

Blanketing Horses: Do's and Don'ts

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Blanketing can be a hot-button topic among horse owners and caretakers. Some people are adamant about blanketing and some people are the exact opposite: unyielding about not blanketing their horses in the winter.

So the question remains, do horses need to be blanketed when the weather turns cold?

Thermoneutral Zone

The thermoneutral zone (TNZ) describes a range of temperatures in the environment in which a standard healthy adult (in case of humans, naked, standing upright, in still air) can maintain normal body temperature without needing to use energy above normal basal metabolic rate. For humans, the thermoneutral zone is between 77 and 86 degrees Fahrenheit. Because different people have different metabolic rates, the TNZ for some people is lower than for others, and with light clothing, the TNZ decreases, and the comfortable temperature in a building with controlled temperature may be 65 to 72 degrees Fahrenheit. Horses' TNZ is considerably lower than humans' at 41 to 86 degrees Fahrenheit.

Two other important temperature calculations to keep in mind are the lower critical temperature (LCT), and the upper critical temperature (UCT). LCT is defined as the lowest temperature in the TNZ and is the temperature below which the horse must increase metabolic rate to generate heat to maintain normal core temperature (explained below), whereas UCT is defined as the temperature which horses must work to lower their core temperature (by dilating blood vessels in the skin, sweating, and increasing their respiratory rate).

Warm-blooded animals can maintain a body temperature higher than their environment by regulating their metabolic processes. Metabolism, the process that maintains all functions of the body working properly, and includes digestion, respiration, circulation, and all chemical reactions used by cells to break down and utilize nutrients, will generate body heat. For example, muscle contraction is a type of metabolic process that generates heat. This is why humans become hot and sweat when they exercise (and so do horses, whereas other animals, such as cattle, dogs, and birds, will pant instead of sweating)—because

that extra heat generated by the muscle contractions and increased circulation must be dissipated to maintain the internal body temperature in the stable range.

Conversely, when considering cold weather, the body must ensure it can minimize the loss of heat so it can maintain its core temperature. In general, horses have well-developed insulation in order to retain body heat, which includes their coat (fur), sub-cutaneous fat, and relatively large muscles and digestive system. When this insulation is insufficient to maintain body temperature, they may resort to several mechanisms to produce more heat, or decrease heat loss, such as:

Shivering: Rapid muscle contractions that stimulate metabolism to produce more heat. This is a moderate mechanism that can be maintained for extended periods of time.

Digestion: A horse generates body heat through the digestion on ingested foods. As the horse digests its forage, the gut activity will create heat and help warm the body from within. Therefore, it is important to offer good quality and increased quantities of hay to horses during cold weather.

Piloerection (same as goose bumps in humans): Characterized by bristling and raising of body hairs, which will increase the insulating effect of the coat by allowing more air in the space between the hairs. However, horses in rain or wet snow will lose their piloerection ability, allowing the water to reach the skin and cool the body.

Vasoconstriction: Decreasing the diameter of blood vessels of the limbs and other extremities (muzzle, ears) which limit heat loss.

Decreasing of the respiratory rate: By breathing less frequently, the horse will reduce the heat lost in expired breath.

While humans have a higher TNZ and will become cold, and possibly hypothermic when the environment goes below the LCT, and therefore need to add layers of clothing to maintain core temperature, horses are more adapted to tolerate cooler temperatures, and don't need to "hype up" their metabolism to keep warm until environment temperatures have dropped below 41 degrees Fahrenheit.

Figure 1. Blanketing a Horse



1. Have someone hold a measuring tape at the middle of the chest, and then go all the way until the point of the buttocks. That is the measurement of the blanket. Depending on brands, you will not find the exact same size that you measured, so go to the next bigger size. For example, if a horse measures 79", purchase a blanket size 80" or 81".



2. Before blanketing a horse, allow him to sniff and investigate so he is more comfortable when you place the blanket on his back.



3. To place the blanket on the horse, fold the blanket in three parts and gently put it on toward the horse's withers.



4. Unfold the top third of the blanket toward the neck of the horse.



5. Unfold the second third of the blanket toward the horse's croup, and move the blanket backward so that it slides from the neck toward the withers.



6. Buckle the front part of the blanket, and readjust its position.

So how can you determine if your horse needs help staying warm this winter by being blanketed?

Breeds and Types

Some breeds or morphological types are more suited for hot or cold climates. For example, horses that are heavier, thicker bones, compact limbs, long-haired (feathers on fetlocks), have thick skin (prevents heat loss from blood circulation), and subcutaneous fat (such as draft breeds, some Warmblood breeds, some ponies, and other horses that have this phenotype) are more adapted to the cold weather. Conversely, horses with lighter bones, longer limbs, leaner muscles, thinner skin, silky hair coat, and clearly visible blood vessels under the skin (light breeds, Thoroughbreds, Standardbreds, Arabians, etc), are more easily adapted to warmer climates, and may become colder more easily as well.

To Blanket or Not Blanket, That's the Question

Blankets can be very important, and lifesaving, for some horses. In areas where winters are long, temperatures are below freezing for long periods of time, or just above freezing by rainy, horses that are thin, immunocompromised, geriatric horses, those that don't grow a thick haircoat or who live outside 24/7 with no access to shelter should be blanketed, period. Conversely, healthy horses, with a decent body condition score (<http://www2.ca.uky.edu/agcomm/pubs/asc/asc188/asc188.pdf>), that have been acclimated to the geographical area, have access to shelter, have grown a thick winter coat, have plenty of forage to eat, may not necessarily need to be blanketed. Horses that are clipped should be blanketed if the weather turns cool, even if they are stabled.

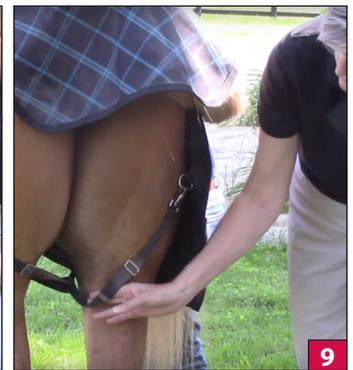
It is important to treat each horse as an individual, and tend to each one individually when it comes to blanketing. Horses that are cold typically huddle together or are reluc-

Figure 1. Blanketing a Horse, continued



7. Safely grab the belly strap and buckle to the appropriate clasp. Make sure the belly straps are not too snug in that the horse will be uncomfortable as he lays down, nor are they too loose so a horse doesn't inadvertently get a leg hooked up on the strap.

8. For the back straps, first clasp one strap, making sure it is not too loose or too snug.



9. Then grab the second strap and loop it through the first strap. That secures the blanket in place when horses are bucking, running, laying down, and getting up. Also each strap, if strained, will pull against each other instead of against the horse's legs.

tant to move from a sheltered space if they are outside, or may not want to leave their stalls if they are inside.

Blanketing needs to be something dynamic, and temperature is not the single factor to take into consideration when making a decision on whether or not to blanket. Putting a blanket on in December, and taking it off in April is not acceptable. Blanketing is a daily commitment and requires planning. For example, if it is 20 degrees Fahrenheit, but sunny, not windy, one of those nice winter days, the horse may not need to be blanketed. On the other hand, if it is 45 degrees Fahrenheit and raining and the horses will not be brought in for a chance to dry, and will be out all night when the temperatures may go below freezing, these horses may need to be blanketed.

Some of the arguments we encounter from die-hard do-not-blanket people are listed below, along with our counterarguments:

- Argument:** Horses in the wild are fine unblanketed in wintery weather.
Counterargument: Horses that can't stand the cold don't survive.
- Argument:** You're taking away what Mother Nature provided the horse: The ability to stay warm with a long hair coat.
Counterargument: Pastured horses with access to shelter to shield them from wind and precipitation may not need a bevy of blankets to keep them comfortable, but it's OK for horses with no way to block the wind and rain to have some sort of defense against the worst winter weather. Do most domestic horses survive winter without a blanket? They sure do, but they may lose weight in the process and it may take a long time in the spring for them to gain weight back to stay at an acceptable BCS.

3. **Argument:** It's raining and I don't have time to wait for my horse to dry, so I'm not going to blanket him.
Counterargument: Although, ideally, you would let the horse dry before putting on a blanket, it's more important that the blanket be on if the temps dip after a rain. It's OK to put on a blanket on a wet horse. The blanket will wick the moisture away from the horse and the extra moisture will evaporate. You can check the horse later and you will find that he is dry under the blanket. Blanketing a wet horse will increase the chances of developing rain rot, but it's better to deal with [potential] rain rot later than to deal with a colicky horse that got too cold.
4. **Argument:** Putting a blanket on a horse with a thick hair coats weighs the hair down, eliminating its ability to fluff up and trap air in between the hairs, making him colder.
Counterargument: There is no scientific research that says that blankets flattening the hair coat actually make horses colder.
5. **Argument:** My horse doesn't like blankets.
Counterargument: Yes, there are horses that don't do well with blankets, but the majority of horses do well. In a study done in Norway, researchers trained horses to convey choices by pointing to symbols. The horses were then exposed to different weather conditions; the horses indicated their choice to have a blanket on during weather that was wet, windy and cold. For horses that destroy their blankets, there are manufacturers that offer from three-year warranties to lifetime.

What Type of Blanket and When

If your horse grows a nice, thick hair coat, has access to shelter or lives in a place where the weather is mild, he most likely will not need to be blanketed. However, if you do need to blanket your horse, based on the aforementioned information, you don't need to buy every weight. Blankets are labeled by weight, indicating how much fill/insulation they have to assist in keeping the horse warm. The higher the fill, the heavier the blanket and the colder temperatures it is designed for. Sheets generally have no fill, medium-weight blankets typically offer between 150 and 225 grams of fill; and heavyweight blankets usually range between 250 and 400 grams of fill.

Blankets are also further divided into "turnout" and "stable" blankets, turnout meaning waterproof and more resistant material/fabric, and stable meaning not water proof, and many types more "silky" material.

As a general guideline, a waterproof turnout sheet (no fill) offers protection from wind and rain, but don't add too much warmth if the weather will be below the mid 30s. A medium- or heavy-weight blanket may do more to keep the horse warm as temperatures go below freezing and into the single digits. If you have only one choice of blanket, invest in a turnout medium weight, as this can be used from mid 40s (and rainy) down to the teens. And even though the term "turnout" indicates the blanket should be used outside, it is perfectly fine to be used in the stable as well, unlike stable blankets that can only be used indoors because of the lack of waterproof and possibly weaker material.

Blanketing requires diligence in watching the weather and in committing to changing blankets to be sure your horse is comfortable in what he's wearing, every day. Using a bit of common sense will go a long way to keeping your horse healthy and happy. If he's shivering, add some weather protection. If you place your hand under his blanket and he's hot, opt for a lighter weight.

Proper Fit is Paramount

A properly fitting blanket should not cause any rubs or sores on a horse. A blanket that fits well will not bind around the neck, preventing the horse from putting down his head or using his shoulder completely. There should also be no pressure on his withers. There are many different cuts and styles of blankets, and some manufacturers even make blankets for different body types: for example, high withered, narrower chest thoroughbreds, and low withered broader chest quarter horses. There are blankets that are longer, going below the elbow and to almost to the knee, and some that reach just below the elbow. Some blankets have a tail flap (generally turnouts), whereas others don't (generally breed specific for Saddlebreds, or stable blankets).

How to Measure For a Blanket That Fits

A blanket that doesn't fit well can be more than just uncomfortable for your horse—it can be dangerous if it's so big that he can get a hoof caught in it while laying down. Though manufacturers may use different sizing, the way a horse is measured stays the same. To be sure you get the most accurate measurement, you will need a helper and a cloth measuring tape (Figure 1).

- Stand your horse squarely on a level surface.
- Have your friend at the horse's head, holding the cloth measuring tape in the center of his chest.
- Wrap the tape around one side of his body and wrap it around the widest part of his haunches.
- Take note of the measurement where you expect his blanket to end.
- If the measurement is in between blanket sizes, it's best to choose the smaller size.

Conclusion

Choose to blanket your horse if he is geriatric, thin, clipped, or immunocompromised. Watch the weather carefully to determine if the blanket you have on him is appropriate for the conditions to which he is exposed. Always adjust the belly straps so they are snug against the horse's body; dangling straps are a hazard to legs, as they can get caught as the horse lays down and gets up. This can be catastrophic. Check your horse's blanket after it rains to be sure it is still waterproof; a soaked horse is made even more uncomfortable if he is weighed down with a soaking, saturated blanket. Remember to check under the blanket periodically to assess the health of skin and the horse's body condition.

For More Information

Kentucky 4-H Program and Saddle Up Safely Present: Safe Blanketing, <https://www.youtube.com/watch?v=t1e6c4vvq7s>

References

- Morgan, K. Thermoneutral zone and critical temperatures of horses. *Journal of Thermal Biology*. 23(1):59-61, 1998.
- Mejdell, CM., Buvik, T., Jørgensen, G.H.M., Bøe, K.E. Horses can learn to use symbols to communicate their preferences. *Applied Animal Behaviour Science*. 184:66-73, 2016.

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