Cranial and Postcranial Perspectives on the Phylogeny of Perissodactyls (Mammalia)

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Previous studies of perissodactyl phylogeny have focused on the dentition as a source of character information. In contrast, little information from the skull and postcranial skeleton has been incorporated into phylogenetic studies of perissodactyls. This study utilizes the substantial amount of cranial and postcranial data that are available for a large number of perissodactyl taxa. The results presented here represent part of an ongoing study of cranial and postcranial evolution in early perissodactyls. Cranial, postcranial, and dental characters were scored for a broad sampling of perissodactyl taxa. The results of a phylogenetic analysis include the following. Unequivocal members of the Tapiromorpha include a monophyletic Tapiroidea, monophyletic Rhinocerotoidea, *Isectolophus*, and Lophiodontidae. Several nondental characters unite *Palaeotherium* and *Plagiolophu*s in a monophyletic Palaeotheriidae. Tapiromorpha and Palaeotheriidae are part of an unresolved polytomy that also includes Chalicotherioidea, *Homogalax*, *Cardiolophus*, *Hyracotherium*, and *Eotitanops*. This lack of unequivocal resolution of the basal relationships of perissodactyls prevents any definite statement about biogeographic origins of the order. Cranial and postcranial data, however, do provide new insights into relationships within Tapiroidea and Rhinocerotoidea as well as additional support for clades supported by dental evidence, such as Palaeotheriidae.