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Social Learning and innovative behaviour in horses

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The evaluation of important parameters for measuring the horses' cognitive capacities is one of the central topics of the equine behaviour team at Nürtingen-Geislingen University. Social complexity has been said to be one of the settings in which needs for cognitive capacities arise in animals. A variety of studies throughout the last two decades proved the horses' social complexity to be far more elaborate than previously assumed. Horses form social bonds for the protection of offspring, intervene in encounters of others, identify group mates individually and easily orientate in a fission fusion society.

In such socially complex societies, animals will benefit from learning socially. In many bird and primate species the degree of social complexity correlates nicely with the species abilities for social learning. Social learning was, therefore, argued to be an indicator for elaborate mental capacities in animals. We were delighted to prove that horses actually copy social behaviour and techniques for operating a feeding apparatus from older and higher ranking group members. In a recent study we found young horses, at the age of 3 to 12, to copy the operation of a feeding apparatus from a human demonstrator. Social learning seems to work nicely in horses when the social background of the animals is considered.

The degree to which individual animals adapt to changes in their social or physical environment by finding innovative solution appears to be the other side of the coin, of whether animals adjust to challenges by social learning. It is not very astonishing, that along with the animals' social complexity and their ability to learn socially also the degree to which they show innovative behaviour was claimed to be one of the most important demonstrations of advanced cognitive capacities. In a recent approach, we started to ask horse owners and horse keepers in many countries to tell us about unusual behaviour of their horses via a web site (http://innovative-behaviour.org). To date, we received 204 cases of innovative behaviour descriptions from which six cases were clear examples of tool use or borderline tool use. We categorized the innovative behaviours into the classes, a) innovations to gain food, b) innovations to gain freedom, c) social innovations, d) innovations to increase maintenance, and e) innovations that could not be clearly assigned to a category. About 20% of the innovative horses showed more than one innovation. These animals could be termed "true innovators". Again, young horses were more innovative than older ones with the age group 5 – 9 showing the highest number of innovative behaviour descriptions.

In a nutshell, the horses' cognitive capacities appear to be underestimated throughout the last decades. The horses' social complexity is far more elaborate than previously assumed, horses learn socially from conspecific and humans, some of them demonstrate innovative behaviour adaptations to their environment and even simple forms of tool use.

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