

Researchers find non-ape species engages in rapid facial mimicry

April 5 2013, by Bob Yirka



An example of congruent response in RFM - RFM during a play session between an adult (left) and an immature individual (right). Credit: *Scientific Reports* 3, Article number: 1527 doi:10.1038/srep01527, Photo by P.F. Ferrari

(Phys.org) —A team of researchers made up of members from three academic centers in Italy has found the first instance of rapid facial mimicry (RFM) outside of humans and apes. In their paper published in *Scientific Reports*, the researchers report observation of RFM in geladas, a type of cercopithecoid or old-world monkey.

Scientists studying [human behavior](#) have long known of RFM, it's where one person mimics the facial expression of a person they are looking at, almost instantly—it's considered to be involuntary and many scientists believe it's tied to empathy. It can be seen as a sudden look of concern by a person noting concern on the face of a friend perhaps, or the mimicking of a strained smile. Until now, RFM has been seen only in humans and [orangutans](#).

To find out if geladas exhibit RFM as well, the researchers studied a group of them residing in Germany's NaturZoo. The monkeys were watched as they engaged in play, as RFM has been tied to emotional connections. The team watched monkeys of all ages interact with one another and video recorded them for later study. Specifically, they looked to see if normal play-type face-making—different ways the monkeys open their mouths—would be mimicked by others. In studying the tapes, the researchers found that was indeed the case, the monkeys did mimic each other's [facial expressions](#) in much the same way we humans do. More specifically, they found that RFM was most apparent between mothers and their infant offspring—not only did they engage in it more often, but they also did it quicker than with other pairings in the group.

Finding RFM in other species besides humans has been somewhat of a surprise to those who study the ways people interact. Because it is generally believed to be tied to empathy, most in the field assumed it was exclusive to humans. Now that RFM has been found in both apes and monkeys, researchers are left to wonder if their original theories were correct, or if new ones need to be developed. If RFM does indicate [empathy](#), then that would mean other species besides humans are capable of experiencing it. If it doesn't, then why is it used by any species?

More information: Rapid Facial Mimicry In Geladas, *Scientific*

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Abstract

Rapid facial mimicry (RFM) is an automatic response, in which individuals mimic others' expressions. RFM, only demonstrated in humans and apes, is grounded in the automatic perception-action coupling of sensorimotor information occurring in the mirror neuron system. In humans, RFM seems to reflect the capacity of individuals to empathize with others. Here, we demonstrated that, during play, RFM is also present in a cercopithecoid species (*Theropithecus gelada*). Mother-infant play sessions were not only characterized by the highest levels of RFM, but also by the fastest responses. Our findings suggest that RFM in humans have homologous not only in apes, but also in cercopithecoids. Moreover, data point to similarities in the modality in which mother-infant synchronous behaviours are expressed among primates, suggesting a common evolutionary root in the basic elements of mother-infant affective exchanges.

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