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TO HANG OR NOT TO HANG: SUSPENSORY ADAPTATIONS IN FOSSIL APES ON THE BASIS OF PHALANGEAL CURVATURE AND RELATIVE LENGTH

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The positional repertoires of fossil apes must have considerably differed from those displayed by extant hominoids. *Pierolapithecus catalaunicus* from BCV1 (ca. 11.9 Ma, Spain) has been inferred to display orthograde adaptations to vertical climbing, while retaining palmigrade capabilities and lacking specific adaptations to below-branch suspension. Regarding the latter, *Pierolapithecus* would differ from *Hispanopithecus laietanus* from Can Llobateres 2 (ca. 9.6 Ma, Spain), which displays orang-like, suspensory adaptations. Suspensory behaviors, however, have been inferred to be significant in *Pierolapithecus*, on the basis of phalangeal curvature. Here we rely on included angle (IA) measurements of proximal and middle phalangeal curvature, as well as on phalangeal length relative to body mass, in order to infer suspensory adaptations in both taxa. Our results indicate that the *Pierolapithecus* phalanges are much less curved than those of both *Hispanopithecus* and orangutans, further displaying a curvature pattern between proximal and middle phalanges different from that of either small brachiators (hylobatids and atelines) or knuckle-walkers. *Pierolapithecus* further displays relatively shorter phalanges than *Hispanopithecus* and the highly-suspensory orangutans and hylobatids. These results confirm the lack of suspensory adaptations in *Pierolapithecus*. It is concluded that these behaviors were adaptively insignificant in this taxon, thus falsifying the hypothesis that suspension was the main target of selection underlying the acquisition of orthograde.

Keywords: Paleobiology, Hominoidea, Positional repertoire, Locomotion