


**Short communication****Ambidextrous Grazing Posture in the Catalan Pyrenean Horse**Pere Miquel Parés-Casanova\* 

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**ABSTRACT**

Motor laterality has been often studied in non-human animals, including ungulates, and it has been noted that adult animals tend to be ambidextrous. Therefore, the current study aimed to study the laterality of grazing posture when standing in a quadrupedal position. To this end, a total of 106 horses (24 foals, 8 yearlings, 14 subadults and 60 adults 53 females and 7 males) of Pyrenean horse from 11 grazing areas farms were observed and their forelimb preference when grazing was recorded (1-3 times for each animal). The obtained results revealed that approximately half of the horses were right-handed and half left-handed, and females were equally lateralized than males. Moreover, lateralization was not affected by age. Therefore, it seems that forelimb ambidexterity in Pyrenean horses is probably due to the lack of human contact. As the presentation of unevenness may be crucial to orthopaedic health and the compensatory mechanisms used by uneven footed horses are currently unknown, data presented here have a complementary crucial interest.

**1. Introduction**

Motor laterality has been often studied in non-human animals, including ungulates<sup>1-3</sup>. These studies have relied on the use of different scenarios, including leg positions while standing or resting, leg movement associated with locomotion, grazing/foraging behaviour, contest, splaying and suckling behaviour, as well as unrestricted food handling<sup>4-6</sup>. It has been noted that adult animals tend to be ambidextrous although the side preferences can change with experience<sup>3</sup>.

From this outset, the purpose of the present study was to observationally detect asymmetrical tendencies in a pure breed horse population. The present study was conducted on Pyrenean Catalan Horse (*Cavall Pirinenc Català*, CPC, [Figure 1](#)), a meat breed managed under semi-extensive conditions along the Catalan Pyrenees.

**2. Materials and Methods**

A total of 106 horses (from foals to adults) from different local farms were observed and their forelimb preference was recorded when grazing (1-3 times). The animals belong to CPC breed, a heavy breed managed semi-extensively on the Catalan Pyrenees, North-East Spain. The observer tried not to attract animals' attention by minimizing movements and noise. Each individual horse was photographed. As additional data, sex for adults and age

groups (foal, yearling 1.5 year, sub adult 2.5 year, and adult >2.5 year) were recorded. The final sample included 24 foals, 8 yearlings, 14 subadults and 60 adults, as well as 53 females and 7 males. Grazing areas (n = 11) correspond to mountain grasslands where herds are mixed and kept free from May to June. No physical natural contacts exist between grazing areas. A total of 286 registers were finally obtained.

**2.1. Statistical analysis**

Chi-square test was used to compare the right and left group and a Kolmogorov-Smirnov D test was used to analyse laterality distributions between sexes. Analysis was done with PAST v. 2.17c software<sup>7</sup>. P < 0.05 were considered statistically significant.

**3. Results and discussion**

A similar percentage was registered for right-handed animals (54.6%) and left-handed animals (45.3%), global percentage reflecting no differences ( $\chi^2 = 6.69$ ). Kolmogorov-Smirnov indicated similar distributions between males and females (D = 0.155). There were no statistical differences among age groups ( $\chi^2 = 22.96$ ). The symmetrical theory states that the natural horse is born

symmetrical and tends to stay symmetrical in both movement and appearance. If a horse displays asymmetrical tendencies, it is claimed this is unnatural<sup>8</sup>.

Although sidedness has been associated with lateralized grazing posture in warmblood horses<sup>9</sup>, CPC horses seems to be ambidextrous, with no effect of age and sex, so the use of right or left forelimb appears similar. This is probably due to a natural behaviour as the breed is scarcely human-managed.



**Figure 1.** *Cavall Pirinenc Català* (stallion)

#### 4. Conclusion

It would be an interesting approach if future studies compare different breeds and their management methods.

#### Declarations

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#### Competing interests

Financial or non-financial with regard to the study.

#### Availability of Data and Materials

The dataset generated and analysed during the current study is available from the author on reasonable request.

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