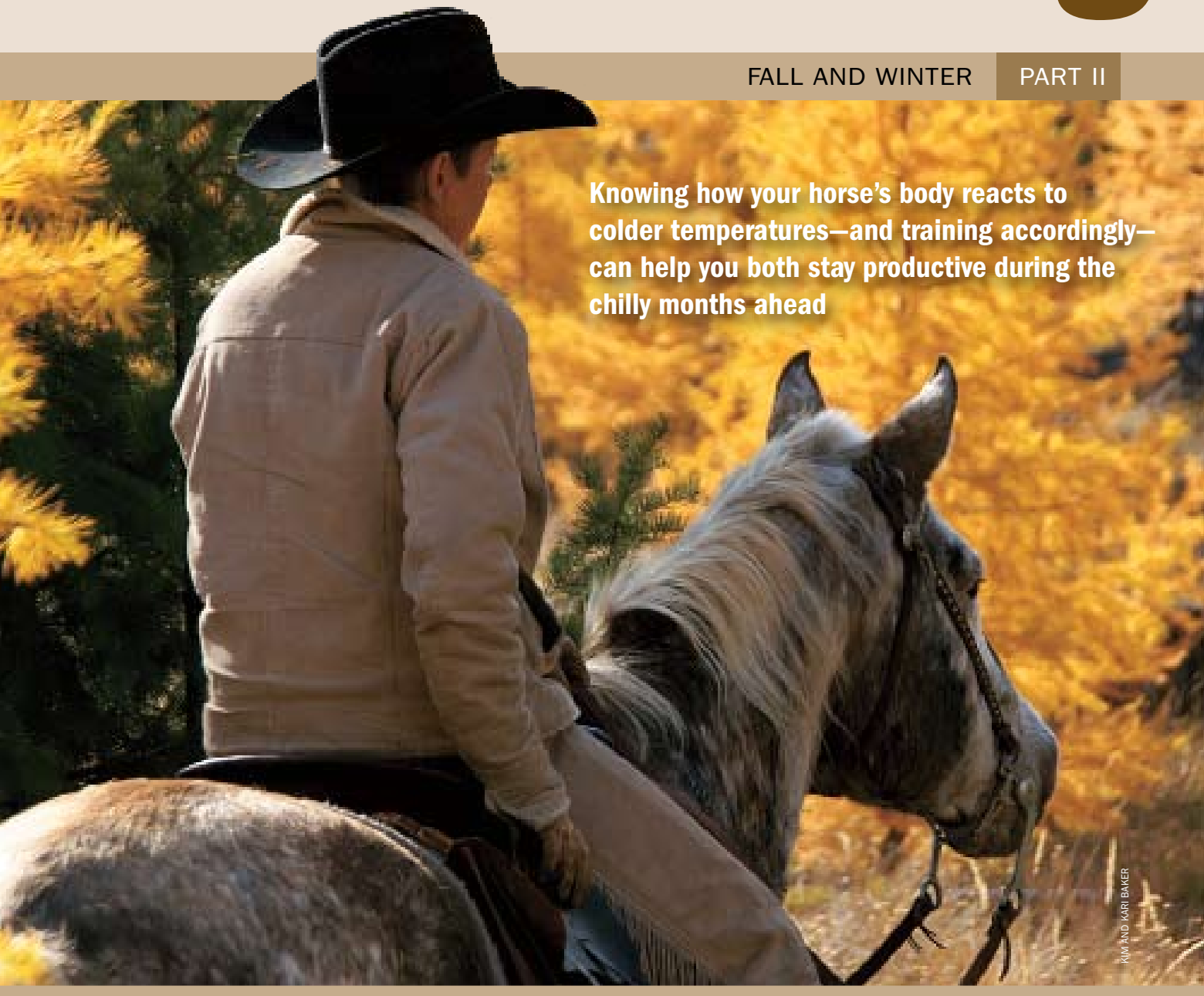
Conditioning

FALL AND WINTER PART II



Knowing how your horse's body reacts to colder temperatures—and training accordingly—can help you both stay productive during the chilly months ahead

KIM AND KARI BAKER

SAMANTHA STEELMAN, PHD

Fall can bring a welcome relief from blistering heat, but as winter approaches, with freezing temperatures and shortened daylight hours, riding can become a challenge. In many parts of the country, bitter cold and drifting snow can ruin even the most determined rider's plan. While you can't control the weather, with a little knowledge and planning, the colder months can be a safe and productive time for you and your horse.

Through the Seasons

The challenges of fall and winter will, of course, vary greatly depending on where you live. In parts of Texas, for instance, winter consists of a few weeks of rain and 50°F temperatures. Similarly, riders in many Southern states might look forward to winter as the "good" time of year to ride, when the likelihood of heat stroke and sunburn wanes. Riders in other parts of the country, however, face a variety of adverse conditions in the form of subfreezing temperatures, gusting winds, extreme dryness or humidity, freezing rain, and snow. Much of the challenge for riders during these months is simply to stay warm and prevent frostbite.

Horses, on the other hand, are fairly well-equipped to handle the cold. Problems can arise, though, when we ask our horses to perform strenuous activities under these circumstances. In the following sections we'll discuss how cold weather riding conditions affect your horse's body and what you can do to keep him healthy and performing at his best all season long.

How Your Horse Handles Cold

As with any other management or training change, your horse's body needs time to adjust to cold weather. While these physiologic adaptations aren't as extensive as those seen with warm weather riding, it's still important to give him about two weeks to get used to his new working environment (i.e., if the temperatures have dropped abruptly or you've relocated to a colder climate). Just as importantly, there are limits to the ways in which your horse can compensate for the cold; this means that you'll have to adjust your workouts to accommodate his needs.

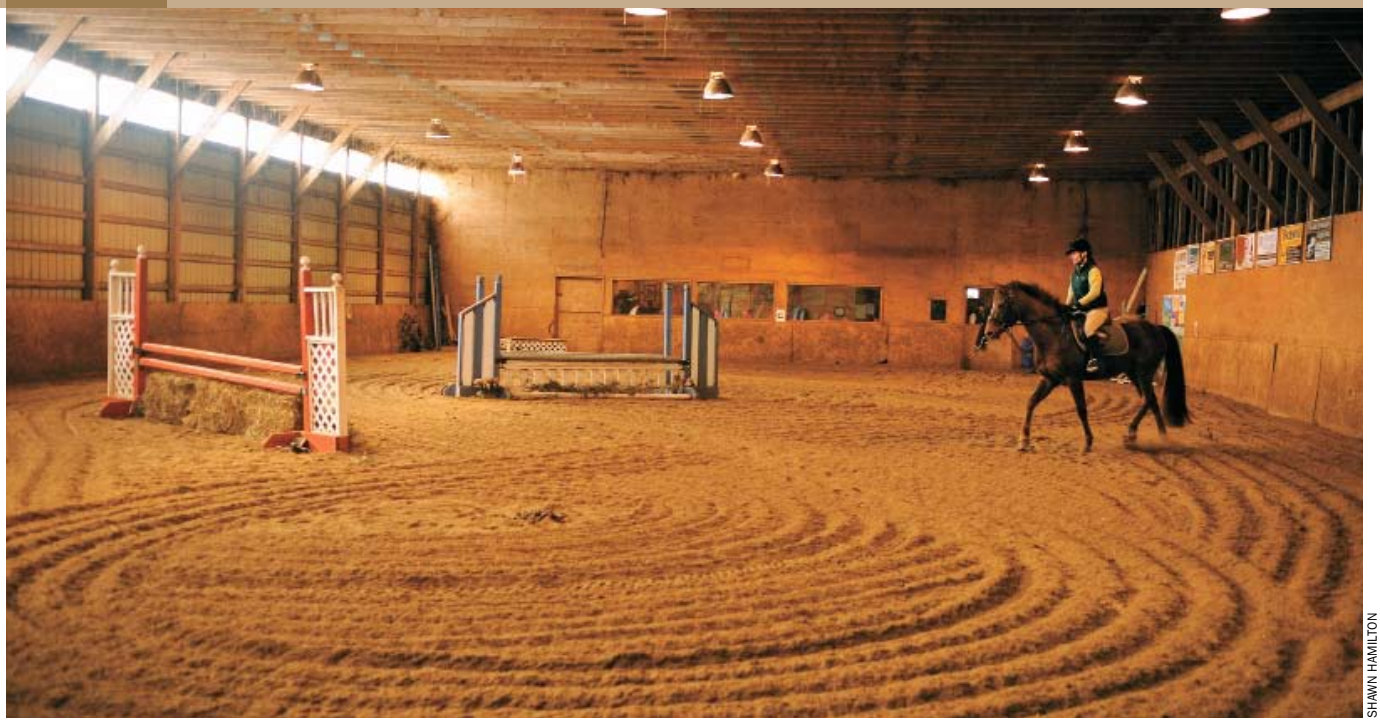
Muscles Cold weather, especially when it's extreme, can decrease not only skin temperature but also muscle temperature. Numerous studies involving human athletes have revealed that this decrease in muscle temperature can have a detrimental effect on performance for a number of reasons. For example, the contractile structures within the muscle fibers (which are responsible for muscle movement) don't cycle as quickly when it's cold. Nerves supplying the muscle also don't fire as rapidly, and blood flow to resting muscle decreases to minimize heat loss (blood flow is concentrated in the body's core to keep the vital organs warm). In addition, cold muscles are stiffer biomechanically than warm muscles. All these factors combined result in reduced human athletic performance. Results from one study in humans conducted in the cold estimated that muscle performance is altered 2–5% for each degree Celsius change in muscle temperature. In fact, the people in this study had to walk briskly for 20 minutes before their muscles even warmed up enough to let them perform at a normal level. Although similar studies have yet to be conducted in horses, it's reasonable to expect that cold temperatures might cause similar reductions in equine performance.

Another important effect of cold is it changes the way groups of muscles work together. Every time a muscle contracts, there is also a small contraction of an antagonist muscle to oppose it; this allows a very fine level of control and lets us make precise movements that are appropriate in speed and strength to the task at hand. When muscles are cold, antagonist muscles might be activated more, and this decreases the net amount of movement and changes the way an exercising horse moves.

As an example, in one study applying cold water up to the knees of human athletes prior to each performing a jump changed the kinematics (or the way that the body moves as a whole) of their jumps. This resulted in decreased shock

FROM THE TOP: ELLEN PONS; ANNE M. EBERHARDT; IMAGEQUINE.COM

Horses' bodies are uniquely designed to compensate for the cold, but you still must adjust your workouts to accomodate their muscles, joints, and respiratory and cardiovascular systems' specialized needs.



SHAWN HAMILTON

While indoor arenas are warmer to ride in during winter months than outdoor arenas, they might have poor air quality due to dust and humidity.

Cold temperatures increase viscosity (thickness) of synovial fluid, making joints feel stiff to the horse; thus, joints need to "warm up" before a workout.

absorption upon landing. Although these are the results of only one human study, they are important because they suggest that cold muscles might change the kinematics of jumping horses, too. This could be one more reason why horses (especially jumpers) that are not properly warmed up are more prone to injury.

Bones and Joints How chilly weather affects your horse's movement depends partially on changes in muscle contraction and partially on these temperatures' direct impact on the joints. Cold temperatures increase viscosity (thickness) of synovial fluid, making joints feel stiff to the horse. Synovial fluid is thixotropic, meaning that it becomes less viscous when agitated. Thus, joints need to "warm up" before a workout just like muscles do, particularly when it's cold outside.

Cardiovascular System When exercising in the heat, one of the primary challenges is to maintain enough blood flow to exercising muscles and the skin so they can help dissipate heat. Training in the cold, on the other hand, causes vasoconstriction in the skin that diverts more blood flow to working muscle. For this reason, horses can often exercise at lower heart rates in cooler temperatures than they can in the heat; in such instances the cold weather actually works in your favor. Just be aware that this decreased blood flow to the skin increases the risk of frostbite, especially if you're riding with a significant wind chill. Fortunately, healthy adult horses are fairly resistant to frostbite, although riders should be sure to protect their own skin in cold weather. In humans, frostbite of the fingers and toes is prevented by a temporary increase in blood flow every few minutes, which warms the tissue back up. This is improved by exercise training and suggests that the more fit you are, the less likely you might be to get frostbite while riding.

Respiratory System In both humans and horses, cold weather workouts might lead to exercise-induced bronchospasm (EIB). In humans this is also called "ski asthma," and it can cause shortness of breath, coughing, and decreased athletic performance. In certain exercising horses researchers believe the upper airways can't warm and humidify inhaled air quickly enough to prevent exposing the sensitive lower airways to cold, dry air, which causes tissue damage. Just one bout of exercise while breathing cold air can cause lung inflammation and an increased airway resistance to air flow in healthy horses with no history of breathing problems, according to a series of studies published by Michael S. Davis, DVM, PhD, Dipl. ACVIM, professor and director of the Comparative Exercise Physiology Laboratory at Oklahoma State University's College of Veterinary Medicine, in 2006 and 2007. Surprisingly, these effects can last up to 48 hours after exercise, which could lead to chronic low-grade inflammation in horses that are exercised regularly in the cold. No conclusive evidence exists, however, demonstrating EIB occurs in horses. But as a preventive measure, try to ride in a well-ventilated indoor arena when possible.

Keys to Cold Weather Riding

Warm and Dry As your mother always said, dressing in layers is the key to staying warm and dry in the winter. Believe it or not, the same is true for your horse. All clipping and blanketing strategies have one goal in common: to keep your horse

warm while still allowing his coat to dry quickly after a workout. One strategy is to use a half-sheet or exercise sheet during warm-up and cool-down. This warms the large hip and thigh muscles and aids in the warming process (see the prior section regarding muscles and tendons). Other than the possible addition of an exercise sheet, a winter warm-up shouldn't differ much from a summer warm-up. A standard recommendation is five minutes each of walking, trotting/jogging, and cantering/loping before really putting your horse to work. After your ride is over, a wool cooler will help keep your horse warm while wicking moisture from his coat. No matter what, your horse should be cool and dry before he is stalled or turned out again.

Clear the Air If you have a choice of whether to ride indoors or outdoors, consider not only your comfort but also your horse's comfort. Results from a study done at Pennsylvania State University showed that during the winter there are significant differences in air quality between indoor and outdoor riding arenas. The researchers determined that indoor arenas were slightly warmer than outdoor arenas but were also more humid, likely due to the water applied to arena surfaces to reduce dust. Warm and humid air could help alleviate some respiratory problems, but it also promotes the growth of mold and fungus, which can irritate the lungs. Alternatively, dust can be a major problem, particularly in poorly ventilated arenas.

To improve your indoor arena's air quality, Jenifer Nadeau, MS, PhD, an equine extension specialist at the University of Connecticut, recommends making sure it is well-ventilated rather than closed up tight.

In addition, if you add water to your arena to keep the dust down, water heavily but seldom. A good rule of thumb is to apply water until the footing has been saturated to a depth of two inches. "You can also consider using products such as salts of calcium chloride or magnesium chloride (for dust control), although both can dry out horse's hooves," Nadeau adds.

Good ventilation in the stable area is important as well, since many horses spend more time stabled during colder months. Nadeau suggests turning horses out while their stalls are being cleaned to avoid exposing them to airborne dust and dirt. Also consider ammonia. A quick way to judge air quality in your horse's living space is to "go into the stall and put your head down to about horse's nose level," says Nadeau. "If you smell ammonia, the stall does not have good air quality."

A "stuffy" feeling might also indicate that the stall needs more ventilation. These problems can often be fixed by opening doors or windows on opposite sides of the barn that allow efficient cross ventilation. "If condensation occurs on surfaces inside the barn, the stable is not being properly ventilated," Nadeau says.

While it might not seem like it, these small changes can have a large impact on your horse's comfort, health, and performance.

Safety First Although frigid temperatures are the more obvious limitation during this time of year, late fall and the winter present additional potential problems for horses and riders. Shorter days mean fewer daylight hours for riding, which can mean increased danger for equestrians who must ride on public roads to access their favorite trail, arena, or cross-country course. Nadeau suggests wearing a reflective safety vest, carrying a light, and riding at a slow pace if you find yourself on the road after dark. "You can even get a safety vest for the neck (and chest) of your horse to make him visible to traffic," she says.

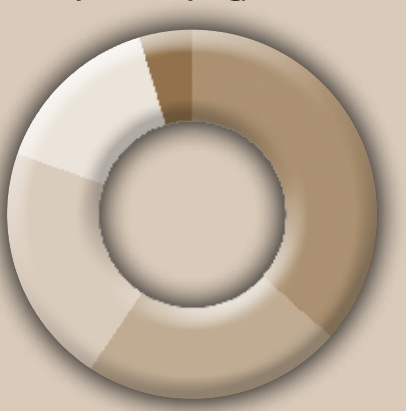
Another major concern while riding outdoors during the colder months is the footing. Deep snow, hidden ice, and even frozen mud can cause injuries. "A little slip could mean a long layup, so proper shoeing for winter trail rides and removal of ice balls through the use of 'snowball pads' or borium (to prevent slipping) is the best way to prevent injuries," Nadeau advises. Although it can be frustrating to have to skip a ride, "If it seems dangerous to ride outside, then don't."

Take-Home Message

Cold weather presents unique challenges, but with a little knowledge and planning, this time of year can be safe, comfortable, and productive for you and your horse. You mount will also be in better physical condition going into the spring riding and showing season. Be sure to give your horse plenty of time to warm up at the start of exercise, make sure he stays warm and dry, and keep his environment well-ventilated. And, as always, use your best judgment when it comes to you and your horse's safety.

POLL
of TheHorse.com readers

How much do you exercise your horse in fall/winter as compared to spring/summer?



37%	Depends on the weather
23%	The same amount
21%	More than spring/summer, the weather is finally decent!
15%	Not as much, the weather here is rotten in fall/winter
5%	Not at all, we take winters off

A good rule of thumb to improve air quality in indoor arenas is to apply water until the footing has been saturated to a depth of two inches.

ABOUT THE AUTHOR

Samantha Steelman, PhD*, is a postdoctoral research assistant in the department of veterinary integrative biosciences at Texas A&M University's College of Veterinary Medicine.*

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