Rocz. Nauk. Zoot., T. 50, z. 2 (2023) 287–298 *DOI: 10.58146/r8g8-2c20*

ASSESSMENT OF THE EMOTIONAL STATE OF RECREATIONAL HORSES – A PILOT EXPERIMENT

Katarzyna Olczak[1], Natalia Łazarczyk[2], Jacek Nowicki[2]

[1]National Research Institute of Animal Production, Department of Horse Breeding, 32-083 Balice near Kraków
[2]University of Agriculture in Krakow, Faculty of Animal Breeding and Biology, Department of Genetics, Animal Breeding and Ethology, 30-059 Kraków

ORCID
Katarzyna Olczak: https://orcid.org/0000-0002-9821-2882
Jacek Nowicki: https://orcid.org/0000-0002-0454-9151

Abstract

The five freedoms model, which previously set animal welfare standards, is no longer considered sufficient. Increasing attention is now paid to ensuring that positive experiences predominate in animals' lives, and consequently to the emotional state of horses. The aim of this study was to assess the emotional response of Hucul horses working in a riding school during a procedure designed to resemble the moment when riders mount the horses. Ten Hucul horses participated in the experiment. They were led on a lead rope (P) to a mounting block (W), and the same procedures were also performed with a saddle: PS – leading with a saddle and WS – standing at the mounting block with a saddle. Three photographs of each horse's face were taken in each situation for subsequent evaluation. Each photograph was assessed using the Horse Grimace Scale (HGS), and the mean score from three photographs was used for further calculations. The Wilcoxon signed-rank test was used to compare groups. A statistically significant difference was found between the two situations without a saddle, P and W ($Z=2.52$, $p=0.01$), and between the two situations with a saddle, PS and WS ($Z=2.52$, $p=0.01$). These results suggest that the mounting block may be negatively associated by horses with unpleasant sensations experienced during mounting. The effect of the saddle was also examined by comparing P with PS ($Z=0.41$, $p=0.68$) and W with WS ($Z=0.36$, $p=0.72$). The lack of significant differences suggests that the saddle itself was not the main factor influencing the horses' emotional response.

Keywords: equine emotions, equine welfare, facial expression, Horse Grimace Scale

Introduction

Nowadays, increasing attention is paid to the emotional state of horses (Olczak and Tomczyk-Wrona, 2022). In the early 1990s, the five freedoms principle was developed (Pritchard et al., 2005; Mellor, 2016), according to which animals should be free from hunger and thirst, physical and mental discomfort, pain, injury and disease, and fear in their relationship with humans, and should be able to express normal behaviour (Kaleta, 2017). In recent years, however, the quality of life has increasingly been emphasized. Mellor (2016) points out that minimum housing conditions are not enough. He stresses that animals should have "a life worth living", meaning that

they should experience positive emotions that predominate in their lives, while negative experiences should be minimized.

All welfare principles have been developed to provide animals with the best possible living conditions in an environment that is not natural to them. To assess an animal's state and condition properly, it is worth considering not only its external appearance but also behavioural indicators and the emotions it experiences (Olczak and Tomczyk-Wrona, 2022; Hausberger et al., 2011). Correct interpretation of equine emotions requires the ability to recognize horse behaviour, including very subtle changes. The international literature uses the term facial expression (Wolff et al., 1997; Wathan et al., 2015; Dierendonk and Loon, 2016; Torcivia and McDonnell, 2021). In Polish, especially in everyday language, the term "face" is rarely used in relation to animals. In professional anatomical descriptions, the horse's head consists of cranial and facial regions (Krysiak et al., 2011). In popular-science reports, the term "muzzle" is often used to describe the horse's facial expression in reference to all parts of the head. For clarity and brevity, the present study also uses the term "face" to describe all facial actions of the horse.
Researchers have developed a coding system for facial actions in the domestic horse known as EquiFACS (Wathan et al., 2015). This system identifies and records facial expressions on the basis of facial muscles and their movements. EquiFACS considers such elements as inner brow raiser, eye closure, blink and half-blink, upper lip raiser, increase in visible eye white, lip corner puller, upper lip corner raiser, nostril lift, lower lip tension or relaxation, chin movement, lip pucker, upper lip curl, lip press, ears forward, ears flattened, ears drawn closer together, and ears rotated sideways.

In practice, recognition of pain and emotions depends largely on the ability of the assessors and on their diligence and reliability in using the available assessment tools. The Horse Grimace Scale (HGS), one of the tools used to assess pain, is based on facial expression and can identify a range of different states in horses. It can also be used as a tool for assessing emotions. Changes in ear position and tension of the masticatory muscles are commonly present in negative emotional states such as fear or pain. In the experiment conducted by Dalla Costa et al. (2017), HGS was considered a very useful method for assessing pain, although some of the scale items overlap with expressions of stress in horses. The authors emphasized that further experiments are necessary to fully validate the use of this method. The scale evaluates six elements of the horse's face, each scored as 0 – absent, 1 – moderately present, or 2 – obviously present. The following elements are assessed:

1. 1. Ears: Stiff ears directed backwards or sideways. They may be asymmetrical. The distance between the ears appears wide.
2. 2. Tension above the eye. Contraction of the muscle above the eye – m. levator anguli oculi medialis.
3. 3. Facial muscles. Tense facial muscles. If the muscles are clearly defined and easy to recognize, a score of 2 should be assigned.
4. 4. Lower lip and chin. Tense lips. The upper lip is retracted (the lower lip is level with the upper lip or pulled back), and tension of the lower lip creates a "triangular chin".
5. 5. Nostrils. Nostrils tense and slightly dilated. The profile of the nose becomes flattened and the lips appear elongated.
6. 6. Eyelids. The eyelid is partially or completely closed. Any eye closure covering more than half of the eye should be scored as 2: "obviously present".

Facial expression is particularly useful in pain assessment because it cannot be consciously controlled or completely eliminated (Dai et al., 2020). HGS has been confirmed as an effective method supporting the assessment of pain directly associated with acute laminitis in horses (Dalla Costa et al., 2016). Before HGS is used in clinical conditions, validation studies

should be performed, because photographs are much easier to assess than a live image. Applications are now available that enable users to become familiar with the method and train their observation skills for correct evaluation of equine facial expressions.

Over the past several years, equitation science has developed rapidly, including many studies on horse welfare that challenge harmful myths and promote the informed use of learning theory in horse training (Olczak and Tomczyk-Wrona, 2022). Intensive research has also focused on facial expression and assessment of the emotional state of horses, for example Wathan et al. (2015), Dierendonk and Loon (2016), Hintze et al. (2016), and Torcivia and McDonnell (2021). This is important because recognizing subtle signals can improve communication between humans and horses, which is essential for ensuring a high level of welfare and also contributes to the safety of both the horse and the person handling it (Olczak and Tomczyk-Wrona, 2022).

The more time horses spend with humans, the broader their range of experiences and, consequently, the greater the number of positive or negative associations resulting from interactions with people, which may influence their behaviour (Budzyńska et al., 2022). For example, in a horse that has experienced discomfort while the girth was being fastened (e.g. tightened too quickly or too strongly, or because of poorly fitted equipment), classical conditioning may cause the girth itself or the girthing situation to evoke negative associations. During preparation for riding, horses may show signs of displeasure because they associate the situation with the beginning of something unpleasant (Wolińska et al., 2012). Reactions during saddling often indicate pain associated with poorly fitted equipment (Bowen et al., 2017; Dyson et al., 2018).

One of the few studies concerning recreational horses is that of Ijichi et al. (2023), which examined how workload affects riding-school horses. HGS assessment showed a relationship between the score obtained and the number of hours worked by recreational horses.

The main aim of the present study was to assess the emotional response of Hucul horses working in a riding school during the mounting procedure. The results were intended to evaluate the emotions that arise in recreational horses near the mounting block used by riders. It was hypothesized that, as a result of conditioning, working horses may show reactions indicative of negative emotions and/or discomfort in a place associated with work.

In this experiment, the horses were not subjected to any procedures causing pain equivalent to or greater than a needle prick. The horses were evaluated during standard, everyday activities. Therefore, approval from an ethics committee was not required for the experiment.

Material and methods

Horses

The experiment involved 10 Hucul horses aged 7 to 13 years (mean ± standard deviation: 9.10 ± 2.42), including one mare and nine geldings. At the time of the experiment, all horses were working in a riding school, were accustomed to being led on a lead rope, and were not afraid of humans. Each horse had at least one day off per week; on the remaining days they worked from one to a maximum of four hours. The horses alternated between lunge work, arena work and trail rides. The riders attending the school varied greatly in skill level. Injured animals were excluded from the experiment. The horses were kept in a free-range system under constant veterinary supervision and were subjected to regular management procedures (e.g. deworming, hoof trimming). They were fed roughage ad libitum and had constant access to water except while working.

Habituation

Before the main experiment, the horses were habituated to the presence and operation of the camera. Photographs of the horses' faces were taken on the pasture and at the tying area. The

aim of habituation was to eliminate reactions to the presence of the camera and the sound of the shutter. Because all horses worked daily in a riding school, there was no need to habituate them to the presence of humans.

Equipment

Photographs were taken using a Canon 800D digital SLR camera with a Canon EF-S 60 mm f/2.8 fixed-focal-length lens.

Main experiment

The horses were led on a lead rope for approximately 10 metres in a location that was neutral to them (Fig. 1). They were then led to the mounting block used by riders to mount the horses.

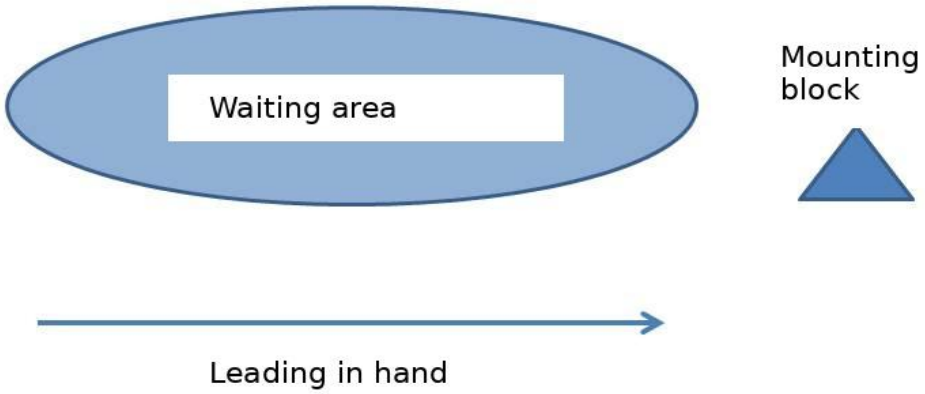

Figure 1. Diagram showing the course of the experiment

In each of the four situations described in detail below, photographs were taken for subsequent evaluation of facial expression. Photographs were taken every 5 seconds while the horse was being led. The first three shots (taken as far as possible from the place that could be associated with work) and three shots taken while the horse was standing at the mounting block, also at 5-second intervals, were selected for analysis. Each photograph was assessed and the mean of the three photographs was then calculated. Photographs were obtained in four situations: two without a saddle – leading (P) and standing next to the mounting block (W), and two with a saddle – leading (PS) and standing next to the mounting block (WS). During the experiment, the horses were led on a loose lead rope (Photo 1). If a horse slowed down or accelerated, slight tension was applied to the lead rope to encourage it to continue moving or to slow down.

Photo 1. Horse being led in a neutral place on a loose lead rope. Facial expression score below 6 points on the HGS scale

Facial expression was assessed according to the HGS using the following criteria: ears held back, contraction of the muscle above the eye – m. levator anguli oculi medialis, tense facial muscles, a tense muzzle (lower lip level with the upper lip or retracted), tense and dilated nostrils, and eyelids covering half of the eye (Photo 2). Each of these signals was scored as 0 (absent), 1 (moderately present), or 2 (obviously present). The photographs were assessed by two independent observers. Observer 1 was a person specializing in the assessment of equine emotions, working as a behaviourist/animal psychologist and already familiar with the HGS system. Observer 2 was a person who worked with horses on a daily basis and who, before the study, had been trained in the HGS using the HGS application developed by Animal Welfare Indicators (AWIN). The final facial-expression score was the mean of the scores assigned by the two observers.

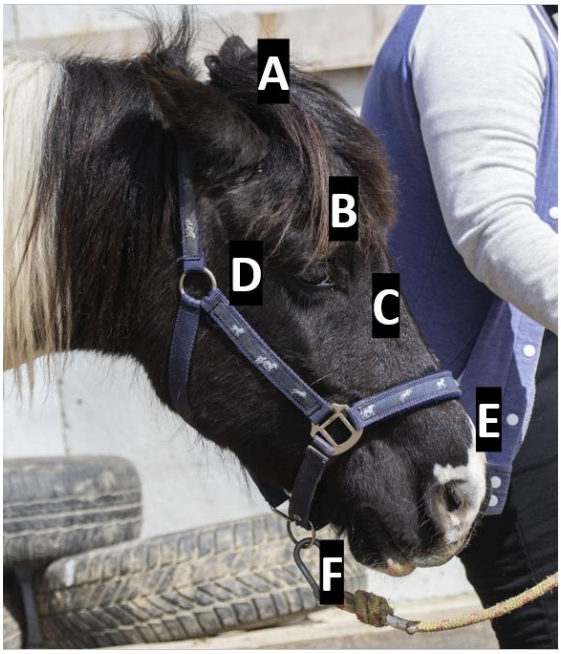

Photo 2. Horse next to the mounting block showing signs of stress. A – ears stiff and directed backwards; B – contraction of the muscle above the eye – m. levator anguli oculi medialis; C – tense facial muscles; D – eyelid slightly closed; E – dilated nostrils; F – lower lip retracted, with a clearly visible “triangular chin”

Statistics

Statistical analyses were performed using Statistica 13.1. Normality of distribution was checked with the Shapiro-Wilk test. Because the data distribution deviated from normality, the Wilcoxon signed-rank test was used to compare paired samples. Agreement between observers was assessed using Spearman rank correlation.

Results

Correlations between observers were high: P (r=0.65; P=0.02), W (r=0.70; P=0.02), PS (r=0.77; P=0.01), and WS (r=0.75; P=0.01). Horses being led (P and PS) received clearly lower scores than horses standing next to the mounting block (W and WS) (Table 1). A statistically significant difference was found between the two situations without a saddle, P and W (Z=2.52, p=0.01) (Photos 3 and 4).

Photo 3. Horse in a neutral place, scored below 6 points on the HGS scale

Similar results were obtained when comparing the facial expressions of horses wearing a saddle. A statistically significant difference was found between the facial expressions of horses being led with a saddle and those of horses standing at the mounting block with a saddle (Z=2.52, p=0.01) (Diagram 1). These results may indicate a negative association between working horses and the mounting block.

When being led without a saddle, all 10 horses (100% of the observed animals) received scores below 6 points (min. 1; max. 5). These results suggest that the horses were in a state of low tension. When standing at the mounting block without a saddle, 60% of the horses received scores below 6 points, while the remaining 40% scored above 6 points (1.25; 9). When being led with a saddle, all horses in the experiment received scores below 6 points, i.e. 100% of the animals (1; 4.5). During assessment of the emotional response at the mounting block with a saddle, only 40% of the horses scored below 6 points, while the remaining 60% scored above 6 points (1.5; 10.5). Detailed facial-expression scores for each situation are presented in Table 1.

Table 1. Horse Grimace Scale reflecting the emotional state of horses during four different situations

	Średnia Mean	Mediana Median	Minimum	Maksimum Maximum	Percentyl 25 Percentile 25	Percentyl 75 Percentile 75	Odchylenie standardo-we Standard deviation
Prowadzenie bez siodła Leading without the saddle	2,6	2,25	1	5	1	4	1,60
Przy schodkach bez siodła At the mounting block without the saddle	5,43	5,75	1,25	9	3	7	2,64
Prowadzenie z siodłem Leading with the saddle	2,85	2,75	1	4,5	2	4	1,25
Przy schodkach z siodłem At the mounting block with the saddle	6	6,75	1,5	10,5	2,5	8,5	3,09

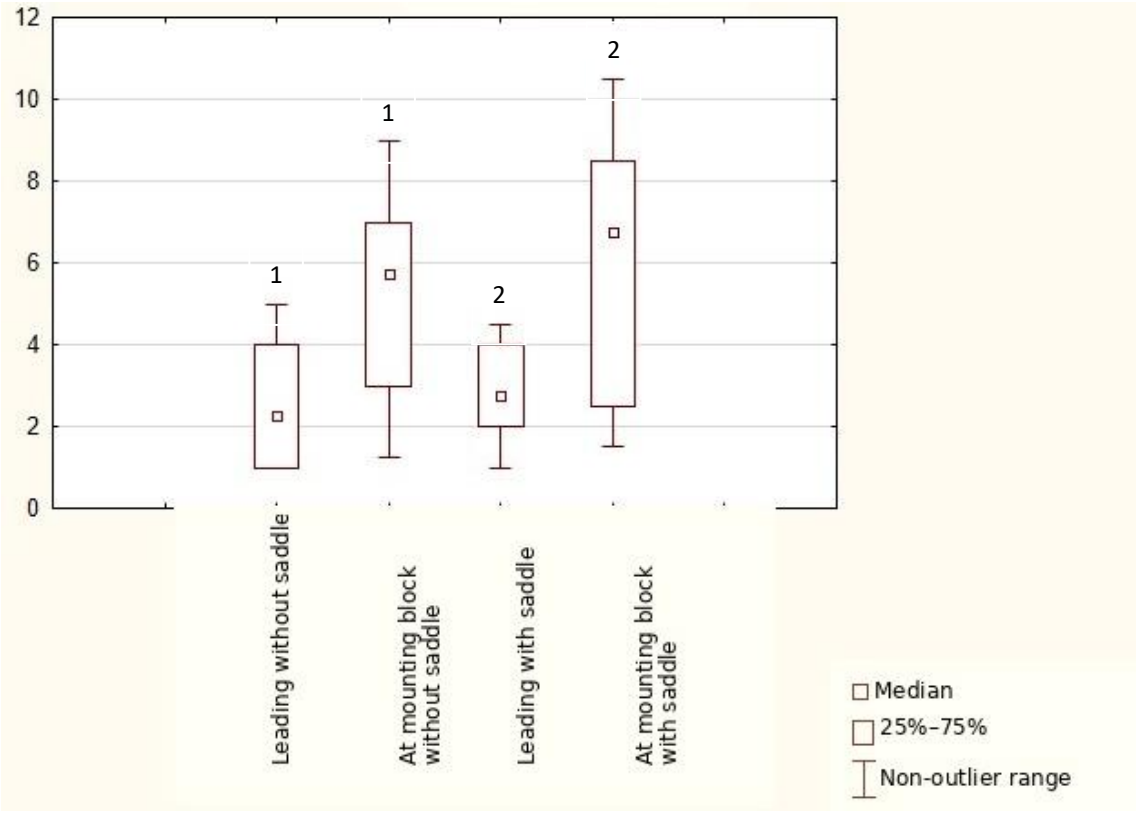

Diagram 1. Results of horses' facial-expression assessment in four situations. Data marked with the same numbers differ statistically from one another

Comparisons of P with PS and W with WS showed no statistically significant differences: (Z=0.41, p=0.68) and (Z=0.36, p=0.72), respectively (Diagram 1). These results suggest that the saddle itself was not the main factor influencing the horses' emotional response either while being led or at the mounting block.

After summing the scores from all observations and including all horses, the HGS elements most frequently indicating arousal were identified (Diagram 2). These were: ears held back – 21 points, lower lip and chin – 14 points, and tense, dilated nostrils – 13 points.

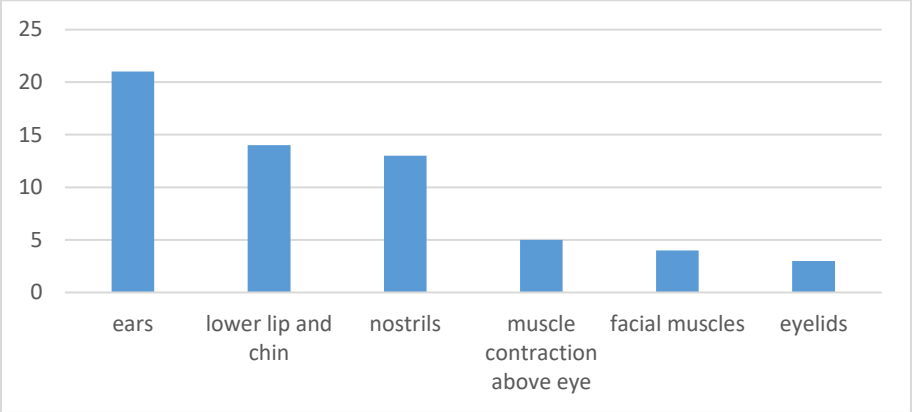

Diagram 2. Frequency of individual HGS items most frequently rated at 2 points, i.e. clearly visible in each situation

Discussion

In the present experiment, the horses' facial expressions changed significantly from an unstressed to a stressed appearance when the horses were brought to the mounting block. Most likely, classical conditioning had led to a negative association between the mounting block and something unpleasant. Because this was a pilot experiment conducted on a small group of horses, it is not possible at this stage to determine whether this was mainly first-order conditioning, involving a direct association between the mounting block and the moment of mounting, which may sometimes be unpleasant for horses, or higher-order conditioning in which the mounting block became associated with ridden work. In the experiment by Ijichi et al. (2023), HGS scores changed significantly depending on the number of hours worked. The experimental design of the present study did not include monitoring the effect of workload; rather, it was intended to verify the actual state of horses working in a riding school and their response to a situation resembling the start of work.

The results of the present experiment indicate that horses most clearly express their emotions, among other ways, through their ears, which were most frequently assigned a score of 2. This agrees with the observations of Wolińska et al. (2012) and Janczarek et al. (2016). In their experiment, Wolińska et al. (2012) showed that horses experiencing negative emotions such as anger or dissatisfaction most often displayed them by pinning their ears back. Of all the experimental horses, 39% showed negative reactions towards humans, largely by pinning their ears. This behaviour was observed in 30% of the horses when a person entered the stall and in 39% during grooming. Janczarek et al. (2016) conducted an experiment on 20 yearling Thoroughbred colts. They were trained using natural horsemanship methods by a licensed trainer. Horse behaviour was assessed during the first 15 minutes by the trainer. The behaviours analysed included licking, directing the ears towards the trainer, head position, teeth grinding, directing the head towards the trainer, tail movements, vocalization, attempts to escape and defecation. The most frequently observed reactions were directing the ears towards the trainer and tail movements. Tail movements and ear position therefore appear to be very useful indicators for humans when interpreting horses' emotions and intentions. It is not known, however, whether this is because the ears are better indicators of emotion than other equine signals or because their conspicuousness makes them easiest for the human eye to observe.

References to ear position and its significance in the context of equine emotions can already be found in older literature, such as Hipologia dla wszystkich (Grabowski, 1982). Much subtler facial-expression signals attracted scientific attention only in recent years. This led to the development of systems for evaluating equine facial expression, such as the Horse Grimace Scale (Dalla Costa et al., 2016) and EquiFACS: The Equine Facial Action Coding System (Wathan et al., 2015), which are gradually being implemented both in practice and in further research on horse welfare (e.g. Ijichi et al., 2023).

Lansade et al. (2018) conducted an experiment comparing two horse-grooming methods (gentle and standard). Horses were groomed differently during 11 sessions of 10 minutes each. In the gentle group, grooming and scratching focused on the areas most preferred by the horses. In the other group, grooming was performed in the standard way commonly used in riding centres and described in manuals such as Akademia Jeździecka (Pruchniewicz, 2007) and the aforementioned Hipologia dla wszystkich (Grabowski, 1982). Horses groomed gently showed signs of positive emotions (moderately raised neck, half-closed eyes, relaxed upper lips), whereas horses in the other group showed signs of negative emotions (raised neck, eyes wide open or showing the sclera, tightly closed lips and asymmetrically positioned ears). The descriptions of emotions in that study were still relatively imprecise, but sufficient to determine the emotional state of the horses. Current research aims to standardize methods for assessing emotions and to develop ethograms that are as detailed and precise as possible (Ladewig et al., 2022). Lundblad et al. (2021) conducted an experiment consisting of two situations: short-term transport (20 min) and short-term isolation (15–30 min). Recordings were assessed by two state-approved veterinarians certified in EquiFACS. Significant changes in facial actions were recorded after both transport and social isolation.

Despite the lack of significant differences between situations without a saddle and the corresponding situations with a saddle, the mean score with a saddle was higher than without a saddle both during leading and while standing at the mounting block. It is possible that the study group was too small to demonstrate significant statistical differences. Girth aversion (Bowen et al., 2017) and saddle-related discomfort (Dyson and Greve, 2016) are commonly observed phenomena. However, the design of the present experiment did not allow more detailed conclusions regarding the saddle itself. In addition, a significant difference in facial expression between horses being led on a rope in a neutral location and horses standing at the mounting block was demonstrated despite the small sample size. It may therefore be assumed that the negative association with the mounting block was the most important factor in the group studied.

Luke et al. (2022) draw attention to the insufficient number of studies and tools available for assessing the ridden aspect of horses working under saddle. The present experiment was a pilot study intended to address these needs. From a horse-welfare perspective, it is concerning that as many as 40% of the horses at the mounting block without a saddle and 60% of the horses at the mounting block with a saddle scored above 6 points on the HGS. In the study by Luke et al. (2022), as many as 59% of horses showed episodes of hyperreactivity under saddle, which posed a danger to riders. The design of the present experiment does not allow conclusions to be drawn about how horses' responses to the mounting block translate into their subsequent reactions during riding. However, studies of this type could contribute to early identification of problems, thereby improving both horse welfare and rider safety.

Summary

The present pilot study clearly indicates that further research on working horses is necessary for monitoring equine welfare, including both physiological measurements and standardized methods for assessing facial expression.

References

Bowen A.G., Goff L., McGowan C. (2017). Investigation of Myofascial Trigger Points in Equine Pectoral Muscles and Girth-Aversion Behavior. J. Equi. Vet. Sci., 48, 154–160.e1, DOI: 10.1016/j.jevs.2016.04.09.

Budzyńska M., Jarosz M., Kapustka J. (2022). Możliwości ograniczania strachliwości i stresu u koni poprzez działania profilaktyczne i stosowanie terapii behawioralnych, Med. Weter., ss. 1–7; DOI: 10.21521/mw.6690.

Dai F., Leach F., MacRae A., Minero M., Dalla Costa E. (2020) Does thirty-minute standardised training improve the inter-observer reliability of the Horse Grimace Scale (HGS)? A case study. Animals 10(5): 781; DOI: 10.3390/ ani10050781.

Dalla Costa E., Stucke D., Dai F., Minero M., Leach M., Lebelt D. (2016). Using the Horse Grimace Scale (HGS) to assess pain associated with acute laminitis in horses (*Equus caballus*). Animals 6(8): 47, DOI: 10.3390/ani6080047;21:2732246899.

Dalla Costa E., Bracci D., Dai F., Lebelt D., Minero M. (2017). Do different emotional states affect the Horse Grimace Scale Score? A pilot study. J. Equine Vet. Sci., 54: 114–117; DOI: 10.1016/j.jevs.2017.03.221.

Dyson S., Berger J., Ellis Andrea D., Mullard J. (2018). Development of an ethogram for a pain scoring system in ridden horses and its application to determine the presence of musuloskeletal pain. J. Vet. Behav., 23: 47–57; DOI: 10.1016/j.jveb. 2017.10.008.

Dyson S., Greve L. (2016). Saddles and girths: What is new? Vet. J., 207: 73–79; DOI: 10.1016/j.tvjl.2015.06.012.

Grabowski J. (1982). Hipologia dla wszystkich. Krajowa Agencja Wydawnicza Warszawa.

Hausberger M., Muller C., Lunel C. (2011). Does work affect personality? A study in horses, PLoS One, 9, 6(2): e14659; DOI: 10.1371/journal.pone.0014659.

Hintze S., Smith S., Patt A., Bachmann I., Würbel H. (2016). Are Eyes a Mirror of the Soul? What Eye Wrinkles Reveal about a Horse's Emotional State. PLoS One, eCollection 2016. PMID: 27732647; DOI: 10.1371/journal.pone.0164017.

Ijichi C., Wilkinson A., Giorgia Riva M., Sobrero L., Dalla Costa E. (2023). Work it out: Investigating the effect of workload on discomfort and stress physiology of riding school horses. Appl. Ani. Behav. Sci., 267: 106054; DOI: 10.1016/j.applanim.2023.106054.

Janczarek I., Stachurska A., Wilk I., Kędzierski W. (2016). Występowanie różnych zachowań i pobudliwość emocjonalna roczniaków koni pełnej krwi angielskiej trenowanych metodami naturalnymi. Med. Weter., 72 (6): 389–392; DOI: 10.21521/mw.5514

Kaleta T. (2017). Dobrostan i behawior zwierząt – wyzwanie dla edukacji weterynaryjnej. Życie Weterynaryjne, 92(6): 422–424.

Ladewig J., McLean A.N., Wilkins C.L., Fenner K., Christensen J.W., McGreevy P.D. (2022). A review of The Ridden Horse pain Ethogram and its potential to improve ridden horse welfare. J. Vet. Behav., 54–61; DOI: 10.1016/j.jveb.2022.07.003

Lansade L., Nowak R., Lainé A., Leterrier C., Bonneau C., Parias C., Bertin C., (2018). Facial expression and oxytocin as possible markers of positive emotions in horses. Sci. Rep., 8: 14680; DOI: 10.1038/s41598-018-32993-z;22:6622999177.

Luke K., McAdie T., Smith B.P, Warren-Smith A.K. (2022). New insights into ridden horse behaviour, horse welfare and horse-related safety. Appl. Anim. Behav. Sci., 246: 105539, DOI: 10.1016/j.applanim.2021.105539.

Lundblad J., Raszid M., Rodin M., Andersen P. (2021). Effect of transportation and social isolation on facial expressions of healthy horses. PLoS One, 16(6): e0241532; DOI: 10.1371/journal.pone.0241532

Mellor D.J. (2016). Updating animal welfare thinking: Moving beyond the "five freedoms" towards "A life worth living". Animals, 6, 21; DOI: 10.3390/ani6030021.
Olczak K., Tomczyk-Wrona I. (2022). Współczesne aspekty dobrostanu koni. Rocz. Nauk. Zoot., 49 (1): 3–18.
Pritchard J.C., Lindberg A.C., Main D.C.J., Whay H.R., (2005). Assessment of the welfare of working horses, mules and donkeys, using health and behaviour parameters, Prev. Vet. Med., 69: 265–283; DOI: 10.1016/j.prevetmed.2005.02.002.
Pruchniewicz W. (2007), Akademia Jeździecka część 1. Wydawnictwo Akademia Jeździecka.
Torcivia C., McDonnell S. (2021). Equine discomfort ethogram. Animals 11(2): 580; DOI: 10.3390/ani11020580.
Van Dierendonk M.C., Van Loon J.P.A.M. (2016). Monitoring acute equine visceral pain with the equine Utrecht University scale for composite pain assessment (EQUUS-COMPASS) and the equine Utrecht University scale for facial assessment of pain (EQUUS-FAP): A validation study. Vet. J., 216: 175–177.
Wathan J., Burrows A., Waller B., McComb K. (2015). EquiFACS: The equine facial action coding system. PLoS One, 10(8): e0131738; DOI: 10.1371/jounal.pone.0131738.
Wolff A., Hausberger M., Le Scolan N. (1997). Experimental tests to assess emotivity in horses. Beh. Proc., 40 (3): 209–221; DOI: 10.1016/S0376-6357(97)00784-5
Wolińska K., Łuczyńska M., Jaworski Z. (2012). Analiza zaburzeń behawioralnych u koni rekreacyjnych w wybranych ośrodkach jeździeckich województwa pomorskiego i warmińsko-mazurskiego. Rocz. Nauk. Pol. Tow. Zoot., 8 (1): 73–81.

Approved for publication: 6 XI 2023

ASSESSMENT OF THE EMOTIONAL STATE OF RECREATIONAL HORSES – A PILOT EXPERIMENT

Katarzyna Olczak, Natalia Łazarczyk, Jacek Nowicki

SUMMARY

Nowadays animal welfare has moved beyond the five freedoms model. Thus, more and more attention is paid to the emotional state of horses. The aim of this study was to assess the emotional state of Hucul horses working in a riding school during mounting. Ten Hucul horses took part in the experiment. Horses were evaluated in 4 procedures: leading (P), standing next to the mounting block (W), the same activities were also performed with the saddle on: PS – leading in the saddle and WS – standing by the mounting block with the saddle. Three pictures of each horse were taken in each situation. Photos were evaluated using the Horse Grimace Scale (HGS). The mean of three pictures was taken for further analysis. The Wilcoxon signed-rank test was used for data analysis. A statistically significant difference was found between two situations without a saddle: P and W ($Z=2.52$, $p=0.01$), as well as with the saddle PS and WS ($Z=2.52$, $p=0.01$). These results suggest that mounting block may have negative associations for horses. The effect of the saddle was also tested by comparing P and PS ($Z=0.41$, $p=0.68$), and W and WS ($Z=0.36$, $p=0.72$). The lack of significant differences suggests that the saddle itself was not a major factor influencing the emotional state of the horses.

Keywords: equine emotions, equine welfare, facial expression, Horse Grimace Scale