

# A Novel Social Dimension of Bipedalism



Paleo-Primate Project  
GORONGOSA

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Intro

Multiple empirical works have aimed to investigate the advantages or 'functions' of two-legged posture and locomotion in primate species, often with the common goal of understanding why bipedalism came to be obligatory in the hominin lineage. However, there has been limited inclusion or discussion of age and/or sex variables in many such research projects. The present study suggests that age and sex variables have a large effect on the presence and distribution of bipedal functions in primate groups, and therefore proposes that the results of previous works may be biased. In addition, several 'alternative' functions – which have rarely or never been offered as potential selective advantages of bipedalism – are shown to be important among the study troop.



Observational study using Animal Observer App to record data



Chitengo Camp, Gorongosa National Park, Mozambique



Study troop of baboons (approx. 40 individuals)

Methods

Observed bipedal bouts were classified according to the following categories:

1) Age and Sex [1] :	Infant/Juvenile	Sub-adult Male	Adult Male	Sub-adult Female	Adult Female
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2) Function:	<i>Foraging</i>	<i>Carry</i>	<i>Alert</i>	<i>Explore*</i>
	<u>Groom</u>	<u>Play</u>	Infant Handle*	Mount*

*Proposed by mainstream theories* [2, 3, 4]

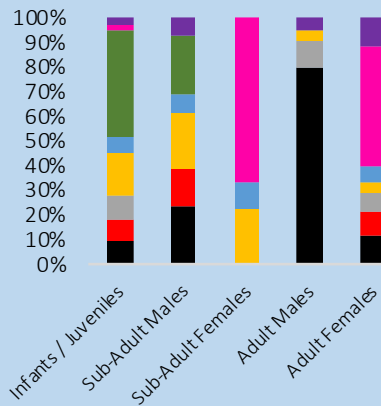
*Occasionally offered as bipedal functions* [5]

\*Rarely/never offered as bipedal functions, but featured in pilot observations of the study troop

Results

Total 316 bipedal bouts recorded

Distribution of Functions Across Age-Sex Categories



Photographs of carry and explore bouts are not available

Conclusions

Functions of bipedalism were distributed differently across age-sex categories of the research troop, suggesting that age and sex variables should be acknowledged and discussed within empirical studies of bipedalism. This recommendation is relevant both to present and future works, as well as the re-assessment or testing of previous research findings.

The results of the present study support a **multi-function model of bipedalism**, which holds that the hominin lineage came to evolve two-legged posture and locomotion due to multiple selective advantages which the behaviour conferred. Different age-sex categories of hominin society are likely to have expressed contrasting *primary bipedal functions*, and therefore the age-sex structures of hominin societies determined which advantages were significant drivers of bipedal evolution at a given point in time. Bipedal functions likely included those proposed by mainstream theory as well as the alternative – and perhaps novel – functions shown to be important here.

**References:** [1] Altmann, J., Altmann, S., & Hausfater, G. (1981). Physical maturation and age estimates of yellow baboons, *Papio cynocephalus*, in Amboseli National Park, Kenya. *Am. J. Prim.* [2] Jolly, C. (1970). The Seed-Eaters: A New Model of Hominid Differentiation Based on a Baboon Analogy. *Man*, 5(1), 5. [3] Hewes, G. (1961). Food Transport and the Origin of Hominid Bipedalism. *Am. Anth.*, 63(4), 687-710. [4] Dart, D. (1959). *Adventures with the Missing Link*. New York: Harper. [5] Rose, M. (1976). Bipedal behavior of olive baboons (*Papio anubis*) and its relevance to an understanding of the evolution of human bipedalism. *Am. J. Phys. Anth.*, 44(2), 247-261.

**Acknowledgements:** We thank Gorongosa National Park for providing access to promising research field-sites. The first author is grateful to The Paleo-Primate Project, and The Primate Models and Behavioural Evolution Lab (Oxford) for their support and guidance regarding this undergraduate dissertation.