

by M. Nanette Chastine, DVM • courtesy of AAEP

Most people involved with horses have heard the phrase, “You can lead a horse to water but you can’t make him drink.” Unfortunately, while it may seem like a simple subject, getting a horse to consume the appropriate amount of water can be difficult. Age, body condition, fitness level and workload, reproductive status, environmental conditions, diet, and possible disease processes can all influence how much water a horse needs to maintain its correct hydration status. Add to that the temperature, freshness, purity, and palatability of the available water sources and it becomes obvious that there are many factors that need to be considered when providing water for our horses, especially if we want them to actually drink it.

The actual daily amount of water that most horses need to consume (at a minimum) to maintain body functions and remain properly hydrated is from a half gallon to a gallon per hundred pounds of body weight. This works out to be a minimum of five to ten gallons for a 1,000-pound horse that is not presently doing any work and is living in a temperate climate. If you increase the horse’s workload or the environmental temperatures are elevated, then this will increase the demand for water. Lactating mares, horses with diarrhea, and horses with certain medical conditions will also require more water each day.

The horse’s water consumption from the available water source may decrease if the horse is on a lush, green pasture, as those grasses typically contain 60-80% moisture. Likewise, if the horse is maintained in a dry lot and fed a dry matter forage such as hay, which typically has a 12-15% moisture level, the horse’s time spent at the water trough will increase. The type of forage fed will also affect the horse’s water consumption based upon the feed’s protein content. Protein requires water during the digestive process, and as a result, feeds that are higher in protein will require the horse to consume more water. For example, a horse in a dry lot fed alfalfa hay (typically around 21% crude protein) will require more water in its daily diet than the same horse in a dry lot fed grass hay (typically around 9% crude protein).



Studies have also found that a horse’s consumption of water will be greatly affected by the temperature of the water. The consumption of water appears to be best in water with a

May 2021 - You Can Lead a Horse to Water...

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Friday, 30 April 2021 05:19

temperature range from 45° to 65° F, with more consumption occurring at the warmer temperatures. This can be difficult to manage, especially in natural water sources such as creeks or ponds, when the weather drops below freezing. In fact, when the weather changes suddenly and temperatures drop precipitously, then even with fresh, palatable water available, many horses will reduce their water consumption drastically which can lead to problems such as impaction colic as the ingesta within the intestines loses its ability to progress normally without enough water. One way to combat this is to provide an ounce or two of a loose salt mix on the horse's daily ration when weather changes are imminent (in addition to an available salt block) to ensure that the horse continues to consume water when the temperature does drop. Overfeeding of salt is not a problem if there is plenty of fresh water available.

A decrease in daily water consumption can also occur when the water source becomes frozen. This is why it is so important that water sources be checked at least once daily, if not more, to ensure that horses will have unfrozen water available to drink. For man-made water sources such as buckets, troughs, or automatic waterers, there are electric water heaters that are available for keeping the water from freezing solid. Most of these water heaters are efficient down to 0° F, with some capable of preventing water from freezing at temperatures down to -20° F, but below that there are not many commercially available options. The problem with some of the less expensive options or with improper barn wiring is stray electricity, or shorts in the wiring that result in electrifying the water source. It does not help the horse's water consumption if the water is not frozen but the horse receives an electrical shock each time it attempts to drink. So checking the water heater and the water source on a daily basis is crucial to make sure the horse is capable of drinking the water and is actually doing so.

In natural water sources such as creeks or ponds, moving water has a better chance of not freezing than stagnant water, but in really cold climates, even moving water can freeze if the flow is slow and the depth is shallow, so alternate water sources may need to be provided. Many believe that snow provides an alternative to fresh, unfrozen water; however, most snow is very low in actual moisture content and the horse would have to eat many pounds of it each day to meet its minimum daily water intake requirements. Also, the horse would burn increased amounts of energy to warm the consumed snow and convert it to a usable form, which would thereby increase its caloric and water requirements, so snow is not a practical alternative to fresh, unfrozen water.

That being said, horses in Alaska have been studied during harsh weather when no water sources were available and hay was the only available feed source. Initially, the horses did exhibit signs of dehydration, but over several days they did transition to utilizing solid sources of water for their daily requirements by eating snow and licking the ice. However, if we can offer an alternative water source, we can eliminate that transitional dehydration period from occurring.

The palatability and cleanliness of the water will also influence how much of it a horse will consume. For example, if the water from a natural source is fresh and not stagnant, is low in soluble contaminants (such as fertilizers or herbicides) from the surrounding land, and of an acceptable salt concentration (salinity), then most horses will readily consume it. However, horses are very sensitive to changes in the taste and smell of their water, which can make it difficult, especially when transporting horses where the available water will come from different

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sources. Some horses will not initially drink water that has been chlorinated, such as from a municipal water source, or if it contains higher concentrations of certain minerals such as from a natural water source, until they have been conditioned to drink it. Many horsemen will help their horses through this transition or conditioning period by adding a masking flavor such as Gatorade®, Kool-Aid®, or even Coca-Cola® to the horse's initial water source for several days before transport in gradually increasing amounts. They will then continue to add the masking flavor to the new water source for several days in gradually decreasing amounts to ensure the horse will consume the water from the new source.

Another difficulty arises in horses that have always had easy access to water from man-made sources such as buckets, troughs, or automatic waterers. Those horses may never have been exposed to water from natural sources and it may take them several days of watching more experienced horses to trust their instincts and "take the plunge." During those initial days on the new water source, it is critical that the horse is observed for water consumption and for possible signs of dehydration. At times, some of those horses will need to be offered alternative water sources if they are not drinking from the natural water source. Most horses transitioning from natural water sources to man-made water sources have little difficulty as long as there is easy access and the water is fresh, clean, and palatable. If there are problems, it usually arises with chlorinated water from a municipal water source, which a horse has not been exposed to before. Masking the flavor sometimes helps in those situations.

When the horse is not consuming enough water on a daily basis to maintain the appropriate hydration status, then the horse can become dehydrated. When the horse becomes dehydrated from lack of water consumption, excessive sweating, lactation, a disease process or a combination thereof, then the horse's bodily functions will become affected. As a result, the horse's blood volume will decrease and this will result in an increase in heart rate and blood pressure as the body attempts to compensate for the reduced fluid volume. If the fluid deficit continues, then the body will begin to pull the fluids from surrounding tissues to help support the blood volume, and to help conserve fluids even further, urination will decrease.

As a result of these changes, horse owners can evaluate a horse's hydration status by monitoring for an elevated heart or pulse rate (28-40 beats per minute is normal for an adult horse), changes in the color of the horse's gums (bubblegum pink is normal) and feel (moist is normal), and in skin elasticity (skin pinch test in which the skin along the neck in front of the shoulder retracts back to normal in less than two seconds when pinched and released). Changes to those vital signs will occur when the horse is 4-6% dehydrated. Visual signs such as a sunken eyes and a tucked up appearance to the abdomen are also indicators, but they are typically seen with increased levels of dehydration approaching 8-10% dehydrated. Unfortunately, the horse's performance (work, competition, or reproduction) will become adversely affected when the horse becomes 2% dehydrated, before visual signs become evident.

Luckily, dehydration in its mild forms can usually be corrected by offering fresh, palatable water to the horse (unless it is a disease process that is causing the dehydration), but when the dehydration starts approaching the level of 8-10%, a veterinarian needs to be contacted for appropriate diagnosis and fluid and electrolyte therapy, as well as any other treatments that may

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be required. This makes it important for the horse owner or horse care provider to be able to recognize signs of dehydration before the lack of water intake becomes a serious problem. This also emphasizes the need to make sure that the horse is being offered fresh, clean, palatable water of the appropriate temperature, especially if the horse is expected to perform successfully as an athlete or as a broodmare.

While it may seem as simple as putting water out and leading the horse to it, there are many factors that are involved in actually getting that horse to drink. Water is the most important nutrient that horses need to consume daily and it is up to us as horse care providers to ensure that horses receive the freshest, cleanest, most palatable water that we can provide.