

Too Hot to Trot?

Avoid potential heat traps for your horse.

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Summer is the time to get your horse in peak condition; take some extra long rides and enjoy the rays. But as temperatures rise, so do the risks of your horse experiencing heat stroke, dehydration and other health problems associated with heat. If not recognized and treated properly, these health issues can be debilitating and even life threatening. Managing your horse's summer training program and adjusting it to fit the weather is imperative.

Temperature Control

Horses and humans have something in common—both rely on sweating as the primary means of internal temperature control, or thermoregulation. In fact, it can be said that the horse's physiology in some ways resembles a radiator, designed to circulate fluids and dissipate heat. Tiny glands beneath the skin produce beads of sweat, which evaporate soon after they come into contact with the air, cooling the surface of the skin. Those bulging veins and delicate capillaries on the neck and shoulders of a hard-working horse are taking advantage of the evaporative process to cool the blood by routing it near the surface of the skin. As the blood is cooled and recirculated, it helps regulate core body temperatures. The dilated nostrils that bring in huge volumes of oxygen to the lungs also exhale body heat with every breath. Under normal circumstances, these natural adaptations are sufficient to keep a horse's body temperature within safe parameters. But when horses are asked to exert themselves in conditions of high heat and humidity, the potential for heat-induced illness is very real.

Hot Stuff

What would be considered moderate exercise under temperate weather conditions can have the same effect as intense activity when the heat and humidity rise. When is it too hot to trot? A good rule of thumb when assessing how the heat will affect your workout is to measure the Heat Stress Index (HSI). If the sum of the temperature in degrees Fahrenheit plus the percent of humidity totals less than 120, all systems are "go." If the sum is greater than 150, particularly if humidity contributes to more than half of this number, your horse's natural cooling mechanisms will be compromised. You should consider lowering the intensity of your workout, shortening the length of time, or riding later in the day. If the HSI is greater than 180, a horse cannot regulate his core body temperature naturally, so he should not be forced to work. For instance, if it is 100 degrees with 80 percent humidity, leave your horse in a shaded paddock with plenty of cool, clean drinking water and go have a cold drink yourself.

But sometimes you have little or no choice about whether to ride. Competitions are rarely cancelled due to heat. Sometimes the thermometer just sneaks up on you, and you are out on the trail or deep into a training session before you realize the temperature has climbed beyond the comfort zone. Or maybe you are intentionally conditioning for heat tolerance because you know that an upcoming event will take place in hot, humid conditions. Either way, you need to know the signs of heat stress and how to avoid or treat them.

Dehydration

Dehydration literally means "to remove water." But horses don't just lose water when they sweat. They also lose essential minerals and salts, called electrolytes (potassium, sodium, chloride, calcium, magnesium and other ions), which are essential to all of the body's metabolic processes and nerve functions. Slight dehydration causes little, if any, change in behavior and can be easily remedied by drinking fresh water. Moderate dehydration can cause lethargy, and you should administer electrolytes and provide access to water. Severe dehydration is a serious condition requiring IV fluids. If not attended to properly, severe dehydration can cause colic, collapse and even death.

A racehorse running at a full gallop can lose as much as two-and-a-half gallons of sweat in less than two minutes. It may take an average horse an hour to lose the same amount through prolonged work, but in either case, if not allowed to replenish the fluids lost through sweating, he will steadily dehydrate.

The Signs

The first sign of dehydration can be observed by testing the elasticity of the skin. Pinch an inch or two of skin on your horse's neck forward of the shoulder, and pull it toward you. What happens when you let go? The skin on a fully hydrated horse will snap back immediately—if your horse's skin "tents" (doesn't instantly snap back) when pinched, he's dehydrated.

Testing a horse's capillary refill time (CRT) is another vital sign to monitor when checking for dehydration. Apply pressure to your horse's gumline (using your thumb) for a couple of seconds. When you release your thumb, the normal pink color should return to the pressure point within two seconds. If not, your horse needs hydrating.

Bowel movements become dry and hard as dehydration advances, urine will appear dark yellow and opaque, even tinged with brown, and the horse's performance will start to deteriorate. Finally, in the dangerous advanced stages of dehydration, a horse that normally sweats under working conditions may stop sweating completely to conserve precious body fluids.

It goes without saying that horses at rest should enjoy unlimited access to fresh water. But horses in transit or in work should be able to take a drink too, especially when temperatures and humidity soar. When hauling during a heat wave, try to travel at night or in the early morning hours. If that is not possible, pull over at least every two hours and offer your equine passenger a bucket of water.

The Cool Equestrian

Your horse isn't the only one at risk of heat stroke or dehydration. Riders must take precautions to prevent overheating in summer months. Dehydration can cause dizziness, headaches and muscle cramps, all of which could create a dangerous situation while riding. Follow these simple steps to avoid a heat-induced disaster.

Try to schedule your riding times in the morning or evening hours, when the temperatures are less punishing.

Drink plenty of fluids. This isn't difficult to do around the barn. But if you go for long trail rides, consider a water bottle holder for your saddle. These can be attached to the pommel of either English or western saddles, and they hold a 12-ounce bottle firmly in place while riding. For extremely long outings, wear a 1-gallon water bladder backpack with a long flexi-straw for continuous sipping, such as the CamelBak.

Soak a bandana in water and tie it around your neck. The evaporation will cool your carotid artery, keeping your core body temperature down. Neck coolers and vests that stay cold for an extended period of time after being soaked in water are also handy.

Wear a hat to keep the sun off your head, and shade your face and neck. Make sure your riding helmet has plenty of ventilation. There are cold packs that fit right in your helmet to keep a cool head. You can also purchase extended helmet visors for sun protection.

If you are out on the trail and the heat is getting the best of you, dunk your shirt into a stream or water trough and wear it wet. You won't make a fashion statement, but it will bring your body temperature down immediately and limit the amount of fluids lost to sweating.

During steady exercise in cool conditions, fluid losses can be as high as six to seven liters per hour—when the weather heats up, losses can double. Since electrolytes are also lost, the best time to have them is before depletion begins. Horses that don't like the taste of strange water and refuse to drink pose a challenge. If possible, take some water with you from home. Failing that, take him to the trough with other horses you know will drink willingly. The sight and sound of others slurping on a hot day has inspired many a finicky drinker.

Endurance horses are encouraged to tank up at every opportunity along the trail, and many endurance riders administer oral electrolytes during competition and heavy workouts to maintain healthy metabolic function. When it comes to administering electrolytes, speak to your veterinarian regarding a program that will keep your horse going strong. Prevention is the best protection against dehydration. Many vets recommend feeding a scoop of electrolytes daily, year-round and providing access to a mineral block. In addition, making sure water is available during and after exercise can help prevent a dehydration crisis.

Thumps

"Thumps" is the term used to describe a condition known as synchronous diaphragmatic flutter (SDF). This condition is a sign that a horse is in severe metabolic distress from dehydration. A horse with thumps will display rhythmic twitching or "thumping" in the flank area, in time with the beating of the heart. Sometimes it is so subtle that you can only feel it under your hand. In severe cases, it is observable from several feet away.

Thumps can occur when excessive sweating causes dehydration and massive electrolyte loss. As the bloodstream is depleted of salt ions, the function of the nervous system is compromised. The phrenic nerve that runs across the heart to

the diaphragm muscle begins to fire in time with the heart beat, stimulating the diaphragm muscles to contract and causing the distinctive, thumping flutter.

Thumps should be regarded as a warning sign that the horse is suffering from acute dehydration and electrolyte imbalance. Immediately stop, administer water and electrolytes, and call your veterinarian for treatment instructions. If ignored, the consequences include founder, colic, heat exhaustion or collapse. Recognizing this sign of impending metabolic failure can help to avoid more problematic consequences.

Cooling Off

To help a heat-stressed horse's core body temperature cool down, you can speed the evaporative process by moving him to a shaded area and hosing his entire body with cold water, according to veterinary studies conducted prior to the 1996 Atlanta Olympics that focused on the management of horses in heat and humidity. The cold water will not harm the horse. Jonathan Foreman, DVM, University of Illinois, states that "if you put nearly freezing water in large volumes all over the exercising muscles of the horse, you can draw a lot of heat out of the muscles and horse will not tie up afterward."

To assess whether your horse is recovering well after exercise, take his pulse with a stethoscope or by feeling for the pulse with your fingertips behind his jaw. After 30 minutes, if the heart rate remains above 64 beats per minute, the condition is serious—call the veterinarian.

Managing Heat Through Condition

Preventing heat stress should start long before summer. As a horse works, his body is essentially burning calories, or metabolizing energy. The harder the body works, the more energy it burns. One of the waste products of this process is heat. How efficiently the body rids itself of this heat is determined not just by ambient temperature and humidity but also by the physical and metabolic condition of the body itself. Heavily muscled horses such as American Quarter Horses and warmbloods have a greater challenge dissipating internal body heat than lighter breeds, such as the Arabian and the Thoroughbred. Obese horses are hampered by a thick fat layer that traps heat inside. Fat horses sweat a foamy lather that contains high concentrations of vital electrolytes and does not evaporate easily.

But as a horse becomes more fit, he also becomes more efficient at dissipating heat. Less demand is placed on working muscle groups. Less exertion means less heat generated by the muscles, less heat means less sweat, less sweat means less fluid and electrolyte loss. Capillaries just under the skin serve as tiny heat exchangers as blood is pumped to the surface. As the body becomes better at conserving and utilizing electrolytes and minerals, less vital body salts are lost through sweating. This actually alters the consistency of the sweat itself, making it thinner and more easily evaporated, thus more effectively cooling the skin. Keeping your horse in shape through the winter and spring will help him adjust more easily to summer temperature spikes.

A key part of building condition involves nutrition, and diet can and should be managed for heat stress reduction. You already know overweight horses are more prone to heat exhaustion, but this is particularly true if they are fed a diet high in protein and calcium. Rich alfalfa hay and oats can predispose some horses to heat-induced health disorders. Alfalfa's high protein level and the high fiber content of oats cause internal heat buildup and excessive sweating, which can lead to dehydration and electrolyte imbalance. Feeding grass hay, natural pasture or dryland hay, in combination with a highly digestible grain mixture, will partially minimize the risk.

Common sense, proper nutrition, a sensible conditioning schedule and the ability to recognize the warning signs of heat stress will allow you and your horse to weather the warm summer months safely. Just remember, if you are hot on top of the saddle, your horse is even hotter under it. When in doubt, chill out.

The author lives in hot and sunny California.