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Preliminary results on the influence of laterality in ponies during a two choice palatability test

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Introduction. Compared to other animals, little is known about dietary preferences in horses and palatability tests are scarce [1-3]. Moreover, horses are known to exhibit preference for one side over the other [4,5] but there has been little consideration of a lateralized response in 2 choice preference tests. The aim of the study was to assess if horses show a side-preference which influences their choice in preference tests.

Animals, material and methods. To establish laterality, two behavioral tests were carried out to assess behavioral responses to a novel object (blue rucksack+2 colored pillows) and person in 12 ponies (5-23 years, BCS 5-8). The ponies were released into the testing area containing the novelty. Sensorial and motor laterality (glance/sniff novelty with right/left eye/nostril, position of the novelty compared to the head's axis, forelimb leg) were evaluated with instant scan sampling (each 10s) for 5 min., using Solomon Coder Software[®]. Secondly, a 2-choice palatability bucket test was carried out using first cut chopped hay with/without the addition of a sweet testing flavour (50g of hay+10g flavour+water(F) or 10g of water (W)). The final concentration of flavour was 2% on total weight. Position of F bucket was randomly chosen for each pony. First bucket approach (F/W), intake ratio from leftover (IR) were evaluated after 5 min. Both for laterality tests and feed test parametric (Anova) or non parametric test (Kruskal-Wallis) are applied respectively for data normally and not normally distributed and K-means cluster analysis to detect groups. Sign test is applied to assess the buckets approached first (F/W).

Results and discussion. The laterality tests showed that the ponies were divided in 3 groups (left=4, right=6, none=2). Significance differences were identified between the groups in the novel object test for glance to the object with right eye, frequency placed with the body axis on the right of the object and time spent with the body axis on each side. No difference between the groups was recorded for the person test. The preference test showed that ponies significantly approached first F bucket (75%, $p < 0,005$), possibly an effect of 'smell' leading to curiosity, but then showed a strong preference for eating W (Table 1). This may be a consequences of neophobia towards novel feed [1,2]. It is also possible that ponies dislike the smell/taste. No significant effect of laterality was seen during preference test and no correlation with previous laterality tests.

Table 1. Intake rate (g as fed) during preference test of F and W hay.

		Mean	Median	p-value
IR	F	1.8	0	<0.0001
	W	55.9	60	

Conclusion. This preliminary results showed that for ponies in this study laterality did not influence choices during a feed-preference test; however further research is necessary with an higher sample size.

References: [1] Van den Berg et al. (2016) *App. An. Behav. Sci.*, 183: 59-67; [2] Van den Berg et al. (2016) *App. An. Behav. Sci.*, 184: 41-50; [3] Goodwin et al. (2005) *App. An. Behav. Sci.*, 95: 223-232; [4] Larose et al. (2006) *Later.* 11: 355-367; [5] Austin et al. (2005) *App. An. Behav. Sci.* 92: 337-352