



Ecomorphology and feeding behavior of the Pleistocene South American equids (*Mammalia*, *Perissodactyla*, *Equidae*)

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The fossil record of the South American Pleistocene presents two Equidae taxa: *Hippidion* Owen and *Equus* (*Amerhippus*) Hoffstetter. These equids were possibly sympatric and, although being considered closely related, present distinct cranial morphologies. This study aimed to verify possible variations on the masticatory patterns and dental wear between both genera, as well as to compare their rostral morphology and functional differences related to feeding habits. We performed quantitative analyses of macrowear and occlusion surface area of teeth from Toca dos Ossos (Bahia, Brazil). The morphofunctional analysis was conducted using photographs of specimens housed at the Museo de La Plata (La Plata, Argentina) and Museu de Ciências Naturais PUC Minas (Minas Gerais, Brazil), and based on the anatomy of the extant horse *Equus caballus* Linnaeus, due to its resemblance to *E. (Amerhippus)*. Results showed that *E. (Amerhippus)* exhibits a more significant macrowear on the antero-posterior region of the teeth, while *Hippidion* has a more uniform wear. Analyses of occlusion surface area confirm the difference on the structure of dental enamel between genera, where *Hippidion* presents more complex folds. The morphofunctional analysis indicates that the rostral portion and the premaxillary shape of *E. (Amerhippus)* are similar to *E. caballus*. However, based on anatomical studies of the premaxillary region of other extinct ungulates, *Hippidion* exhibits morphological structures compatible with the presence of a vestibular proboscis and premaxillary region usually found on browsing ungulates. These results indicated that *E. (Amerhippus)* had the capacity to feed on more abrasive food items than *Hippidion*. Nevertheless, the morphofunctional dissimilarities on their skull suggest marked variations on their ecomorphological strategies. Therefore, these two different approaches corroborate our point of view that *Hippidion* and *E. (Amerhippus)*, despite their possible sympatry, presented consistent mechanisms related to the reduction of niche overlap concerning the partition of food resources.

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