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**Contributed Presentation**

**Possible indicators of the human-horse relationship among  
adult horses**

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**Introduction**

Various scientific tests have been designed to measure the human-horse relationship, such as the motionless person test, also known as voluntary animal approach test, in which the test person stands still a few meters from the animal and remains still (e.g. Visser et al., 2001; Seaman et al., 2002; Simpson, 2002; Williams et al., 2002; Søndergaard and Halekoh, 2003; Henry et al., 2005; Lansade and Bouissou, 2008). There are tests, in which the human appears suddenly e.g. at the door of the stall-box (e.g. Hausberger and Muller, 2002) or in which the human approaches the horse (forced human approach test) (e.g. Jezierski et al., 1999, Simpson, 2002; Søndergaard and Halekoh, 2003; Henry et al., 2005; Lansade and Bouissou, 2008). In other tests, the human tries to create physical contact with the horse, for instance tries to touch or stroke the animal (e.g. Søndergaard and Halekoh, 2003; Henry et al., 2005; Lansade and Bouissou, 2008), fits the horse with equipment (e.g. Feh de Mazières, 1993; Williams et al., 2002; Henry et al., 2005; Lansade et al., 2004, 2005), picks up its feet, or exposes it to veterinary inspection (e.g. Jezierski et al., 1999; Spier et al., 2004; Lansade et al., 2004, 2005). Handling procedure may also involve leading the horse away from and towards the stable (e.g. Jezierski et al., 1999; Visser et al., 2001; Lansade et al., 2004). In the bridge test (e.g. Wolff et al., 1997; Visser et al., 2001; Simpson, 2002) the reluctance of the horse to be led over an unfamiliar obstacle can be measured. Various factors are believed to influence the human-horse relationship. These factors might be early experiences, e.g. imprint training (e.g. Williams et al., 2002; Lansade et al., 2005), early handling (e.g. Jezierski et al., 1999, Ligout et al., 2008), handling at weaning (e.g. Lansade et al., 2004; Ligout et al., 2008) and mare handling (e.g. Henry et al. 2005). In addition, the effects of temperament (e.g. Le Scolan et al., 1997; Visser et al., 2001; Morris et al., 2002; Seaman et al., 2002), breed, age, gender (e.g. Le Scolan et al., 1997; Wolff et al., 1997; Hausberger and Muller 2002) and the housing system (e.g. Jezierski et al., 1999; Søndergaard and Halekoh, 2003) may also be of importance. The influence of a caretaker on horses' behaviour towards humans has also been detected (e.g. Hausberger and Muller, 2002). Overall, there are a number of tests which enable us to assess the human-horse relationship.



## Objectives

The aims of our study were to observe behavioural responses of horses to their particular familiar handlers („users“) and to find factors that may affect these responses: horse related factors (gender and age of the animals) and human-related factors (familiarity of the human, the type and amount of training and the number of handlers).

## Materials and methods

We carried out an arena test and a person test. In the arena test, the horse was put alone into the test arena for five minutes (arena test). In the person test the human entered the arena (person test) and interacted with the horse according to a predetermined protocol. He was not allowed to use any tack or food reward during the whole experiment.

The *person test* consisted of 3 or 4 different phases, depending on the horse's reactions. The phases were: (1) „the voluntary approach“ phase (Appr-Vol), in which the test person stood still in the middle of the test arena and the horse had two minutes to approach the human voluntarily. If the horse had not gone to the test person within the three minutes, (2) „the after calling approach“ phase (Appr-Call) followed, in which the person had to call the horse to himself. The test person had two minutes to make the horse go up to him. If the horse had gone to the human in the first phase within three minutes, (3) „the standing beside the test person“ phase (Stand-Still) came next, in which the human had to make the horse stay beside him without holding the animal. This test lasted for two minutes. The last phase was the (4) „the following of test person“ phase (Follow) for three minutes, in which the human had to make the horse follow him, without leading it.

We tested fifty-one horses with their familiar handlers and retested thirty-nine with thirteen unfamiliar test persons within more than one week.

The results of the questionnaire enabled us to measure human-related factors e.g. the age and gender of the animal, the amount of time spent per week handling the horse (HANDLING; less than 7 hours vs. more than 7 hours per week), the number of handlers (HANDLER; one vs. more than one) and the horse's training in followership, which showed whether the horse is trained to follow the human without using any kind of tack (without a halter, leadrope, bridle, rein and without leading the horse) (FREE-WALK; yes vs. no).

## Results

As for the results of the arena test, horses' behaviour was affected neither by their age nor by their gender. In the retest the animals stood significantly more and walked significantly less on group level, which may reflect some signs of habituation to the situation. On individual level, the behaviour variables (standing, walking, sniffing, rolling) were consistent over time.



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With regard to the results of the person test, on group level, horses followed the familiar test persons significantly longer than the unfamiliar ones, which suggested that horses distinguished the familiar human from the unfamiliar one. On individual level, horses' behaviour in the Stand-Still and the Follow phase were consistent over time. Behavioural variables were not influenced significantly either by gender or by age. A three-way ANOVA statistical analysis was performed to receive information about the effects of human-related factors (HANDLING, HANDLER and FREE-WALK) on the behavioural variables in the phases of the person test. In the Appr-Vol phase and in the Appr-Call phase, horses trained by only one handler approached the test person significantly sooner, than horses trained by more than one handlers. None of the observed human-related factors affected the horses' behaviour in the Stand-Still phase significantly. As for the Follow phase, HANDLING, HANDLER and FREE-WALK had a clear effect on behavioural responses: horses trained more than 7 hours per week followed the human significantly longer, than horses trained less than 7 hours a week. Additionally, horses trained by only one handler followed the test person significantly longer, than horses trained by more than one trainer. Finally, horses trained to follow the human without being led followed the human significantly longer, than horses which did not received this kind of training. All of three human-related factors (HANDLING, HANDLER, FREE-WALK) influenced the followership independently.

We also compared the two types of approaches to see whether it mattered if the horse approached the test person voluntarily (group A; n=28) or only after being called (group B; n=23). No significant differences were observed between group A and B with regard to the behavioural responses shown in the Stand-Still and Follow phase. We found a significant negative correlation between the latency of approach and the time of follow in group A and B, as well.

### **Conclusion**

In our experiment followership seemed to be the most precise behavioural indicator of the human-horse relationship. In addition, the time of approach (in the Appr-Vol / Appr-Call phase) seemed to be an accurate indicator, as well. The follow response seemed to be a consequence of the training method applied, which included the horse showing learnt responses (Krueger, 2007), and/or having an improved communication with a particular familiar human, and/or having social affiliations.