

# Advances in Equine Nutrition

## Volume II

Edited by

J.D. Pagan



## **BEHAVIORAL AND PHYSIOLOGICAL RESPONSES OF HORSES TO INITIAL TRAINING, THE COMPARISON BETWEEN PASTURE VERSUS STALLED HORSES**

E. RIVERA, S. BENJAMIN, B. D. NIELSEN, J. E. SHELLE, A. J. ZANELLA  
*Michigan State University, East Lansing, MI*

There are evidences, for several species, that learning ability may be impaired in animals housed in social isolation or barren environments. The environment in which the animal is housed affects interaction between humans and horses. Horses housed on pasture have the ability to interact socially and are exposed to a more diverse environment but have less contact with humans. Horses kept in stalls experience human contact but often have a lack of social interaction and are exposed to more barren environments. Response to initial training may be affected by housing conditions.

Behavioral and physiological responses were monitored in 16 2-year-old Arabian horses subjected to a standardized “training procedure” (n=12) carried out by the same trainer or selected as control (C) (n=4). The horses were kept in pasture (P) (n=8) or in individual stalls (S) (n=8) for three months prior to this experiment. Twelve horses (6 P & 6 S) were subjected to training and 4 horses (2 P & 2 S) were used as control. Initial training consisted of releasing the animal into the round pen and encouraging the horse to run in one direction until the horse accepts the trainer. Circa ten minutes post-release, the horse approached the trainer and a halter was used to handle the horse. After handling, a saddle was placed on the animal’s back and the horse was released in the round pen. After that the trainer mounted the horse and taught some basic commands. The training session lasted an average of 30 minutes. Control horses were released into the round pen and left to explore the environment for 30 minutes. Behavioral observation assessing the interactions between the trainer and the horse in training were collected using a video recorder. Measures of plasma cortisol were monitored by radioimmunoassay in blood samples collected by jugular puncture in training days 1, 7, 21, and 28. Samples were collected prior to training (basal), immediately post-training (pt), 15 minutes post-training (pt15) and 75 minutes post-training (pt75).

After 20 minutes of handling the trainer was able to mount and ride the horse and minimal behavioral responses were observed. There were no differences in basal cortisol levels among the three groups studied prior to training (P =  $181.2 \pm 20.9$ ; S =  $194.30 \pm 57.7$  and C =  $182.8 \pm 32.1$ ; p = .97). Plasma cortisol levels showed significant changes after training or exposure to a novel environment in the three groups for day 1 (P: F test 3.59, p=0.03; S: F test 6.22, p=0.003 and C: F test 3.5, p=0.04). Differences between basal cortisol levels and post-training levels were not evident for control horses in days 7, 21, and 28 post-training, although they could be observed in trained horses. Effective training may be accomplished in rather a short time using humane techniques. Housing conditions

appeared to have no significant effect on cortisol release during initial training in horses. These results may generate recommendations that could be given to horse owners on which housing conditions may maximize the opportunity for success of training procedures.