Consistency and flexibility in solving spatial tasks: different horses show different cognitive styles

Paolo Baragli [1,4 *], Valentina Vitale [2], Claudio Sighieri [1], Antonio Lanatà [3], Elisabetta Palagi [4,5], Adam R Reddon [6,7]

1 Department of Veterinary Sciences, University of Pisa, Italy.

2 Unitat Equina, Fundació Hospital Clìnic Veterinari, Universitat Autònoma de Barcelona, Spain.

3 Department of Information Engineering & Research Center "E. Piaggio", School of Engineering, University of Pisa, Pisa, Italy.

4 Museum of Natural History, University of Pisa, Italy.

5 Institute of Cognitive Sciences and Technologies, National Research Council, Rome, Italy.

6 Department of Biology, McGill University, Montréal, Canada.

7 Current address: School of Natural Sciences and Psychology, Liverpool John Moores University, Liverpool, UK.

Corresponding author:

*Paolo Baragli

Department of Veterinary Sciences, University of Pisa, Viale delle Piagge, 2, 56124, Pisa (Italy)

Email: paolo.baragli@unipi.it

Table 1 Supplementary materials. Laterality index of each horse and relative changes between symmetric and asymmetric barrier.

Horse ID	Laterality Index (Symmetric barrier)	Laterality Index (Asymmetric barrier)	Wilcoxon's signed ranks test [a]
H1 (1)	0,867	0,600	
H3 (1)	0,467	0,067	
H5 (1)	0,867	0,067	
H7 (1)	0,733	0,867	
H8 (1)	0,333	0,200	
H9 (1)	0,867	1,000	
H16 (1)	0,200	0,600	
H17 (1)	0,333	0,067	
H19 (1)	0,067	0,333	
H21 (1)	0,067	0,867	
H22 (1)	0,867	0,467	
H24 (1)	0,067	0,333	
Mean ± SD	0.48 ± 0.34	0.46 ± 0.33	Z = -0.315 P = 0.753
H2 (2)	1,000	0,867	
H6 (2)	1,000	0,067	
H10 (2)	1,000	0,600	
H11 (2)	1,000	0,867	
H12 (2)	1,000	0,733	
H14 (2)	1,000	0,600	
H20 (2)	1,000	0,600	
H26 (2)	1,000	0,600	
Mean ± SD	1.00 ± 0.00	0.62 ± 0.25	Z = -2.555 P = 0.011
H4 (3)	1,000	1,000	
H13 (3)	1,000	1,000	
H15 (3)	1,000	1,000	
H18 (3)	1,000	1,000	
H23 (3)	1,000	1,000	
H25 (3)	1,000	1,000	
Mean ± SD	1.00 ± 0.00	1.00 ± 0.00	Z = 0 P = 1.000

(1) Directionally flexible horses who detoured the barrier on both sides; (2) horses shifted from directionally consistent bias to directionally flexible response; (3) horses which were directionally consistent in both task. [a] Asymp. Sig. (2-tailed) with normalized Laterality Index.