

UNIQUENESS OF THORACIC CAGE MORPHOLOGY IN EXTANT HOMINOIDS : IMPLICATIONS FOR THE EVOLUTION OF POSITIONAL BEHAVIORS.

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Evolutionary shift from pronograde quadrupedalism to habitual orthograde is an intriguing event of the hominoid lineage. To understand how this shift of the body plan had occurred in the past, knowledge of the morphological variation in the thoracic cage of various pronograde/orthograde living species is useful. Here we report comparisons of cranial (transversal) views of partially-mounted thoracic cage skeletons. Samples of *Homo*, *Gorilla* and prosimians are incorporated into the previous analysis of non-human anthropoids (Kagaya et al. 2008). Some non-cursorial carnivores (lesser pandas and bears) and marsupials (wallabies and kangaroos) are also analyzed preliminarily. The hominoid samples are unique, while the rest of primates and carnivores are similar in general; the thoracic cages of hominoids are characterized by the deep dorsal depth behind the thoracic column and by the strongly medially oriented sternal end of ribs (dorso-ventrally flattened thorax). Both these characters are extreme in *Homo*. *Gorilla* samples show similarity to pronograde monkeys and brown bears in the 7th to 9th rib levels in a slight ventral elongation of the thoracic cage, which may be related to terrestrial habit of *Gorilla*. The orthograde leapers *Indri* and *Propithecus* have slight expression of the hominoid-like features in the middle to lower rib cage. Kangaroos (especially the heavier species) show a ventrally elongated thoracic cage in spite of the prominent dorsal depth. Therefore, the powerful forelimbs and shoulder girdles of hominoids likely explain the marked dorso-ventral flatness of the hominoids' upper thoracic cage.

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