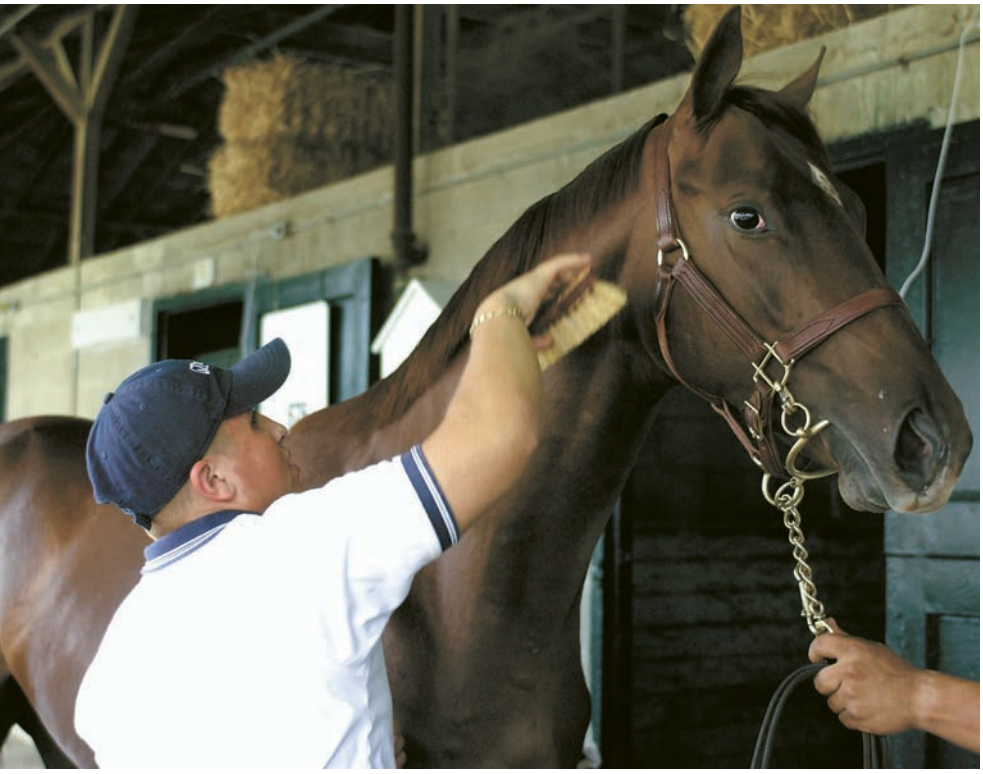


Grooming can give caretakers insight into a horse's health

Closest *of* Connections

GROOMING, BABY TALK BENEFIT HORSES' PHYSICAL, MENTAL WELL-BEING

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

THE PHYSICAL BENEFITS of keeping an active horse properly groomed are well known. Grooming provides an up close and personal opportunity to check on a horse's general well-being, keep its coat and hooves healthy, and catch any brewing issues sooner rather than later.

Grooms certainly know their horses inside and out, and countless anecdotal stories about developing a bond with a horse exist. This time spent bonding out of the saddle can again prove beneficial when it comes to noticing whether a horse is behaving out of the ordinary.

The idea that equine health can be improved and bonds can form from grooming are not reserved just for domesticated horses. Grooming is such an integral part of basic care that it is something horses will partake of even in the wild—by using their mouths instead of brushes. In September 2020 the international peer-reviewed journal *Animals* (Basel) published the study "The Contribution of Mutual Grooming to Affiliative Relationships in a Feral Misaki Horse Herd."

"The validity of three hypotheses regarding the function of social grooming—the affiliative relationship strengthening hypothesis, the worsened relationship restoring hypothesis, and the grooming parasite removal hypothesis—were tested in a Misaki feral horse herd in Cape Toi, Japan," researchers explained. "All nine horses in the herd were investigated in terms of kinship, grooming, aggression, proximity, social rank, and social network."

For the study the horses were watched for 33.5 hours over 15 days. All of the horses were observed self-grooming. Of the nine, six took part in mutual grooming—two stallions, three mares, and one colt. Mutual grooming always took part in pairs and was almost perfectly symmetrical. If a horse received grooming, it began grooming the other horse, but as soon as one horse stopped, the other did as well.

Researchers concluded that mutual grooming symmetry benefits both participants simultaneously by removing parasites and strengthening affiliative relationships between seasonally changing herd members. However, researchers noted, mutual grooming did not restore worsened relationships following aggression promoted by physical proximity.

Researchers have examined whether grooming a horse is a two-way street with humans as well. Grooms have noted evidence of such. While grooming or scratching their charge, caregivers often will experience an effort on the horse's part to participate in mutual grooming—a literal version of if you scratch my back, I'll scratch yours.

Recent research looking into the emotional and physical reactions horses have to interactions such as grooming delves deeper into the subject. In May 2021, *Animals* published the review "Enhanced Understanding of Horse-Human Interactions to Optimize Welfare."

"Enhanced understanding of human-horse interactions can create avenues to optimize their welfare," the authors explained. "Evidence exists that suggests that horses can read humans in various ways through our body odors, posture, facial expressions, and attentiveness."

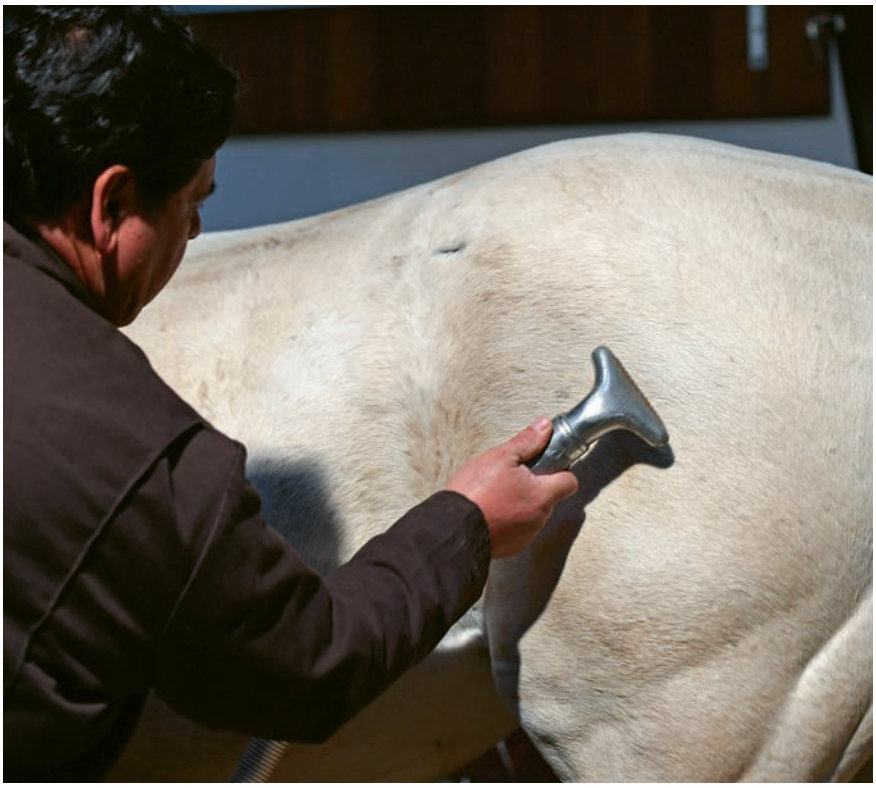
The study also suggests that horses are capable of remembering previous experiences when working with humans.

"While it is difficult to truly know how a horse thinks and feels, paying attention to subtle behavioral signals can give us insight on how horses prefer humans to interact with them. As we are continuously growing our knowledge on how horses view humans, it is important for those working with horses for sport, companionship, or as a working animal to be open to evolving and modifying tactics used to create a positive experience for the horse."

A willing horse is a win-win for all parties involved. The animal's welfare is a critical part of the social contract, but also a calm horse is more likely to be a more productive athlete. Keeping horses as stress-free as possible typically means they will perform better on the track, in the show ring, or even on the trails, as they will not have used excessive amounts of energy in a needless way.

Researchers examined the physical reaction horses have to the humans around them in the study "Inside the Interaction: Contact With Familiar Humans Modulates Heart Rate Variability in Horses," which was published in the November 2020 *Frontiers in Veterinary Science*.

"A human–animal relationship can be developed through subsequent interactions, affected by the positive or negative emotional valence of the proceeding one," researchers explained. "Horses implement a process of categorization to classify humans with whom they interact as positive, negative, or neutral stimuli by evaluating the kind of approach and the nature of the contact.



A horse's familiarity with its handler can result in lower stress levels

"In these terms, human–animal interactions are emotionally charged events, eliciting specific emotional states in both subjects involved. Although the human–horse relationship has been mainly investigated through behavioral analysis, physiological indicators are needed for a more objective assessment of the emotional responses."

For the study researchers analyzed horses' heartbeat dynamics during interactions with both familiar and unfamiliar handlers, applying a standardized experimental protocol that consisted of three different conditions shifting from the absence of any interaction to physical contact through grooming. In all, nine mares and 14 geldings, all stabled in Italy, were used.

"Heart rate variability is a commonly used autonomic nervous system correlate estimating the sympathovagal balance as a psychophysiological marker of emotion regulation in horses," said researchers. "We have assumed that long-term positive relationships with humans may have a positive and immediate impact on the emotional arousal of the horse, detectable, via ANS activity, during the interaction."

Each of the three sessions lasted five minutes, and the order of interaction with familiar compared with unfamiliar handlers was randomized. During this study the ECGs of both the humans and the horses were monitored through two non-invasive wearable systems.

"Even though the finest interpretation of animals' emotional reactions benefits from the incorporation of assorted data, such as behavioral and physiological data, we did not consider horses' temperament or reactivity in the present study," researchers explained. "Rather, we focused on how long-term relationships with humans may affect horses' emotional state in daily management activities, which generally involve some sort of contact.

"The measurement of either the emotional or affective state of an animal is currently of interest in a variety of fields, such as affective neuroscience, evolutionary zoology, comparative psychology, and animal welfare. In particular, the investigation of positive emotions and how to prolong positive affective states in animals both represent promising paths for improving animal welfare. Broadening the view on interaction with humans, the possibility to comprehend how an animal is experiencing contact with people is invaluable."

For the first session, horse and human were separated, with the horse in its own stall. This was the resting phase and used to collect basal electrocardiogram signals.

Interaction began during the second session, when the handler entered the stall but remained near the door and stood still, leaving the horse to decide whether it wanted to approach the person or not.

The third session featured the handler brushing the horse for two and a half minutes on each side. If the horse tried to move, the person would move with it to continue grooming, leaving the horse no choice but to participate in the interaction.

"We demonstrated that horses appeared to feel more relaxed while physically interacting (e.g., grooming) with some familiar handlers compared to the same task performed by someone unfamiliar," researchers concluded, adding that collected data also suggested a reduction of stress. "The shift of the sympathovagal balance toward a vagal predominance suggests that the horses experienced a decrease in stress response as a function not only of the handler's familiarity but also of the type of interaction they are experiencing.

"These results constitute the objective evidence of horses' capacity to in-

dividually recognize a familiar person, adding the crucial role of familiarity with the handler as a paramount component of human–animal interaction."

Understanding ways to keep horses calm also could prove beneficial when it is time for them to race. In June 2021, the *Journal of Equine Science* published the study "Influence of exercise and emotional stresses on secretion of prolactin and growth hormone in Thoroughbred horses."

"Horses are nervous and easily excited animals, and the Thoroughbred is an especially nervous breed of horses," explained researchers. "Racehorses are placed under various stresses other than those accompanying training and racing, such as transport, and

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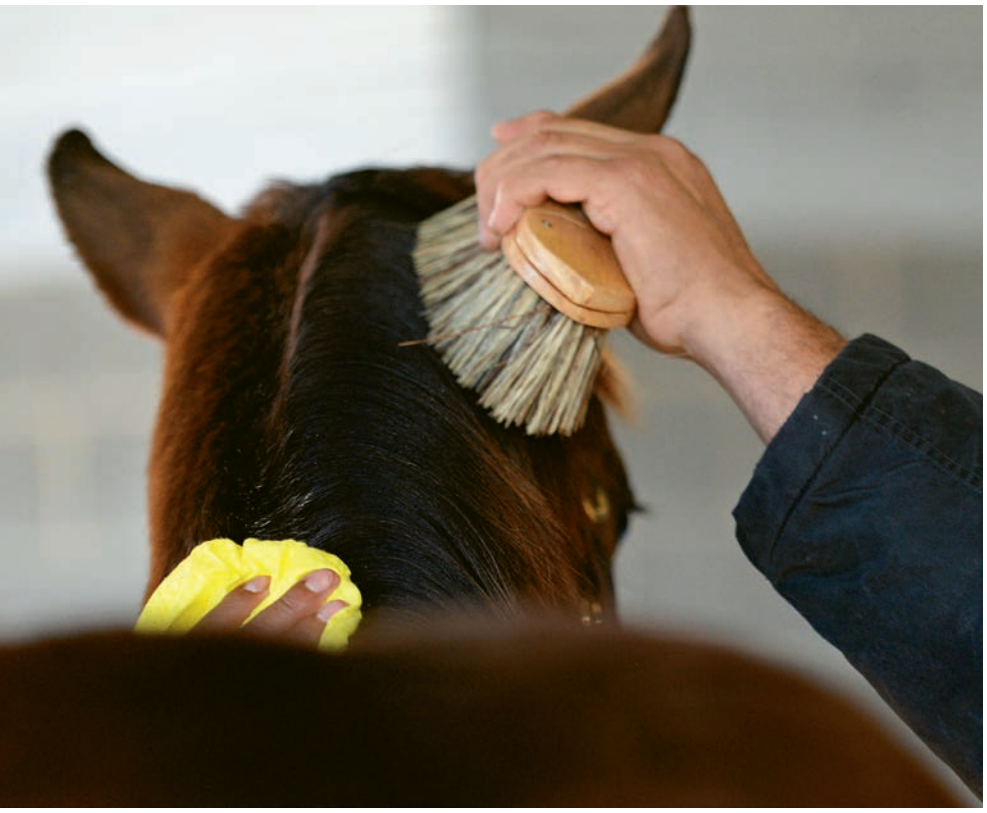
a high incidence of gastric ulcers has been reported.

"To prevent these conditions, it is important to analyze the characteristics of the responses of racehorses to exercise and emotional stresses, identify the stress intensity and grade of biological reactions, and perform training and rearing management tailored to the individual horses. Improvement of their management and reduction of diseases and accidents are also important from the perspective of animal welfare."

For the study four male Thoroughbreds took part in two experiments. One featured only exercise stress, which was achieved on a treadmill in four parts: pre-exercise period (5 min-

utes), walking period (6.5 minutes), galloping period (3 minutes), and a cooling down period (10 minutes). The other phase took place one week later and featured simultaneous exercise and emotional stress. This was done by showing a loud video of an audience at a racetrack during the walking period.



In addition to physical contact, horses can benefit from the way they are spoken to during care

The study found in both groups the circulating prolactin level rose immediately after the initiation of the pre-exercise period, and it continuously rose without a decrease during the walking period. During the galloping period, it tended to be higher in the exercise-emotional stress group than in the group that only exercised. Meanwhile, the circulating growth hormone level rose throughout the pre-exercise, walking, and galloping periods in both groups, with no significant difference between them.

"In the present study, it was suggested based on the endocrine changes investigated in detail in the exercise and emotional stress experiments that racehorses approaching a race are aware of the atmosphere and noise of the audience at the racetrack," researchers concluded. "Emotional stress potentiated prolactin and growth hormone secretion. Prolactin and growth hormone enhance the immune function of racehorses, and prolactin may exert a profound anxiolytic effect in the brain during and after exercise. However, the grade of stress reactions markedly varies among individual horses. Further accumulation of data is necessary."

While the stress of exercise is part and parcel of participating in a race, mitigating the emotional stressors that occur before a horse ever reaches the starting gate is a constant goal.

In March 2021, the interdisciplinary journal *Animal Cognition* found that behavior can be impacted by the way horses are spoken to during care. The study found that pet-directed speech—humans using a tone similar to baby talk—facilitates communication with horses in a pointing task and during grooming.

Researchers decided to test the impact of pet-directed speech on two tasks after a survey on social media showed that 92.7% of respondents used such tone with their horses, but only 44.4% thought that their horse was sensitive to it. The others did not know or doubted its efficacy. Twenty horses were used for the study.

"During a grooming task that consisted of the experimenter scratching the horse with their hand, the horses carried out significantly more mutual grooming gestures toward the experimenter, looked at the person more, and moved less when spoken to with pet-directed speech than with adult-directed speech," researchers found.

For the second task a person pointed to the location of a reward. Half of the horses were spoken to with pet-directed speech, and half were spoken to with adult-directed speech. Researchers found the horses that had been spoken to with pet-directed speech found the food significantly more often than by chance, but that was not the case for the horses spoken to with adult-directed speech.

"These results thus indicate that horses, like certain non-human primates and dogs, are sensitive to pet-directed speech," researchers concluded. "Pet-directed speech could thus foster communication between people and horses during everyday interactions."

Both the brush variety of grooming and the mutual grooming done by horses themselves are basic staples of equine life. The long-term impact of those interactions appears to go far beyond only physical benefits and begins to commingle with mental well-being, too. BH