

# To Blanket or Not

## SCIENTIFIC EXAMINATION OF BLANKETING



The severity of a region's winter weather is a consideration when determining whether to blanket or not

By **AMANDA DUCKWORTH**  
Photos by **ANNE M. EBERHARDT**

**IN THE HEAT** of the summer, it is easy to forget one of the most debated topics when it comes to horse health: To blanket or not to blanket. The anecdotal answers on the subject range from those who rarely blanket to those who keep an eagle-eye on the weather forecast all through the colder months.

Like many issues surrounding horses, the specifics of a given situation usually determine the answer. Where a horse lives, its general state of health, its expected work load, and the strength of the winter in question are all important factors.

The American Association of Equine Practitioners provides expertise in the form of “Cold Weather Care,” which was penned by Dr. Tom Lenz.

“The good news is that horses are inherently well equipped to handle practically anything that winter can dish out as long as they have a way to get out of the wind,” explained Lenz. “Their long winter hair coat traps air next to the skin, which helps insulate them against cold weather. In fact, horses in good body condition can withstand temperatures down to -40 degrees Fahrenheit without difficulty.

“Many horse owners prefer to blanket their horses in cold weather, but placing a blanket on a horse with a heavy winter coat can compress the horse’s hair and reduce its natural insulating ability. The result is that the blanket might actually decrease the horse’s ability to ward off the cold. Horses that are body clipped or worked hard enough to sweat will benefit from a blanket. Blankets are also beneficial short term in extremely cold, wet weather.”

The scientific community has turned its eye toward the question of whether to blanket or not in recent years, with multiple studies delving into the matter.

In January 2023, the *Journal of Equine Veterinary Science* published “Changes in Hair Coat Length and Diameter in Blanketed and Nonblanketed Adult Horses in the Winter.”

“Horses are often blanketed during cold weather for numerous reasons including assisting thermoregulation, cleanliness, and anecdotally to decrease hair coat length,” explained researchers. “However, the impact of blanketing on the hair coat has yet to be evaluated.”

For the study, which lasted from October 2019 until March 2020, 16 adult horses were used, with eight being blanketed and eight going without. Each month, body weight, body condition score, and hair coat samples from the neck and hindquarters were taken.

“Horse neck and hindquarter hair were the longest and had the greatest diameter in January and February, and they were the shortest with the smallest diameter in October and March regardless of treatment,” researchers concluded. “Blanketed horses had shorter neck hair length when compared to nonblanketed horses in January at 43 and 58 mm, respectively, and February at 35 and 47 mm, respectively. These results suggest blanketing a horse can alter hair coat length, however, hair coat growth over time follows a similar pattern regardless of blanketing practices.”

The same researchers used the information gathered in the study to also examine how blanketing might affect a horse's need to feed in the study "Dry Matter Intake, Body Weight, and Body Condition Scores of Blanketed and Nonblanketed Horses in the Upper Midwest," which was published in November 2020 by the Journal of Equine Veterinary Science.

"Thermoregulation is an energy-expensive process, which can be mitigated by blanketing horses in cold climates, potentially preventing weight loss or leading to decreased feed intake," explained researchers.

For this study, which took place in Wisconsin, the data points were collected in December 2019 and January 2020



“**THE GOOD NEWS IS THAT HORSES ARE INHERENTLY WELL EQUIPPED TO HANDLE PRACTICALLY ANYTHING THAT WINTER CAN DISH OUT AS LONG AS THEY HAVE A WAY TO GET OUT OF THE WIND.**” —DR. TOM LENZ

# BODY BUILDER

Supplement of Champions

- Increase Strength
- Improve Stamina
- Enhanced Muscles
- Reduce Nervousness
- Reduce Stress

EVENT SAFE



727-562-2832 | WWW.EQUIADE.COM





**BUY NOW AT ANIMAL HEALTH - BIG DEE'S - FLORIDA HARDWARE - JACK'S MANUFACTURING - KBC - HAGYARD PHARMACY - PINKSTON'S TURF GOODS - RJ MATTHEWS - TRACTOR SUPPLY COMPANY - SMARTPAK - VALLEY VET - WECAN SALES (CANADA) - WESTERN SADDLERY**

from the 16 horses. They were housed in dry lots and fed grass-legume mixed round bales. In addition to taking the body weights and body condition scores of the horses, researchers also measured hay cores for nutritive analysis, and the hay bales were weighed.

“Hay waste was collected daily, and when hay could no longer be consumed ad libitum, the remaining hay was removed from both pens (orts) and new bales were fed,” explained researchers. “Hay waste and orts were dried and daily dry matter intake was estimated as the difference between hay provided minus hay waste and orts during the trial period divided by the total BW of the pen.

it is a universal conundrum. In March 2019, Applied Animal Behaviour Science published “The effect of weather conditions on the preference in horses for wearing blankets,” while in January 2023, the Australian Veterinary Journal published “A survey on the use of rugs in Australian horses.”

“The use of blankets in horses is widespread in Northern Europe,” said researchers in the first study. “However, horses are very adaptable to low temperatures and the practice is questioned because blankets may hamper heat dissipation at high temperatures and also disturb free movement.”

For the study, 10 horses accustomed to wearing blankets and 13 horses that

at air temperatures  $> 20^{\circ}\text{C}$ , the horses preferred to remove the blanket in all the tests.

“According to the statistical model, the probability for choosing to have a blanket on increased with increasing wind speed, and also precipitation increased the probability for choosing to have a blanket on. Sunshine however, reduced the probability for choosing to wear a blanket.”

For the Australian study, researchers wanted to better understand the horses’ rugging practices in the region. To do so, an online survey reviewed the management of 2,659 horses over the course of a year.

Researchers found that 84.8% of the reported horses were rugged, although most owners, 69.5%, admitted they were unsure if the horse needed to be rugged at all. The use of a blanket was felt to be a requirement of 59.8% of owners for horses that were being used competitively.

“Riding and competition were significantly associated with the use of rugs,” researchers concluded. “Nearly all respondents (89%) felt that ‘over-rugging’ was a concern. However, 4.8% of owners would use up to four rugs at any one time on their horse and 21.4% of horses were still rugged in temperatures above  $20^{\circ}\text{C}$  in Australia. Many Australian horse owners (42.8%) also believe that horses feel cold if they are not rugged.

“Anthropomorphism when it comes to rugging horses cannot be justified as the horse has a much wider thermoneutral zone than humans. Australian climate, owner opinions, equestrian discipline, and whether a horse is used for riding influence Australian horse rugging practices. However, current practices are based on limited available research and are not necessarily to the benefit of the horse. Use of rugs in healthy, unclipped horses that have shelter access, in temperatures over  $5^{\circ}\text{C}$  (for non-alpine acclimatized horses) is not in agreement with science.”

While most horse owners are well



The weight of horse blankets has been the subject of studies conducted by researchers

“The average bale weight, forage nutritive value, body weight, and body condition score did not differ across treatment groups. However, the daily dry matter intake differed at 2.31% body weight for blanketed horses and 2.51% body weight for nonblanketed horses. These results suggest blanketed horses conserve energy leading to decreased feed intake.”

Those in charge of the decision to blanket or not can take heart in knowing that

were not, were kept outside for two hours in different weather conditions. Then, their preferences were tested.

“When only considering air temperature and not the impact of other weather factors, the horses preferred to have the blanket on in 80% and 90% of the test at  $< -10^{\circ}\text{C}$  in horses usually wearing and not wearing blankets, respectively,” researchers concluded. “As air temperature increased, the preference for keeping the blanket on decreased and



# PERFORMANCE NUTRITION FOR THE WINNING RACEHORSE

On today's racetrack, fractions of a second mean the difference between the winner's circle and "also ran". Purina® Race Ready® and Race Ready® GT formulas provide the fuel for speed and endurance to help your hardworking athletes outperform the competition.

Stop by your local Purina Retailer for more information or learn more at [purinamills.com/raceready](https://purinamills.com/raceready)



FEED GREATNESS®

©2022 Purina Animal Nutrition LLC. All rights reserved.



## Grooming

meaning, there sometimes is a gap between what has been passed down as equestrian care standards and the science behind what is actually happening. In January 2020, the *Journal of Thermal Biology* published “Effects of hair coat characteristics on radiant surface temperature in horses.”

“Increasing the knowledge of owners is crucial for making good decisions for day-to-day management of horses,” explained researchers. “This is especially important in areas with unstable winter conditions, as weather may change from wet and windy to sunny conditions over a short period of time.

“Horse owners may lack knowledge about natural thermoregulation mechanisms in horses. Horses are managed intensively; usually stabled at night and turned out during the day. Some are clipped and many wear a blanket, practices which reduce the horse’s ability to regulate heat dissipation.”

For the study, the body surface temperatures of 21 adult horses were tracked using infrared thermography and a mean temperature was calculated for each body part per horse. Additionally, information on each indi-



Horse owners may find grooming a challenge when coats grow longer in the cold weather months

vidual horse—such as breed, age, management, whether they were shod, and body condition—was collected.

“Warmblood horse types had lower hair coat sample weights and shorter hair length than coldblood horse types,” researchers concluded. “The highest radiant surface temperatures were found at the chest and shoulders, and warmblood horses had significantly higher surface temperatures than coldblood horses on the rump.

Horses with a higher hair coat sample weight had a lower surface temperature and hind hooves with iron shoes had a significant lower surface temperature than unshod hind hooves.

“In conclusion, individual assessment of radiant surface temperature using infrared thermography might be a promising tool to gather data on heat loss from the horses’ body. Such data may be important for management advice, as the results showed individual differences in hair coat characteristics and body condition in horses of similar breeds.”

Of course, the matter of blanketing does not center around only whether to blanket or not, but also what kind of blanket, at what weight, is most appropriate. In February 2020, the *Journal of Equine Veterinary Science* published “Effect of Different Blanket Weights on Surface Temperature of Horses in Cold Climates.”

Researchers used four adult horses in a 4x4 Latin square design to examine the changes in surface temperature of blanketed horses in cold weather. Three different blanket weights were used—light weight, medium weight, and heavy weight—along with a non-blanketed control.

To collect data, thermographic images were obtained from a standardized lumbar location before blanketing and immediately after cold exposure, and there was a 30-minute equilibration period between each sampling period.

“There was an overall treatment effect for lumbar temperatures after horses were outside for one hour with temperatures measuring 22.3°C, 26.8°C, 30.3°C, and 31.5°C for the control, light weight, medium weight, and heavy weight, respectively,” researchers concluded. “Lumbar temperature was for the heavy weight and medium weight compared with the control and tended to be warmer in light weight compared with the control.



Even warmer climes can get chilly, as seen here in the early morning hours at Del Mar during the 2021 Breeders’ Cup

BOTTOM: SKIP DICKSTEIN

“Change in lumbar temperature decreased significantly in the control compared with all other treatments. In conclusion, wearing a blanket can increase lumbar surface temperature during cold weather with the degree of warmth influenced by blanket weight.”

Beyond providing warmth, horses that have an active lifestyle are often blanketed for practical reasons as they are clipped to maintain a short coat throughout winter. In January 2020, PLOS ONE published “The effects of extended photoperiod and warmth on hair growth in ponies and horses at different times of year.”

“The growth of a heavier winter coat, characterized by longer, thicker hairs, is undesired by many horse owners due to its impact on optimal thermoregulation in intensely exercised competition animals and visual aesthetics in show animals,” explained researchers. “Providing an alternative to the time-consuming and labour-intensive common practice of shaving or ‘clipping’ a horse’s coat could be advantageous.

“Additionally, the use of artificially extended lighting to manipulate reproductive cycles is common practice within the global equine breeding industry. Therefore, developing a better understanding of how coat growth responds to light has important relevance for all horses in order to optimize thermoregulation for improved health and welfare in both competition and breeding stock.”

Researchers conducted four cohort studies, looking into whether extended photoperiod and warmth, provided in the form of mobile light masks and blankets, could reverse the onset of winter coat growth, could maintain the summer coat, and could accelerate winter coat shedding in both horses and in ponies.

The various studies began at dates corresponding to the autumnal equinox, one month post-summer solstice, one month pre-winter solstice, and one



**HORSES ARE OFTEN BLANKETED DURING COLD WEATHER FOR NUMEROUS REASONS INCLUDING ASSISTING THERMOREGULATION, CLEANLINESS, AND ANECDOTALLY TO DECREASE HAIR COAT LENGTH.”**

—JOURNAL OF EQUINE VETERINARY SCIENCE

month post-winter solstice, respectively. Commercially available head-worn light masks provided low intensity blue light to one eye until 11 p.m. daily to extend photoperiod to approximately 15 hours of light, while coat condition and shedding rate were scored and hair

samples collected, measured, and weighed bi-weekly.

“Results revealed that extended photoperiod did not reverse winter coat growth when initiated at the autumnal equinox, effectively maintained the summer coat in stabled horses when initiated one month post-summer solstice, accelerated shedding in outdoor living horses when initiated one month pre-winter solstice, and did not accelerate shedding in indoor or outdoor living ponies when initiated one month post-winter solstice,” researchers concluded. “To successfully manage equine coat growth while also preserving optimal thermoregulation in both competition and breeding stock, correct timing of light application is crucial and requires careful monitoring of environmental temperature.”

Better understanding the science behind hair growth will be helpful to those trying to decide the best course of blanketing action. **BH**



Researchers have found that horses are “very adaptable to low temperatures” and the use of blankets may “hamper with heat dissipation” and “disturb free movement”