

Innovative behavior in horses (*Equus caballus*)

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Contrary to the widely-spread assumption that horses just have restricted cognitive capacities and are not very flexible in their behaviors, we showed that horses display innovative behavior and even make use of tools (Krueger 2015, Krueger et al. 2015). These findings derive from a database (<http://innovative-behaviour.org/>) the Equine behavior team managed in the past two years. Some horses did not only show single innovations, but several different innovations. The number of innovations per individual varied from 1 to 10. 20 % of all innovative horses in the database showed more than one innovation. These individuals can be called the 'true innovators'. Moreover innovations were dependent on age. Young horses were more innovative than older ones, whereby horses at the age of five to nine years were the most innovative. When considering the housing system innovative horses in a single housing (inside box, outside box, paddock box) had a slight majority towards horses in group housing (open stable, active stable, pasture day and night). But given the fact that ratings on housing system frequencies state 95% of the horses to be kept in individual housing, innovations in individual housing are rare. Nevertheless, horses kept in inside boxes without a window, opened doors more often than all other horses. Aside from this effect, housing systems did not trigger the frequency of innovative behavior. Innovations for gaining freedom and innovations in general were widespread among horses with daily access to pasture and daily contact with conspecifics. Innovations for gaining food were not more likely

to occur in horses that were fed little amounts of roughage. In conclusion, the housing of horses does not seem to be the primary catalyst for developing innovative behavior in horses. What makes a "true innovator" in horses, in addition to age, remains to be seen.

Keywords: innovative behavior, age, housing system, horse, *Equus caballus*

Reference:

Krueger, K. (2015). Wie schlau sind Pferde? Soziales Lernen und innovative Anpassungen der Pferde. Göttinger Pferdetage'15, Zucht, Haltung und Ernährung von Sportpferden, FN Verlag, Warendorf, ISBN: 978-3-88542-886-2

Krueger, K., Hollenhorst, H., Schuetz, A., Weil, S. (2015). Social learning and innovative learning in horses. In K. Krueger (Ed.), Proceedings of the 2. International Equine Science Meeting. Wald: Xenophon Publishing. ISBN: 978-3-95625-000-2

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