

Social learning in horses

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Social observational learning is one of learning abilities expected in domestic horses (*Equus caballus*) because of their ecological and evolutionary history. However, a few studies on this type of learning in horses failed to provide clear evidence of observational learning and/or could not distinguish it from other types of learning. We tested interspecific observational learning abilities using the spatial task and a human demonstrator. We hypothesised that 1) horses with possibility of observing a human demonstrator will complete the task in shorter time than control horses without any demonstrator, and 2) horses observing a familiar demonstrator will carry out the task in shorter time than horses with an unfamiliar demonstrator due to established positive human-horse relationship. We randomly allocated 24 riding horses of mixed age and breed to three groups per 8 and started the task either with observing a familiar demonstrator, unfamiliar demonstrator or without demonstrator (control group). Each horse was released individually at the starting point in the experimental paddock and the latency to pass the task was recorded. A horse completed the task once it walked 25 m from the starting point to the squared area (4x4 m) fenced by a tape, went into it through the entrance on the opposite side and touched the bucket with food. Eight people served as demonstrators, each for one familiar and one unfamiliar horse. Horses from groups with a demonstrator, either familiar or unfamiliar, reached the food bucket significantly faster than control horses during the first trial (mean±SE: 29.1±3.13 s with familiar, 28.9±3.13 s unfamiliar and 41.5 ± 3.13 s without demonstrator, $P < 0.02$, GLMM, PROC MIXED, SAS). Horses did not differ in time needed to reach the fence of the squared area, but in "solving time", i.e. time from reaching the fence of the squared area and touching the bucket (14.6±2.34, 14.3±2.34 and 27.6±2.34 s in horses with familiar, unfamiliar or without demonstrator, $P < 0.001$). Despite our presumption, the horses observing a familiar demonstrator finished the task in compa-

table time as horses with an unfamiliar demonstrator ($P = 0.85$) which indicated little effect of long lasting positive relationship between a horse and a particular human. We found, however, large individual variability in performance of individual demonstrators. Further, horses did not differ in time needed to pass the same task without a demonstrator repeated either shortly or 7 days after the first test which supported that interspecific observational learning rather than social facilitation occurred. In conclusion, horses with a human demonstrator, regardless familiar or unfamiliar, were able to solve the task in shorter time compared to control horses but they did not differ in performing repeated task if they learned it by individual or social learning process. This indicates that interspecific observational learning does occur in horses.

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