signs of illness, such as colic or listlessness, appear.

IN FOCUS HIVES

▶**Definition:** Technically called urticaria, hives are soft, distinct, raised skin wheals created when capillaries below the skin's surface leak serum. Hives begin as small areas of swelling but may grow to merge into larger patches.

▶**Causes:** Hives can be a reaction to a topical irritant, such as a bug bite, or a systemic response to food or medicine the horse has ingested. Reactions caused by topical irritants tend to be limited to one area of the horse, whereas systemically induced hives appear over the entire body.

▶**Signs:** In addition to the appearance of wheals, hives may also cause itchiness, particularly in the earliest stages of the reaction.

▶**Treatment:** Mild to moderate hives are typically treated by identifying the causative agent and eliminating it from the horse's environment. For severe reactions that threaten to close off the horse's airway, the veterinarian may administer anti-inflammatory or immune-suppressing medications or a fast-acting "rescue" drug such as epinephrine.

RUNNY NOSE

When your horse has suspicious nasal discharge, take steps to contain contagion and collect clues to the source of the trouble.

Immediately: Isolate the horse. Contagious diseases, such as strangles[0] and equine[0] herpesvirus, can be transmitted through nasal fluids. Move the horse as far from the others as possible. After handling him, avoid contact with the rest of the herd until you've showered, changed your clothes and scrubbed your shoes.

Immediately: Remove the horse's water and feed bucket from the barn. Germs can linger on these surfaces and infect other horses. Later, cleanse the ailing horse's stall and any equipment used on him with disinfectant solution.

Immediately: Check the rest of your herd. Have someone who has not been exposed to the sniffling horse take the temperatures of all the others on the farm. Tell the veterinarian about any with a temperature above 101.5 degrees Fahrenheit (normal is 99 to 100 degrees F).

JANIS TREMPER

Monitor his condition

Observe the horse's respiratory rate and effort Some diseases that cause nasal discharge can also make it difficult for the horse to breathe. Count how many breaths he takes per minute: A normal rate is 12 to 15 breaths. If the horse's nostrils flare or his flanks take on a "tucked up" look with each breath, he may be having respiratory difficulties.

Check for signs of disease Strangles and other diseases usually cause enlargement of the lymph[0] nodes under the jaw line. An affected horse also will likely have a fever. Sharing this information with your veterinarian when she arrives can speed the diagnosis.

Note the nature of the discharge The appearance of what's coming from your horse's nose (see "Discharge ID," right) can provide important clues to his condition. Resist the temptation to wipe the discharge away, though, because the veterinarian will want to see it for herself when she arrives.

DISCHARGE ID

The color, consistency and odor of nasal secretions reveal important information about their source and your horse's health.

- *Thin, gray, frothy snot,* particularly from one nostril, is a hallmark of a guttural[0] pouch infection.
- *Foul-smelling discharge* can be produced by an infected tooth or sinus. It may be accompanied by headshaking, reluctance to eat or other signs of discomfort.
- *Thick, creamy pus* is indicative of an infection, such as bacterial bronchitis[0], rhinopneumonitis[0] or strangles.
- *Bright red blood* is usually a sign of injury to the interior of the nostril, but it can also come from a severe guttural pouch bleed or burst capillaries[0] within the lungs if the horse has recently exerted himself.
- *Dark blood* draining from the nose has usually collected elsewhere first, perhaps in the guttural pouches or sinuses.
- *Thin, watery discharge* with no other sign of illness is usually a reaction to cold air or other airborne irritants.

JANIS TREMPER

ARND BRONKHORST

ORIGIN STORY: The cause of nasal secretions can often be identified based on their color, consistency and odor.

DUSTY PERIN

INSIDE JOB: Bright red blood coming from one side is usually a sign of injury to the interior of the nostril.

Call your veterinarian with an update if:

- bright red blood begins to flow from the horse's nose.
- his fever reaches 104 degrees F.
- he appears to have trouble breathing.

HEAT EXHAUSTION

When a horse is overcome by heat, your primary and urgent task while waiting for the veterinarian is to lower his body temperature. Then you'll monitor him for signs of improvement and encourage him to drink.

Immediately: Move the horse into shade. This can be under a tree, in a barn or even in the shadow of a horse trailer.

Immediately: Douse the horse with the coldest water available. Direct application of cold water to the horse is the fastest and most effective method of lowering body temperature. The notion that putting cold water onto hot muscles can cause cramping or laminitis has been debunked, so use as much of the coldest water as you have. Drench the horse, scrape him dry and then repeat. (If you leave the coat dripping wet, the water won't evaporate quickly enough to provide cooling.)

Immediately: Use any other cooling aid you have on hand. If you have ice (or can send someone to get some quickly), put packs along the horse's head and throat, where major blood vessels serving the brain run close to the surface. Standing the horse in front of a fan as you sponge him down will also speed cooling.

PAULA DA SILVA/ARND BRONKHORST PHOTOGRAPHY

Monitor your horse for improvement

Watch his respiration. An overheated horse breathes rapidly and may even pant like a dog in an effort to dissipate heat. As he cools, his respiratory rate will return to normal.

Assess his attitude. As a horse cools, his general demeanor will perk up. He will seem more interested in his environment, may want to graze or even begin to object to your efforts to cool him. All of these are good signs.

Encourage him to drink

Make water available. Allow the horse to drink as much as he wants. If possible, offer him lukewarm water—it's a myth that drinking cold water will cause an overheated horse to colic, but he's likely to drink more if the liquid is tepid. However, do not try to force water intake with syringes, hoses or other artificial means. If water enters a horse's lungs, he can develop pneumonia.

Use electrolytes sparingly. If you have powdered electrolytes, add a scoop to a bucket of water, but offer plain water also. Avoid giving a horse with heat exhaustion electrolyte paste because it may throw off his metabolic balance or contribute to dehydration.

Do not give your horse any medication. A dehydrated horse's kidneys are already taxed, and drugs can push them over the edge to failure.

Call your veterinarian with an update if your horse:

- develops thumps, spasmodic contractions of the diaphragm in rhythm with the heartbeat.
- does not appear noticeably more comfortable after 15 minutes of hosing with cold water.
- has red or dark brown urine, a sign of kidney trouble.

CHARLES MANN/ARND BRONKHORST PHOTOGRAPHY

IN FOCUS HEAT EXHAUSTION

▶**Definition:** Heat exhaustion occurs when a horse's natural cooling system—primarily sweating—can no longer keep his body temperature in check. Specifically, when a horse's core temperature reaches 104 to 108 degrees, heat exhaustion sets in and dangerous physiological changes occur.

▶**Causes:** prolonged exertion in hot, humid conditions. Humidity keeps sweat from evaporating and, therefore, cooling the horse.

▶**Signs:** Respiration increases to between 60 and 80 breaths per minute (compared to the normal 15) when a horse has heat exhaustion, and he will likely stand quietly with his head lowered and seem oblivious to his surroundings. If a fold of skin pinched at the shoulder remains "tented" for more than a few seconds, he may also be dehydrated, a condition that often accompanies heat exhaustion.

In some cases, a horse with heat exhaustion may perspire less than normal or not at all, a potentially confusing sign that indicates his sweating mechanism is shutting down and his temperature will climb even higher if conditions persist.

▶**Treatment:** lowering a horse's body temperature as quickly as possible, rehydration with intravenous fluid if necessary and supportive care

TYING UP

When your horse has the severe muscle cramping known as tying up, do your best to keep him still and comfortable while you wait for the veterinarian.

Immediately: Allow your horse to stand exactly where he stopped. He can't "walk out of" these muscle cramps. In fact, making him move would only compound the damage to his muscles. Your veterinarian will advise you later on how to move him if it's absolutely necessary.

Immediately: Warm or cool the affected muscles, depending on the season. If your horse ties up in cold weather, throw a blanket over his hindquarters to help ease the cramping. Likewise, if the episode occurs in hot conditions, sponge his cramped muscles with cold water. And don't worry: Contrary to popular belief, there is no evidence that applying cold water to hot muscles causes or worsens cramping.

ARND BRONKHORST

Observe without intervening

Don't do any massage. Manipulation of the horse's muscles will be painful and may make the situation worse. The cramping will eventually dissipate, but the process cannot be sped up. Treatment can only contain the damage done by the event.

Do not give any injections. Given the horse's discomfort, it may be tempting to administer an injection of Banamine or other pain reliever, but this is not advisable. It would be very difficult to inject anything into a horse's cramped hindquarter muscles, and even if you managed to do so it would intensify the spasms.

Note the color of the horse's urine. Muscle cramping causes cells to die, and the resulting debris is excreted in urine, tinting it reddish to a dark-coffee color. The color of urine is an indication not only of the extent of muscle damage but also of how hard the horse's kidneys are working. If your horse urinates while you are waiting, note the color of what he produces or, better yet, catch some in a container to give to your veterinarian.

Be on the lookout for "thumps." Technically known as "synchronous diaphragmatic flutter," thumps is the spasmodic contraction of the horse's diaphragm in time to his heartbeat. Outwardly, it appears as if the horse has hiccups. Seen in stressed, tired horses, thumps is the result of a severe electrolyte imbalance, a state also closely associated with tying up. Although this condition in itself is not harmful, it's an important indication of your horse's metabolic state, so you'll want to inform your veterinarian if your horse develops it.

ROBERT YOUNG/WWW.ISTOCKPHOTO.COM

IN FOCUS
TYING UP

▶**Definition:** Tying up is a metabolic malfunction that leads to cramping of the large muscle groups, particularly in the hindquarters.

▶**Signs:** profuse sweating, halting gait, refusal to move, elevated pulse

▶**Causes:** Tying up is often associated with overexertion, mineral imbalances or a return to work after a rest period. In draft horses, equine polysaccharide storage myopathy (EPSM) is a common cause of tying up; in Quarter Horses, it is linked to polysaccharide storage myopathy (PSSM).

▶**Treatment:** rest, muscle relaxants and supportive intravenous fluid therapy to dilute toxins from muscle damage and support kidney function

JANIS TREMPER

COLIC

While waiting for your veterinarian, you'll have four goals: Keep your horse comfortable, prevent his condition from worsening, collect information to aid diagnosis and prepare for a possible trip to a referral hospital.

▶**Immediately:** Most colicky horses will not eat or drink, but as a precaution, remove all food and water from the stall. Any intake could worsen an impaction or blockage.

▶**Immediately:** Determine whether walking might help. As a general rule, if a colicky horse is lying down or standing quietly, there is no need to walk him---just let him be. If, however, the horse is restless and repeatedly lies down and rises, walking might help distract him and, in that way, make him feel a bit better. That said, if your horse is extremely agitated he is a danger to everyone around him: Put him in an indoor arena, paddock or another open area and stay clear until the veterinarian arrives.

Do not give your horse any medication while you wait, unless specifically instructed to by the veterinarian. Medications may mask a fever and/or reduce pain, making diagnosis more difficult.

Gather clues for the veterinarian

Take your horse's temperature if he is calm enough to allow you to do it safely. This is important information because a horse with a fever as well as gastrointestinal pain may have an infectious condition in addition to colic.

Check your horse's gums. Pale gums can be a sign of shock; brick-red gums may indicate dehydration or a toxic condition, such as poisoning or endotoxemia[0].

Check your horse's pulse. Heart rate is a good indicator of pain and the severity of colic. You can take a horse's pulse under his jaw near the jowl or at the back of a pastern. Or, if you have a stethoscope and know how to use it, listen directly to his heart. A horse in pain who has a heart rate of more than 60 beats per minute (normal is 48 or lower) may have a serious condition.

Collect and set aside any manure the horse passes for the veterinarian to inspect. The color and consistency of manure provides valuable clues to the cause of the colic, and your veterinarian may decide to send a sample for laboratory testing.

Prepare for possible referral to a clinic

Horses have a much greater chance of surviving severe colic if they are sent to an equine hospital early, so your veterinarian will not hesitate to refer any case she thinks may require surgical treatment.

- If you have a trailer, have someone hook it up and ensure the truck is filled with gas.
- If you have to borrow a trailer, start making phone calls to friends who have them so they can be on standby in case they are needed.
- Collect any records ---regarding deworming, medications or recent veterinary procedures---that may have a bearing on your horse's case.

Call your veterinarian with an update if your horse develops:

- gums that are any color other than healthy pink.
- fever.
- worsening pain.
- a heart rate of 60 beats per minute or higher.

IN FOCUS COLIC

▶**Definition:** The term "colic" refers to any abdominal pain. More specifically, a horse can have

- *gas* colic, a buildup of gas, typically in the stomach, large intestine or cecum
- *spasmodic* colic, cramping of the smooth muscles of the digestive tract
- *impaction* or *obstruction* colic, a blockage of the digestive tract by accumulated sand, enteroliths[0] or parasites
- *entrapment* colic, which occurs when a section of intestine slips through a space in the gut and is deprived of circulation.

▶**Causes:** abrupt changes in management routine or feeding, poor-quality feed, lack of turnout, parasite load, tooth problems that impede chewing, gastric ulcers, cancer, enteroliths or sand ingestion. Many times the cause of colic—particularly with entrapment and twists—is never known.

▶**Signs:** Most horses with colic will be sweaty, seem restless, roll repeatedly and/or nip at their sides. Some more stoic horses may simply become "disengaged" with a glazed look to their eyes and no interest in their surroundings.

▶**Treatment:** Pain relievers, commonly flunixin meglumine; muscle relaxers, such as Buscopan; and intravenous fluids. Surgical treatments include removing impactions, enteroliths or sand accumulation, straightening or freeing trapped intestines and removing strangulated portions.

RESPIRATORY DISTRESS

When a horse is having difficulty breathing, get him fresh air, keep him as calm as possible and monitor his vital signs as you wait for the veterinarian.

Immediately: Check his nose. Most cases of respiratory distress in horses are due to recurrent airway obstruction (RAO, also known as heaves), but breathing can also be inhibited if an allergic reaction, insect sting or injury causes inflammation of the nostrils. If the horse's nose appears swollen, or if he is bleeding from one or both nostrils, you'll want to alert your veterinarian, who can prepare for a possibility other than heaves.

Immediately: Keep the horse quiet and still. Exercise or excitement will make breathing even more difficult. Allow the horse to simply stand quietly. Bring out a friendly horse to keep him company if that will help keep him calm. Do not give the horse sedatives or tranquilizers, however. These may further inhibit his respiration.

JANIS TREMPER

▶Immediately: Get him some fresh air. In most cases, a horse in respiratory distress is better off outdoors, away from all dust. Move the horse from his stall or riding ring to an open, grassy pasture area or even a dust-free parking lot. On the other hand, if the horse has pasture-induced heaves, he may do better indoors, away from grass and pollen.

Long-term treatment of a horse with heaves requires eliminating as much dust as possible from his environment.

Monitor his vital signs

Watch the horse's sides and count how many breaths he takes in one minute. The exact number isn't important, but recheck every five minutes to see if his breathing is steady. If the rate increases dramatically, he could be getting worse. Also check the color of his gums. Extremely pale or bluish mucous membranes can indicate dangerously low oxygen levels.

Look for a climate-controlled area

Because the goal is to reduce the horse's exposure to airborne irritants, moving him to an air-conditioned space can be a good idea. Not only is the cooler, less humid air easier to breathe, but the air-conditioning unit will filter out dust and pollen that can exacerbate the situation. Of course, most barns are not air-conditioned, but a horse may benefit from being moved into a climate-controlled garage or workshop that has been cleared of hazardous objects.

Call your veterinarian with an update if:

- the horse's respiratory rate increases.
- his mucous membranes begin to look pale or bluish.
- he begins to panic.

IN FOCUS

HEAVES

▶Definition: "Heaves" is the common term for recurrent airway obstruction (RAO), a respiratory disease characterized by a narrowing of the small airways of the lungs, which makes exhaling difficult.

▶Causes: Tiny dust particles pulled deep into the airway trigger inflammation in the lungs. Research suggests that some horses inherit an increased sensitivity to dust, which makes them more susceptible to RAO.

▶Signs: fast, deep breathing along with coughing and mucous discharge from the nose. In advanced cases, a horse's nostrils flare and an audible "wheeze" may be heard with each breath. Horses with chronic RAO can develop a distinct "heaves line" along the abdomen as the muscles that help them exhale get overused.

▶Treatment: Steroids[0] and bronchodilators[0] can be used in "rescue" situations, but long-term treatment of a horse with heaves requires eliminating as much dust as possible from his environment. This often requires that the horse be kept outdoors on grass pasture and fed hay that has been thoroughly watered down to reduce dust. Horses with RAO may also benefit from a dust-free pelleted ration.

PAULA DA SILVA/ARND BRONKHORST

CELIA STRAIN

SWOLLEN LEG

When waiting for your veterinarian to come tend to your horse's grossly fat leg, gather clues that can help identify the cause of the swelling and start efforts to control it.

▶**Immediately: Look for signs of injury.** A small puncture wound or even a scratch can introduce bacteria under the skin, leading to an infection that causes massive swelling. Using your fingers to part the coat, look for breaks in the skin and feel for irregularities in the surface. Report your findings to the veterinarian.

▶**Immediately: Look for other swelling**. A fat leg will command your attention, but check the horse's other legs and midline for inflammation as well. If more than one leg is swollen, or if both hind legs are thick, the horse may have an extreme case of stocking[0] up. However, swelling that extends up through his groin and midline could be the result of a systemic illness.

▶**Immediately: Take your horse's temperature.** A swollen leg or legs plus a fever can be a sign of a localized but serious infection, such as lymphangitis[0], or a systemic illness like Potomac[0] horse fever. Record the temperature and the time you took it. This is important information that can help your veterinarian make a diagnosis.

DUSTY PERIN

Keep the horse still

Until you know exactly what you are dealing with, it's important to keep the horse as quiet as possible. If the leg is swollen from injury to a bone, ligament or tendon---even if the horse isn't acutely lame---movement can make the situation worse. Stall confinement isn't enough: Hold the horse on a halter and lead, providing a hay net or grain if that's what's necessary to keep him still.

Cool the leg

Cold therapy will help slow the inflammatory process and provide pain relief. Very cold water from a hose is adequate, but standing the horse in a bucket of ice water is even more effective. Treat the leg for 20 minutes.

Wrap it up

If you are comfortable applying standing bandages, wrap the leg after you've cooled it with water or ice. Wrapping the limb will help limit swelling, which is beneficial for two reasons: Inflammation stretches tissues, which then leak serum, leading to more swelling. Also, skin stretched thin is a less effective barrier to bacteria and infection.

Wrapping a leg too tightly, however, can impede circulation and cause other problems. Your veterinarian will remove the wraps to inspect the leg when she arrives, but have her comment first on whether you've applied them correctly so you can adjust your technique if necessary.

WHY LEGS SWELL

Common causes of severe limb inflammation in horses include:

- **Stocking up.** This is the colloquial term for a diffuse, soft, cold swelling of the lower limbs that results from inactivity. Usually both hind legs are affected, but occasionally the forelegs can be as well. The swelling is typically limited to the fetlocks and below and is not associated with any lameness. Once the horse begins to walk, which boosts the function of the circulatory and lymphatic systems, the swelling subsides.
- **Injury.** Trauma to a tendon, ligament or bone usually causes sudden, significant swelling, which is typically accompanied by localized pain and lameness. The affected area is also warm to the touch. The swelling will typically resolve as the underlying injury is treated and heals.
- **Lymphangitis.** Inflammation of the lymph vessels responsible for moving fluids in and out of cells, lymphangitis can lead to painful, hot swelling that extends from hoof to shoulder or hip. The initiating cause may be a small wound or bite, but often it is never discovered. Anti-inflammatory medications and antibiotics are a first line of treatment, and exercise and careful bandaging can eventually be used to increase circulation in the limb and reduce swelling. If the condition persists, however, scar tissue can form, preventing the leg from returning to normal.
- **Systemic illness.** Some conditions not generally associated with the limbs can nonetheless cause swelling of the lower legs. These include heart, liver or kidney disease, Potomac horse fever and strangles[0]. Swelling associated with these conditions usually affects all four limbs and diminishes as the underlying issue is resolved.

Call your veterinarian with an update if:

- the swelling gets significantly larger as you wait.
- the horse's temperature increases.
- the horse becomes lame or lamer.

LAMINITIS

If your horse breaks into the feed bin or otherwise gives you reason to suspect he may develop laminitis, seek veterinary assistance without delay, then take the following steps to increase his chances of survival.

DUSTY PERIN

▶Immediately: Keep the horse as still as possible. Years ago, it was believed that walking a horse with laminitis would improve circulation, but we now know that movement only compounds the damage to the internal structures. If possible, leave your horse exactly where you found him until help arrives. If you must move him, take the shortest possible route to your destination or transport him via trailer. If the horse wants to lie down and will do so quietly, let him.

▶Immediately: Stand the horse in ice water. Research has shown that chilling down a horse's feet can slow the initial progress of laminitis. Icing is most effective in the earliest stages of the disease, but it cannot hurt even if you are not sure when the trouble began. Fill a shallow tub that has no handles—such as a feed pan—with cold water and ice. The water only needs to be deep enough to submerge each hoof completely. Leave the horse standing in the water until the veterinarian arrives, refreshing the ice as it melts.

Take the horse's temperature

Some illnesses, such as Potomac[0] horse fever, can cause laminitis. Although it's likely you would have noticed that your horse was ill before his hooves were affected, taking your horse's temperature can identify underlying problems that may have been overlooked. Report your findings to your veterinarian when she arrives.

Locate an area with good footing

Very deep bedding (eight inches or more) will pack up into the underside of a laminitic horse's hooves, providing cushioning that will help keep him more comfortable. If a stall is available close by, enlist a friend to start bedding it as deeply as possible with shavings.

Sand is a good footing for horses with laminitis, but you'll need lots of it, as well as a method of keeping it out of the horse's hay. If you won't be able to put the horse on deep bedding, tape thick Styrofoam blocks to the bottom of each of his hooves to provide support. The sooner you can start making these arrangements, the sooner your horse will get some relief. Also, locate electrical outlets and extension cords that your veterinarian can use if she needs to take x-rays.

Call your veterinarian with an update if:

- the horse develops signs of colic or diarrhea.
- his pain level changes dramatically.

IN FOCUS
LAMINITIS

DUSTY PERIN

▶**Definition:** Laminitis is inflammation of the thin tissues (sensitive laminae) that anchor the coffin bone to the inside of the hoof wall. If enough fibers fail, the laminae lose their grip and the coffin bone drops away from the hoof wall and rotates or sinks downward, a condition called founder.

▶**Causes:** Laminitis can be triggered by a variety of factors, including mechanical stress, such as galloping down a paved road; systemic illness or infection, particularly high fevers or a retained placenta in a mare; dramatic carbohydrate overload, such as a grain binge; metabolic disturbance from excessive grain or lush pasture in a predisposed horse; endocrine disorders like pituitary[0] pars intermedia dysfunction (PPID, also known as Cushing's disease).

▶**Signs:** lameness, increased digital pulse, heat in the feet, reluctance to move, hesitant gait, odd stance with front feet placed forward to reduce pressure on the toes

▶**Treatment:** icing during the initial phase; administration of nonsteroidal anti-inflammatory drugs, such as phenylbutazone or Banamine; antibiotics to ward off secondary infection; intravenous fluids to prevent dehydration if needed. Supportive foot care is essential, requiring a team effort with your veterinarian and farrier.

FRACTURED LIMB

If you find your horse with a broken leg, try to maintain your composure so you can keep him from moving, staunch any bleeding and, possibly, stabilize the limb until help arrives.

Immediately: Keep the horse as calm and still as possible. Do not walk him or allow him to take a single step on his own. Instead, ask others to make the area around him as safe as possible. If it will help, offer the horse hay and water and/or bring another horse to stand nearby. You may be tempted to hold up the injured limb to keep the horse from putting weight on it, but keep in mind that 10, 15 or even 30 minutes may pass before help arrives. You might also put yourself at risk if the horse is unstable. If he is holding up the limb himself, it's best to just let him be.

Immediately: Stay with the horse. Use your cell phone or scream for help if you must. Do not let go of the horse, even if you think he can't move. Horses have turned minor, survivable

PAULA DA SILVA/ARND BRONKHORST PHOTOGRAPHY

Do not walk the horse or allow him to take a single step on his own.

DUSTY PERIN

fractures into catastrophic ones by escaping their handlers and running off in a panic.

▶**Immediately: Control any significant bleeding.** If the fracture is open and spurting bright red arterial blood, apply direct pressure with a towel, saddle pad or even your shirt to staunch it. This may be painful for the horse, so be extremely careful. If the wound is only trickling darker blood, there is no need to apply pressure.

Apply a Robert Jones bandage

If you have another person to help, are confident in your wrapping abilities and your horse is standing calmly, you can apply a Robert Jones bandage, which uses thick padding, hard splinting materials and several layers of wraps to stabilize the leg. This is not something you can learn on the spot, however. Practice the technique beforehand so you'll be prepared in an emergency. (For instructions, go to EquusMagazine.com.)

Robert Jones bandage

Check the other horses

If the fracture occurred in a field, it could have been the result of a fight. Send someone to check the other horses in the herd for signs of injury. Also, if your veterinarian might have trouble finding you, recruit a helper to guide her to your location.

TYPES OF FRACTURES

Hairline: Typically vertical, a hairline fracture extends only partway through the bone. Generally these fractures heal well because of their natural stability.

Greenstick: Trauma can cause immature bone to bend. As the bone "gives," the side of the shaft opposite the blow pulls apart, resulting in a greenstick fracture. Young and healthy bones usually recover well from these fractures.

Transverse: A clean break across the bone shaft, a transverse fracture normally mends quickly when the ends are immobilized in perfect contact with each other.

Spiral: Also known as an oblique fracture, a spiral fracture occurs when twisting forces crack the bone into two pieces at a sharp angle. Both the angle of the fracture and the jagged edges make this a challenge to stabilize and heal fully.

Comminuted: A blow of immense force and/or speed can cause the bone to shatter. In a comminuted fracture the pieces of bone can sometimes be held in place by metal implants until they can reestablish connections. This is a challenging injury with a guarded prognosis, particularly for a return to an athletic career.

Compound: In a compound fracture, the broken bone lacerates the skin. This is a dangerous injury because of the risk of infection.

For more information

Here is a sampling of past articles EQUUS has published on the topics covered in this booklet.

LARGE LACERATION

- A Breakthrough Treatment for Wounds: By adapting a device from human medicine to horses, Kim Gemeinhardt, DVM, is paving the way for what may be a revolution in equine wound-care management. (EQUUS 333)
- Healing Decisions: Closure with stitches, staples or glue is not always the best medicine for new wounds. Five key factors determine if the smoothest recovery calls for suturing now or later or not at all. (EQUUS 316)
- Scarred for Life? That's the last question you need to ask yourself when your horse is injured. Instead, focus on the most effective wound care, and you're less likely to see scars. (EQUUS 306)

CHOKE

- Choke: Reduce your horse's risk of this dangerous obstruction of the esophagus by making a few simple changes in your management. (EQUUS 395)
- How to Handle Choke: Signs that your horse suffers from a blocked esophagus can be downright alarming. But an expert from Hagyard Equine Medical Institute explains how this common condition is best treated and prevented. (EQUUS 363)

SWOLLEN EYE

- Eye Injuries: Even a seemingly minor ocular wound can quickly and permanently rob a horse of vision. Here's how you can prevent eye injuries and recognize trouble if it does occur. (EQUUS 340)
- Emergency Eye Protection: Here's how to use materials you're likely to have on hand to create a mask that protects a horse's injured eye. (EQUUS 370)

HIVES

• Spot Skin Problems Early: Use this ready reference to identify your horse's skin troubles and decide what to do about them. (EQUUS 335)

• A Field Guide to Equine Allergies: Learn the 5 most common triggers of allergic reactions in horses so you'll be better able to counter or prevent them. (EQUUS 394)

RUNNY NOSE

• Deceptive Appearances: Don't be fooled. Signs of injury and illness don't always mirror a condition's severity. Here's how to determine whether the evidence points to a problem that's life-threatening or relatively minor. (EQUUS 355)

• Does Your Horse Have a Fever? A rising temperature may indicate a minor irregularity or a serious illness. Here's how to identify, interpret and, when appropriate, treat your horse. (EQUUS 349)

• The Essentials on Strangles: Outbreaks of this contagious disease often seem to come from nowhere—but it's easy to control with basic precautions. (EQUUS 361)

HEAT EXHAUSTION

• Heat Stress Prevention Strategy: On summer days, it can be difficult to distinguish normal fatigue and sweatiness from dangerous heat exhaustion. Here's what to look for and how to safeguard your horse's well-being. (EQUUS 370)

• 10 Ways to Keep Your Horse Cool: The warmest months of the year can be the most stressful for your horse. Here are 10 ways to safeguard his comfort and health in hot weather. (EQUUS 334)

• Keeping Cool: Convection and evaporation are your horse's main tools for beating the heat. Here's how you can help his cooling system work more efficiently. (EQUUS 261)

TYING UP

• Good and Tired: Exertion makes horses strong and fit. But how much work is too much? Here's how to tell. (EQUUS 281)

COLIC

• 10 Ways to Optimize Your Horse's Digestive Health: Follow these guidelines when feeding your horse to reduce his risk of developing colic, ulcers and other ills. (EQUUS 388)

• How to Identify Mild Colic: With subtle signs that may come and go, low-grade digestive upset is easy to miss and difficult to diagnose. Here are the five most common causes and how to spot them. (EQUUS 372)

• Straight Talk About Colic. A leading colic expert tells you how to reduce your horse's risk of developing serious digestive upset and increase his chances of recovery if he does. (EQUUS 358)

RESPIRATORY DISTRESS

• Special Report: Protect Your Horse's Respiratory Health: Common barn chores may be undermining your horse's respiratory health. A leading air-quality researcher points out the dangers you may be overlooking, as well as surprisingly simple methods for minimizing them. (EQUUS 380)

• Help for Horses With Heaves: Science offers new ways to manage a familiar respiratory disease that's long been a concern of horse owners. (EQUUS 327)

SWOLLEN LEG

• Deceptive Appearances: Don't be fooled. Signs of injury and illness don't always mirror a condition's severity. Here's how to determine whether the evidence points to a problem that's life-threatening or relatively minor. (EQUUS 355)

• All Stocked Up: Fat legs may look alarming, but they often reflect nothing more than a glitch in the body's fluid-management system. Knowing why horses stock up will help you spot leg swellings that do demand concern. (EQUUS 308)

LAMINITIS

• Assess Your Horse's Laminitis Risk: How likely is your horse to develop this devastating hoof condition? Take our eight-question survey to find out. (EQUUS 379)

• Undercover Laminitis: Learn to recognize the slow-onset form of laminitis so you can spot trouble early and summon your veterinarian before major damage is done. (EQUUS 355)

• Let's Prevent Laminitis: The new grass and changing schedules that come with spring increase the risk of this potentially fatal hoof condition. Here's what you need to know to protect your horse. (EQUUS 330)

• Danger in the Grass: If your horse is at high risk for laminitis, you'll want to learn more about an increasingly prevalent plant sugar called fructan. (EQUUS 318)

FRACTURED LIMB

• How Bones Heal: In the days when broken legs meant sure death for horses, dire outcomes had nothing to do with the tissue's ability to repair itself. In fact, equine bone mends like gangbusters, and fortunately modern medicine now can put it in position to do just that. (EQUUS 247)

Glossary

bronchitis—inflammation of the bronchi (bronchial tubes).

bronchodilator—agent that causes the air passages of the lungs to widen.

capillaries—smallest of the blood vessels; connect arteries to veins.

endotoxemia—presence of specific bacterial poisons (endotoxins) in the blood; usually caused by severe colic and resulting in shock and/or laminitis.

enterolith (intestinal stone)—abnormal concretion that forms in the intestine; usually comprised of mineral salts, enteroliths resemble rounded stones.

equine herpesvirus (EHV)—a family of viruses that primarily cause chronic respiratory infections in horses (EHV-1, EHV-4). EHV-1 can also cause abortions in mares and, in rare cases, both EHV-1 and -4 can cause neurological signs, including progressive weakness and incoordination. EHV-3 causes a venereal disease called equine coital exanthema.

guttural pouches—two sacs connected to the eustachian tube between the horse's ear and throat, opening into the throat; assist in cooling the brain during strenuous exercise.

lymph nodes—cellular filters along the lymph vessels that collect fluids from between the cells and return them to circulation.

lymphangitis (milk leg, Monday morning leg)—inflammation of lymph vessels and nodes, characterized by hot, painful swellings in and beneath the skin, usually on the legs.

pituitary pars intermedia dysfunction (Cushing's disease)—disease caused when the cortex of the adrenal gland produces excessive amounts of hormones, including cortisol; signs include long hair, thin skin, fragile bones, stupor, weakness and sweating.

Potomac horse fever (monocytic ehrlichiosis)—disease caused by a rickettsial organism, *Neorickettsia risticii.* Named after the Potomac River Valley where it was first recognized in 1979, the disease is characterized by fever, diarrhea and laminitis.

rhinopneumonitis—highly contagious disease caused by herpesviruses (EHV-1, EHV-4); characterized by fever, mild respiratory infection and, in mares, abortion. In rare cases, some strains of these herpesviruses also cause potentially fatal neurological complications.

steroid—artificially produced drug similar to the natural hormone that controls inflammation and regulates water balance.

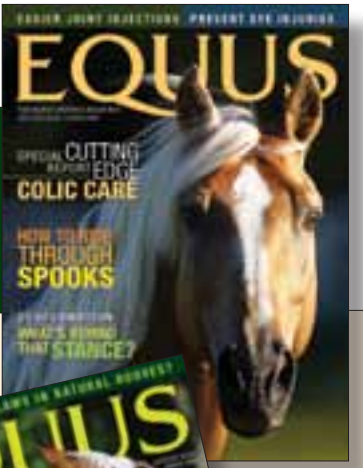
stocking up (stagnation edema)—thickening of the lower leg due to collection of fluid in and under the skin.

strangles (distemper)—highly contagious infection of the lymph nodes, usually of the head, caused by *Streptococcus equi* bacteria. The abscesses may become so large as to obstruct the airway (hence the term "strangles") and may break internally, draining a thick, yellow pus through the nose, or externally, draining through a spontaneous or surgical opening in the skin.

EQUUS

THE HORSE OWNERS RESOURCE

EQUUS is the magazine every horse owner needs. Each issue is packed with articles on the latest veterinary advances, physiology, behavior and other vital topics. In addition, EQUUS provides hands-on instruction and helpful advice from the world's foremost authorities on horse care. Since 1977, EQUUS has led the way in offering the accurate up-to-date information you need to take the best care possible of your horse.



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