

Study finds socially tolerant monkeys have better impulse control

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Researchers have tested one of the ideas put forward to explain how humanity evolved to become smarter, on non-human primates.

The study, led by a team at the University of Portsmouth, found a significant connection between [social organization](#) and cognitive skills in monkeys.

They assessed three species of macaques with different social tolerance levels, from authoritarian to more relaxed societies, in a series of cognitive touchscreen tasks to work out how impulsive and reactive they were.

Tonkean macaques, which are known to get along with each other the most with more diverse and complex relationships, demonstrated better overall control of distraction, emotions and actions compared to the less-tolerant long-tailed and rhesus species.

Lead author and Ph.D. researcher, Dr. Louise Loyant from the University of Portsmouth's Center of Comparative and Evolutionary Psychology (CCEP), said, "This relationship between social tolerance and [cognitive abilities](#) could explain why Tonkean macaques are better at managing [complex relationships](#) with others."

"This is important, as it improves our understanding of our own social evolution. Macaques live in complex communities, not too dissimilar from our own, and we can learn a lot from them."

"Existing research on human inhibitory control, or self-control, suggests the better a person is at managing their emotions and reactions, the more successful they're likely to be in life; whether that be in relationships, work, or just generally. Our results support this hypothesis."

The study, published in *Animal Cognition*, also highlighted the influence of ecological factors on self-control skills. Different risks and environmental pressures faced by each species might have shaped their behaviors, emotions, and impulsivity levels.

Long-tailed and [rhesus macaques](#) living in areas with a greater number of predators, displayed more reactive and cautious behaviors, while Tonkean macaques who face lower predatory risk, exhibited quieter and less reactive behaviors.

The researchers say that both social and ecological factors may jointly influence self-control skills in primates.

Senior co-author, Dr. Marine Joly from the CCEP, explained: "A macaque living in a more competitive environment would benefit from learning how to contain inappropriate behaviors, like feeding or mating, if they're around others higher up in the social pyramid.

"But there's also the hypothesis that our closest primate species have evolved over time to have increased [brain size](#) and higher cognitive performances, including better self-control."

"Our findings support both of these potential explanations, as well as suggest that species living in more complex societies might have better socio-[cognitive skills](#) too, including perception, attention, memory and action planning."

The team evaluated the performance of 66 macaques from two institutions, the Medical Research Council Center for Macaques in the UK and the Center of Primatology of the University of Strasbourg in France.

While the study provides [valuable insights](#), the researchers acknowledge some limitations, including the sample size and some prior cognitive testing experiences among the species. They recommend further research involving a larger number of macaques, as well as a closer evaluation of an individual's reactions and results.

More information: Louise Loyant et al, Tolerant macaque species are less impulsive and reactive, *Animal Cognition* (2023). [DOI: 10.1007/s10071-023-01789-8](https://doi.org/10.1007/s10071-023-01789-8)

Provided by University of Portsmouth

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