

# Bigger brains help social primates to make up after a fight, study says

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Credit: University of Manchester

Social primates with bigger brains are likely to use their added cerebral power to cope with conflict, a study from The University of Manchester has revealed.

The surprise findings suggest that social skills, which are very sophisticated in [primates](#), help individuals cope with aggression and competition caused by living in large groups.

The Manchester study was led by Veronica Cowl, a PhD student based in Manchester's School of Earth and Environmental Sciences, with colleague and senior author Dr Susanne Shultz. The research has been published in the journal *Behavioral Ecology*.

Cowl looked at the associations between group size, [brain size](#) and behaviours that are recognised as 'prosocial' and 'cooperative' (eg working together as a group on a collective action) and their relationship to aggressive behaviours that led to incidents of [conflict](#), termed as agonism.

The Manchester study reviewed previous publications on 45 different wild populations of primates across 23 species.

The three species with very high levels of agonism are chacma baboons (*Papio ursinus*; up to 2.9 events per hour); capuchins (*Cebus capuchinus*; up to 1.43 agonistic events per hour); and a population of black and white ruffed lemurs (*Varecia variegata variegata*; up to 1.4 events per hour).

The species with the lowest rates of agonism were brown lemurs (*Eulemur fulvus fulvus*; 0.03 events per hour) and black howler monkeys (*Alouatta pigra*; 0.01 events per hour).

The original studies examined how variation primate agonism related to ecological variables, such as risks from predators or food competition.

However, the Manchester team was interested in explaining why there is strong association between brain size and group size in primates.

"Our research indicates that the increase in brain size is likely to be a consequence of high levels of competition in large groups. It seems that large brained primates have had to develop strategies to cope with high rates of conflict," explained Veronica Cowl.

"This is of particular importance as primates are noted for their social cognition - for example, they are able to understand social relationships between individuals, track social relationships and can develop social strategies."

The Manchester researchers also saw different patterns between the overall level of agonism in a group and the amount of conflict between any two individuals within the group).

Although group-level agonism increases with [group size](#), dyadic agonism decreases. (Dyadic agonism identifies how much agonism each individual animal directs towards each other individuals within the group).

Ms Cowl added that this suggests that either individuals in larger groups can buffer aggression better or that only species with low levels of dyadic conflict can maintain large groups and stable [social relationships](#).

"It seems large-brained primates have evolved to cope with the challenges of conflict and coordination inherent in living in [large groups](#)," added Dr Shultz.

**More information:** Veronica B. Cowl et al. Large brains and groups associated with high rates of agonism in primates, *Behavioral Ecology* (2017). [DOI: 10.1093/beheco/axx041](https://doi.org/10.1093/beheco/axx041)

Provided by University of Manchester

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