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Most time effective learning method for a horse.

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Seminariekurs i hästens biologi (HO0084) är en obligatorisk del i hippologutbildningen och syftar till att ge de studerande grundläggande träning i att självständigt och på ett vetenskapligt sätt kunna analysera och relatera olika värden, samt redogöra för uppgift skriftligt och muntligt. Föreliggande arbete är således ett studentarbete på A-nivå och dess innehåll, resultat och slutsatser bör bedömas mot denna bakgrund.

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ABSTRACT

There are different ways to house a horse for example pastures or stalling them in single or group boxes. Horses housed in pastures or group housing can practice their natural behavior and be as a small herd. Horses kept in boxes and single pastures are deprived from socializing with other horses which limits their ability to exercise their natural behavior. Different methods of handling a horse such as foal imprinting which introduces the foal within the first few days and weeks of life to many of the activities it will undergo throughout its life. Another learning method is trial-and-error using both positive and negative reinforcement. Positive reinforcement being when using food, or a pat to reward the horse. Negative reinforcement being for ex. that does the horse what its supposed to do then it wont get whipped. Another point to consider when teaching a horse is that the Swedish welfare rules of horses say that horses undergoing training should not experience unnecessary suffering. The aim of this paper is to find out how horses learn according to different handling, housing and teaching methods while at the same time aiming to follow the laws of the Swedish welfare rules. The questions being; What is the most time effective method to make a horse receptive to learning? How does housing affect the training of the horse? It has been shown that the most time effective method to make a horse receptive to learning is to house them either in a pasture or in group housing. The age to start training a horse is at two-year of age. It also saves time and ensures the most safety, at the same time following the Swedish welfare rules. The difference in using either positive and/or negative reinforcement would not matter. However, using mainly or only rewarding responses the horses saw less ridden behavioral problems.

INTRODUCTION

There are different ways to house a horse, for example in pastures or stalling them in single or group boxes (Sondergaard & Halekoh 2003; Rivera et al. 2002). Horses housed in pastures can practice their natural behavior and be as a small herd (Equus in focus 2015). However, there is a risk that horses may injure each other when they are kept in groups and stalling them in single boxes minimizes that risk (Equus in focus 2015). When housed in stables they are kept in boxes, normally occupied by a single horse, but in some cases more horses can be kept in the same box (Equus in focus 2015). Horses kept in boxes and single pastures are deprived from socializing with other horses which limits their ability to exercise their natural behavior (Hogan et al., 1988). Limiting daily movement leaves the horse with too much energy which could lead to it not being able to focus during training or exhibiting aggressive behavior during handling (Lansade et al. 2004; Williams et al. 2002). Boxes may vary in size but tend to range from 9 to 13 m² and sometimes they include a small window (Rivera et al. 2002).

There are many different methods of teaching a horse (Haag et al 1980). Miller (1991, p 10-15) promotes a method in the horse industry that is called “foal imprinting” and starts shortly after birth. This method introduces the foal within the first few days and weeks of life to many of the activities it will undergo throughout its life. Within its first 48 hours of life the foal will have a human touch it all over and introduce it to basic horse handling. When the horses are around two-years or above there are some methods looked upon as more harmonic in handling and/or breaking in a youngling whereas some are considered to be more aggressive (McGreevy 2004, p. 109-110, 133-138, 291-303). One method is trial-and-error using both positive and negative reinforcement. Positive reinforcement being when using food, or a pat

to reward the horse (McGreevy 2004, p. 109-110, 133-138, 291-303). Negative reinforcement being for ex. that does the horse what its supposed to do then it wont get whipped (McGreevy 2004, p. 109-110, 133-138, 291-303). Another point to consider when teaching a horse is that the Swedish welfare rules of horses say that horses undergoing training should not experience unnecessary suffering (Jordbruksverket 2010). To follow these laws one needs to find a learning method that leaves the horse with unnecessary suffering (Jordbruksverket 2010).

Problem

Training horses is time consuming and can sometimes affect their welfare. It is important for both the industry and the welfare of the horses to find out how different handling methods and different housing can affect the learning ability of the horses.

Aim

The aim of this paper is to find out how horses learn according to different handling, housing and teaching methods while at the same time aiming to follow the laws by the Jordbruksverket (2010).

Question

What is the most time effective method to make a horse receptive to learning? How does housing affect the training of the horse?

REVIEW OF LITERATURE

Housing

Rivera et al. (2002) studied the behavioral and physiological responses of horses in initial training. They used 16 two-year old horses (different sex) and the tests were conducted over a period of 28 days. Six horses each from the pasture and box group (twelve horses) went through a normal training schedule made up of training track, ground work and riding. The horses housed in boxes could see each other but not interact physically with one another. The control group of four horses (two from the pastured and two from boxed groups) did not undergo any training. They were let loose in the round pen to asses their behavior. The behaviors of all 16 horses were studied while they were separately loose in the round pen. During the breaking period the horses would learn to be walked, trotted and cantered with a mounted rider, all except the control group of four horses. The results showed that boxed horses needed more time in training than the pastured horses. The boxed horses found the transition from groundwork to mounted exercise harder. There was also more negative behavior observed in the boxed horses such as biting and kicking. Even so, the pastured horses adapted more easily to training than boxed horses. (Rivera et al. 2002)

Sondergaard & Halekoh (2003) studied the reactions of young horses towards humans. They used 40 Danish warmblood colts after weaning. The horses were divided into two groups, where eight were housed in single boxes, 12 horses were divided into four groups of three horses and the groups were kept in separate boxes. All horses were housed from mid-September to May. During the summer they were all kept together in the same pasture. After the summer they returned to the housing they had before. The experiment ended the summer

when they were two-years of age. The period testing extended from then the horses were six-months of age to when they were two-years old. Three tests were performed. Voluntary animal approach test, Forced human approach test and Arena and human encounter test. The trainers performed on all the horses one by one. 1/ at the ages of 6, 9, 12, 18, 21 and 24 months old in a fenced arena for horses where a person would clock how long time it took for the horse to approach. 2/ At a different time the trainer would approach the horse and assess the behavior. 3/ At age of 12 and 24 months their behaviors were studied letting them loose in a round pen outside that was fenced and which was unfamiliar. The behavior was recorded when the horse made contact with the trainer. The results showed that single housed horses approached the trainer faster in the test 1/. The single housed horses showed less restless behavior, a greater interest to explore their surroundings and vocalized less. The 1-year olds vocalized more but at the same time explored more in the Arena and human encounter test than the two-year old horses. The horses approached more easily with increasing age.

Sondergaard & Ladewig (2004) studied that group housing leads to a positive effect on the behavior of young horses during training. They used the same horses as in the study of Sondergaard & Halekoh (2003) but started recording them as foals. When the foals were about 3-5 months of age they were given a score of their reactivity from 1 (quiet) to 3 (agitated) based on their reaction when being separated from their mare. (Sondergaard & Ladewig 2004)

Later, at four-years of age, these same horses were put into training. They had 50 training sessions during the first winter period (mid-September to May) and 70 in the second one. A winter period lasts approximately eight and half months. The horses were put through training exercises which consisted of leading, tying up, touching, lifting feet, etc. During training the trainer would use a soft voice and patting for good behavior (e.g. not biting or kicking) and shout or raise a hand when the horse was misbehaving. The horse had to complete a stage in order to move on to the next. The first winter period they received a series of tests in different stages. Then during the summer months no tests were conducted. For the second winter period the horses had to complete the stages from the first winter period to ensure that they were ready for the second stage of the experiment. The results showed that the group of housed horses passed more stages. The single housed horses showed more objectionable behavior towards the trainer than the group housed horses. The group-housed horses were easier in handling. The single-housed horses would run around loose for a longer period of time before coming in contact with the trainer. However the group of housed horses found it harder to be separated from their group fellows, and this could have had a negative effect on their ability to learn. (Sondergaard & Ladewig 2004)

Handling

Foal imprinting was studied by Williams et al. (2002). The imprinted foals received a training procedure at 2, 12, 24, and 48 hours after birth. Within the first 48 hours the foals would undergo two-part training procedures. For ex. Part 1: Rub the foal's entire body with hands. Part 2: Push the foal's side until the foal moves away from the pressure. After the initial 48 hours all 47 (25 imprinted, 22 control) foals had minimal contact. Tests took place from 1-3 months of age. They conducted an approach test, haltering test, heart rate monitor attachment test, and stimuli testing on all foals at the age of one, two and three months of age. The tests included two criteria, 1/ the time taken to complete an event. 2/ the behavioral score. The results showed that the control foals had lower behavioral scores for fitting a halter on at one and two-months of age. The imprinted foals had a lower heart rate and performed better in the stimuli tests at one and two-months of age. However, there was no significant difference

between the imprinted or the control group at three months of age. This study proves that early training in foal imprinting does not make a difference then training horses at such an early age. (Williams et al. 2002)

The effects of handling at weaning were studied by Lansade et al. (2004). They had 24 foals (twelve male and twelve female). They were split into three groups. One group being eight foals “early handled” between twelve hours to twelve days after weaning, the second group being eight “late handled” foals, between 21 to 33 days after weaning. The third group being eight called the “control” group of eight foals that got as little human contact as possible. Tests took place from 2-18 months of age. Handling consisted of haltering, gently petting all parts of the body, picking up feet and leading the foal 120 m. The tests measured time on the following exercises: 1/to fit the halter on a foal; 2/ picking up feet; 3/ leading the horse; 4/ reactivity to various situations; 5/ open-field tests and 6/ a surprise test. Tests were taken on days 2, 4, 6, 10 and 18 months. Results showed that early and late handled were easier to handle than the foals in the control group. However with time the difference diminished with time. Early handled were easier to handle and they had the best results in every test. (Lansade et al. 2004)

Learning

Avoidance with maze learning was studied by Haag, Rudman & Houpt (1980). They used a maze where ponies could either turn left or right three times to get to the end of the maze. The right and left paths could change but there would always be three paths and at the end a food reward was placed at the end of the maze. The test was conducted once a day. The second test required the pony to jump over a pole positioned horizontally 0.5m off the ground which it had to jump over in order to avoid an electric shock. From when the horse would stand still it would take ten seconds for it to receive a shock. If the horse did not understand the shock it would be assisted. As soon as the horse went over the pole the shock-wave apparatus would stop. This test consisted of ten trails each day for ten days. The experiments conducted showed that ponies that performed well in one of the experiments tended to also perform well in the other (maze learning and shock-avoidance learning). The results showed that ponies responded equally well to both positive (food at the end of the maze) and negative (electrical shock) reinforcement. (Haag, Rudman & Houpt 1980).

Hockenhull & Creighton (2013) published a survey research about horse training. They looked at three predictions from learning theory: fewer ridden behavior problems from either; 1/ rewarding the horse for appropriate behavior; 2/ punishing the horse for inappropriate behavior; 3/ the more consistent the rider was in their training approach. They also looked at the relationship between the rider’s overall approach to training and the horse’s generic ridden behavior problem score. Using an online survey they collected data by asking eight respondents questions regarding the ridden behavior of the horse. They also responded to which method of rewarding (ex. pat), neutral (ex. did nothing) or punishing (ex. smack). They collected 103 answers. Results from Hockenhull & Creighton (2013) survey showed that there was no difference in the horses common behavior between 1/ being to reward positive behavior; 2/punishing inappropriate behavior. However, when riders used mainly or only rewarding responses the horses had less ridden behavioral problems. (Hockenhull & Creighton 2013)

DISCUSSION

Housing

Both Raviera et al. (2002) and Sondergaard & Halekoh (2003) concluded that the ideal housing method for horses should be in group boxes or pastures, because their experiments showed that they needed less time to complete the task and were also less aggressive. Saving time on every horse would mean that a stable could have more horses during training. The grouped horses also showed less aggression towards the trainers, thus saving them from getting injured (Sondergaard & Halekoh 2003 & Sondergaard & Ladewig 2004). With two-years of age they vocalized less and approach the trainer faster than at one year of age. This indicates that it would be better to start training at the age of two. These results from Sondergaard & Halekoh (2003) were consistent when Sondergaard used the same horses in a behavioural training test at the age of four (Sondergaard & Ladewig 2004).

Handling

Although foal imprinting resulted in notable differences in the behavior of foals during the first two-months of age, it didn't show a difference with the imprinted or controlled foals after three months (Williams et al. 2002). Lansade (2004) study showed that behaviors at the end of the 18 months testing period the difference demised progressively between the early and late handled foals. Since training for a young horse was shown to be most effective at the age of two (Sondergaard & Halekoh 2003) Since early/late handled and imprinted foals at such an early stage shows no noticeable difference later on (Williams et al. 2002; Lansade 2004) time spent doing this would be better spent on training two-year olds. The results of this study are important to riding stables who are interested in knowing the most effective and time efficient training methods. However for future studies it would be interesting to test a training schedule same as Sondergaard & Ladewig's (2004) on the same foals from Lansade et al. (2004) and Williams et al. (2002) at two/three/four-years of age.

Learning

Hockenhull & Creighton (2013) and Haag, Rudman & Houpt (1980) can conclude that both positive and negative reinforcement showed equally effective in the horses learning. However, in Hockenhull & Creighton (2013) study showed when riders used mainly or only rewarding responses the horses had less ridden behavioral problems. Also using the no punishment method goes well by the Swedish welfare rules (Jordbruksverket 2010) and with the horse having less ridden problems increases the safety of the rider.

Accuracy in studies

The study that was most trustworthy was Sondergaard & Halekoh (2003) & Sondergaard & Ladewig (2004) since they used the most horses. Using a larger number of horses for a study provides a more diverse testing pool and results in a more accurate percentile overview. The statistical study that was least trustworthy was Hockenhull & Creighton (2013) since all the surveys were answered by email meaning they had no way to verify the answers.

Future studies

For future studies it would be interesting to learn some extra details regarding the amount of people it took to conduct the study, how many hours were spent on it, what were the housing costs, and any eventual injury costs.. The aim of this paper was to find out which is the most time effective method to make a horse receptive to learning and how housing affected the training of the horses. In order to save money one needs to think about the man power used- how many people and how much it costs for each one. The hours spent on handling the horses- mucking and/or training. Housing cost- what the cheapest housing is. Injury costs- if a specific housing method lead to more horses being injured.

Conclusions

The conclusion is that the most time effective method to make a horse receptive to learning is to house them either in a pasture or in group housing. The best time to start training a horse is at two-year of age. It also saves time and ensures the most safety, while at the same time following the Swedish welfare rules. The difference in using either positive and/or negative reinforcement would not matter. However, using mainly or only rewarding responses the horses saw less ridden behavioral problems.

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