

Craniodontal versus postcranial variables as estimators of size dimorphism in extinct taxa.

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Estimates of size dimorphism in hominins and other extinct taxa necessarily vary depending on those remains available to estimate size. Debates occasionally arise over which elements provide a more accurate signal. For example, *Australopithecus afarensis* has been argued by some to be highly dimorphic, and others much less so partly on the basis of how dimorphism is estimated using disparate remains. Postcranial remains are often thought to provide more accurate indicators of size dimorphism than cranial and dental remains. Few studies have systematically compared the relationship between size dimorphism and dimorphism in teeth, skulls and postcrania. We therefore evaluate the relationships between size dimorphism and dimorphism in craniodontal (96 taxa) and postcranial (21 taxa) variables, using both phylogenetic and non-phylogenetic methods.

Postcranial metrics are more strongly correlated with size than are craniodontal variables. Cranial variables show strong phylogenetic differences in scaling. Within species, variation in dimorphism across individual metrics increases with increasing size dimorphism, but cranial variables tend to show the greatest variance in dimorphism as a group. Counter-intuitively, though, estimates of dimorphism in several cranial variables are more strongly associated with size dimorphism than most postcranial variables. Methods that sum dimorphism across variables stabilize estimates, providing more accurate indicators of size dimorphism than estimates based on single elements. Summed dimorphism estimates perform equally well for cranial and postcranial dimensions. Our data suggest that craniodontal dimorphism estimates cannot be ignored as inferior to postcranial estimates, and that size dimorphism in *A. afarensis* was likely strong.

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Taphonomy of primate skeletal remains from chimpanzee hunts at Ngogo, Kibale National Park, Uganda.

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This study provides a taphonomic analysis of the largest known sample of primate bones to date collected from chimpanzee hunts. The sample consists of

over 400 bone fragments from chimpanzee hunting and consumption episodes of 67 individuals at Ngogo, Kibale National Park, Uganda. It has low taxonomic diversity, consisting overwhelmingly of primates (especially red colobus monkeys). The age distribution of prey remains is skewed towards pre-adults. Cranial bones are the dominant element, followed by long bones. Axial postcranial elements have low survivorship, with a complete absence of vertebrae, except for caudals. Bones are damaged in distinct ways, such as: destruction of long bone ends, typically with intact shafts bearing crenulated edges; fragmentation and compression cracking of crania; and innominates preserving only iliac blades. Tooth marks are present, but uncommon (4.4% of total NISP).

This analysis enables us to: 1) describe and characterize consistent patterns of bone damage inflicted by chimpanzees across a much larger prey sample than has been previously studied; 2) compare the generalized chimpanzee taphonomic signature with that of leopard and eagle consumption of primates, as well as modern human consumption of small mammals; and 3) assess the utility of such samples for recognition of early hominin small mammal carnivory. We recommend some guidelines for taphonomic investigation of fossil assemblages to this end, but caution that a hominoid-modified fossil "assemblage" may not be archaeologically visible.

Coregulation during grooming in baboons and bonobos: implications for the evolution of attention.

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The extent to which nonhuman primates share and manipulate the attention of conspecifics during social interaction has been a topic of considerable debate. However, few studies have focused on the process by which individuals mutually regulate each others' behavior ("coregulation") during natural social interaction. This study utilizes microethology to understand the dynamics of normal grooming interactions in two species, bonobos and baboons, and thereby offers a unique perspective on the function and evolution of attention in nonhuman primates. Frame-by-frame analysis of videotaped grooming interactions among adults was performed on 10 grooming sessions for each species. The information coded included the activities and focus of attention of each participant, parts of body groomed, use of communicative signals, relative positions of partners, and the activities of other group members in proximity during grooming.

Contrary to expectations, this study shows that both bonobos and baboons demonstrate instances of mutual eye contact during shifts in body part groomed. However, both eye contact and grooming of the face are more frequent in bonobos than in baboons,

indicating potential differences in the extent to which individuals in these species monitor their partners' attention during interactions. Use of communicative signals during grooming (including presentation and/ or manipulation of the body part to be groomed) occur in both species, particularly in sessions with more potential disruptions from the group. Results suggest that coregulation plays an important role in maintaining stable grooming bouts, while differences between monkeys and apes have implications for the role of attention during primate evolution.

The seasonality of sex differences in the feeding ecology of the chimpanzees (*Pan troglodytes*) of Kibale National Park, Uganda.

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Since female reproductive success is more dependent upon acquiring high quality food resources than is male reproductive success, one would predict sex differences in foraging strategy. However, as most primates live in cohesive groups, foraging decisions are constrained by the presence of other group members. Chimpanzees (*Pan troglodytes*), however, exhibit a fission-fusion system in which individuals can forage independently. This study examines the foraging behavior of 5 male and 5 female chimpanzees in the Kibale National Park, Uganda, to test whether they differ in diet and foraging strategy. Over 1,300 hours of data were collected during all-day focal follows over 13 months. Results indicate that although male and female diets were similar during periods of preferred fruit abundance, their foraging strategies diverged during periods of preferred fruit scarcity. Females, but not males, significantly increased fruit consumption (particularly figs) by increasing both travel and time spent feeding. The sexes also differed in the degree to which they included non-fig fallback foods in their diet during periods of scarcity, with males increasing the amount of new leaves in their diet whereas females increased the proportion of pith. This suggests that females, more than males, relied on maximizing energy intake during periods of fruit scarcity. These results will be discussed in reference to the nutritional quality of the diet.

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Comparative analyses of body support and joint posture in primates.

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Kinematic and kinetic studies of phylogenetically broad groups of mammals and a small study of closely related