

A study of lateralized behaviours in domestic horses (*Equus caballus*)

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Introduction

Brain lateralization can be studied by assessing side preferences in behavior. Only few studies so far assessed side preferences in horses and currently it is unknown whether they occur at the individual or at the population level and whether they correlate between behaviors.



Methods

Ten horses were observed at Churchill Chimes Equestrian Center (Toronto, Canada) for 16 weeks. The direction (left or right) and frequency of 12 spontaneously occurring behaviors and of 2 stimulus-induced behavioral responses were recorded.

Results

- **Individual side preferences** were found for certain behaviors (shown in bold in the **table** below)
- No **consistency** of side preference across behaviours
- No significant **correlations** between behaviours
- No significant side preference at the **population level** for any behaviours



Motor Behaviours		Social Behaviours		Sensory Behaviours	
Frequent	Rare	Affiliative	Agonistic	Auditory	Olfactory
Standing Turning Flank Bite Hindleg Stomp Flexing Leading Limb Foreleg Bite Foreleg Stomp	Defecating Tail Side Groom Foreleg Pawing Groom Flank Rubbing Lying Down	Allogrooming Approach Side Standing Close	Threat Bite Kick Chase	Known Horse Unknown Horse	Sheep Feces Stallion Feces Mare Feces

Conclusion

Results indicate that horses display lateralized behaviours at the individual level, but not at the population level. This is consistent with all other species studied so far except humans and some great apes. The body morphology, complex social hierarchy and group composition of horses may explain the lack of population level lateralization.

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