# Hormone that affects finger length key to social behavior

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The hormones, called androgens, are important in the development of masculine characteristics such as aggression and strength. It is also thought that prenatal androgens affect finger length during development in the womb. High levels of androgens, such as testosterone, increase the length of the fourth finger in comparison to the second finger. Scientists used finger ratios as an indicator of the levels of exposure to the hormone and compared this data with social behaviour in primate groups.

The team found that Old World monkeys, such as baboons and rhesus macaques, have a longer fourth finger in comparison to the second finger, which suggests that they have been exposed to high levels of prenatal androgens. These species tend to be highly competitive and promiscuous, which suggests that exposure to a lot of androgens before birth could be linked to the expression of this behaviour.

Other species, such as gibbons and many New World species, have digit ratios that suggest low levels of prenatal androgen exposure. These species were monogamous and less competitive than Old World monkeys.

The results show that Great Apes, such as orang-utans and chimpanzees, expressed a different finger ratio. The analysis suggests that early androgen exposure is lower in this groups compared to Old World monkeys. Lower androgen levels could help explain why Great Apes show high levels of male cooperation and tolerance.

Emma Nelson, from the University of Liverpool's School of Archaeology, Classics and Egyptology, explains: "It is thought that prenatal androgens affect the genes responsible for the development of fingers, toes and the reproductive system. High androgen levels from a foetus or mother during pregnancy, may alter gene function and lead to subtle changes in relative digit length and the functioning of the reproductive system. Finger ratios do not change very much after birth and appear to tell us something about how very early androgens affect adult behaviour, particularly behaviour linked to mating and reproduction."

Dr Susanne Shultz, from the Institute of Cognitive and Evolutionary Anthropology at the University of Oxford, said: "Humans are unique in that they live in large multi-male, multi-female groups, but maintain strong bonds and show high levels of group cooperation in both males and females. In most other species males are competitive rather than co-operative. Research from finger ratios may help us understand more clearly the development of human sociality and its evolutionary origins."

This research has been published in the *American Journal of Physical Anthropology*.

Source: University of Liverpool (news : web)