



Heat Stress in the Horse

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School's out! And there is more time to enjoy our horses. Hurricane season officially started on June 1st, which is a reminder to be prepared for heavy storms and possible evacuation. We pay closer attention to the weather forecast for storm fronts, but we often neglect to pay attention to the weather for temperature and humidity patterns. Fun in the sun can soon become tragic if we do not pay heed.

Heat stress in human athletes has been well researched, potentially causing death. However we don't consider the fact that our horses can also become overheated during exercise, prolonged exposure to the heat and humidity when on pasture, and when standing in a horse trailer for extended periods of time. (Like leaving your pet or child in the car).

The Heat Stress Index (HSI) is an easy way to determine what could happen to your horse, and whether you should even consider doing any form of strenuous exercise. This is a number that is derived from the sum of the ambient temperature in degrees Fahrenheit, and the percent humidity. Ideally the number should be below 120, if it is greater than 150, and especially if the humidity contributes to 50% of that number, the horse (and you) will have difficulty cooling. The intensity of the horse's work should then be decreased. If the HSI is 180 or more, the horse will be unable to regulate its core body temperature naturally and should not be forced to work at all.

Examples:

Ambient temperature = 84 F, Humidity = 40%; HSI = 124

Ambient temperature = 93 F, Humidity = 90%; HSI = 183

There are four main cooling mechanisms: Evaporation (sweating); Convection (heat exchange when breezes moving over the horse pick up heat and moisture); Conduction (heat transfer to another source through direct contact such as an ice pack/water), and Radiation (when heat is carried away via infrared rays). Sweating (evaporation) is most important because the fluid produced changes to a gas, evaporates to the environment, and reduces body temperature. Because horses produce much more sweat per body area than humans, there is a distinct risk of dehydration if we do not pay attention.

Signs of heat stress: Depression, anorexia, dehydration, fever, increased heart and respiratory rates, and unwillingness to continue with the exercise. As this progresses, electrolyte derangements and dehydration can lead to more severe signs including myopathy ("Tying-up"), cardiac abnormalities including synchronous diaphragmatic flutter (Thumps") and atrial fibrillation. Diarrhea, colic, shock and laminitis can ensue. If not treated aggressively heat stress can lead to organ system failure and death.

Use common sense before this happens. Do not be afraid to allow your horse to drink. There is a myth that this may cause colic or tying up, which is wrong. False too is that bathing the horse in cold/ice water might cause it to "tie-up". This was proven scientifically to be false in studies conducted prior to the Olympics in Athens Ga., which found that if ice water is used, the efficiency with which the horse cools down is increased by over 300%. Placing wet towels on the horse actually 'insulates' the horse as heat becomes trapped. When the horse has become heat stressed, it is important to treat quickly and aggressively, including giving high volumes of intravenous fluids to correct fluid and electrolyte losses.

Conditioning is key in helping prevent heat stress. A certain level of fitness and a good nutritional plane will help your horse cope. Take water along if you go on a long trail ride, or know where there are water stops along the way. Stay out of the sun for extended periods of time, and do not leave the horse on the trailer without adequate shade and water. Electrolytes are important, however water must be available as salt toxicity can develop if the horse does not drink adequately. Be aware of the environmental temperatures, and taking the time to calculate the potential HSI will help you and your horse enjoy the summer months without problems.

Contact Brandon Equine Medical Center at 813-643-7177 or email info@brandonequine.com with any questions regarding this topic.

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