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An analysis of the relationship between maximum cortical bone thickness and maximum curvature in the metatarsals of Pan and Homo

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Abstract

Hominoids practice a diverse array of locomotor behavior, from obligate terrestrial bipedalism to arboreal suspensory behavior, which is reflected in the variable morphology found in their foot bones. That hominin foot bones reflect locomotor behavior is also clear, but the forms of locomotor behaviors to be inferred are less clear. Pressure plate studies indicate that the center of pressure tends to move medially in the human foot during the last half of stance phase of bipedal gaits, while it tends to remain relatively more lateral in the bonobo and chimpanzee foot during the last half of stance phase.

Here is presented a comparison of metatarsals of *Homo sapiens[n=22]* and two species of *Pan* (*Pan paniscus [n=15] Pan troglodytes schweinfurthii [n=22]*in order to explore the relationship between *Homo* and *Pan* metatarsal morphology and foot function. Specifically, this dissertation addresses whether cortical thickness is associated with the position of maximum change in geometry on the plantar surface in metatarsals.