

Finger length ratios (2D:4D) and programming of intra-sexual competitive behaviours in anthropoids.

E.C. Nelson¹, S. Shultz². ¹Department of Archaeology, ²School of Biological Sciences, University of Liverpool.

The second to fourth digit ratio (2D:4D) has been shown to reflect prenatal androgens in several vertebrate species. Human 2D:4D is well studied and low 2D:4D (high prenatal androgen effect [PAE]) in both males and females has been correlated with traits associated with intra-sexual competition such as aggression, physical performance and behaviours that attract sexual partners. We have previously shown that across 39 anthropoid species 2D:4D varies between primate grade and social system with lower 2D:4D associated with higher levels of sexual selection. Here we explore further the association between PAE and competitive behaviour. Based upon separate classifications of intra-sexual competition for males and females and controlling for phylogenetic and substrate effects, 2D:4D was lower in species with high levels of intra-sexual competition (e.g. *Macaca*), while 2D:4D was higher with lower competition levels (e.g. *Hylobates*). Intra-sexual competition showed strong phylogenetic effects. However, despite low variability in competition levels between closely related taxonomic groups, when inter-specific variation was present, as in apes, significant differences in 2D:4D were evident. There was a dichotomous split in competition levels between pair-bonded/male kin-bonded species and species in which males were unrelated and female were kin-bonded. In mammals, neural bonding pathways are exquisitely sensitive to programming by prenatal androgens. We speculate whether 2D:4D can inform us about qualitative differences in social relationships between conspecifics arising from differing phylogenetic responses to PAE.