

# Imitation promotes social bonding in primates

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Wild Capuchin monkey (*Cebus capucinus*), on a tree near a river bank in the jungles of Guanacaste, Costa Rica. Taken by David M. Jensen. Image: Wikimedia Commons

Imitation, the old saying goes, is the sincerest form of flattery. It also appears to be an ancient interpersonal mechanism that promotes social bonding and, presumably, sets the stage for relative strangers to coalesce into groups of friends, according to a study by a team of scientists at the National Institutes of Health and two Italian research institutions.

The study authors found that capuchin monkeys preferred the company of researchers who imitated them to that of researchers who did not imitate them. The monkeys not only spent more time with their imitators, but also preferred to engage in a simple task with them even when provided with the option of performing the same task with a non-imitator.

"Researchers have known that human beings prefer the behavior of other people who subtly imitate their gestures and other affects," said

Duane Alexander, M.D., Director of the Eunice Kennedy Shriver National Institute of Child Health and Human Development, where the NIH portion of the study was conducted. "Observing how [imitation](#) promotes bonding in primates may lead to insights in disorders in which imitation and bonding is impaired, such as certain forms of autism."

The study appears in the Aug.14 issue of *Science*. The study was conducted by Annika Paukner and Stephen J. Suomi of the NICHD, Elisabetta Visalberghi of the Institute of Cognitive Sciences and Technologies of the National Research Council in Rome, and Pier F. Ferrari of the University of Parma.

Human beings often will take on body postures, make gestures, and display the mannerisms of people they encounter, the study authors wrote. For the most part, this behavior is unconscious, with both the imitator and the person being imitated unaware that the behavior is taking place. The authors added that people who are not aware they are being imitated often feel affection and empathy for their imitators. In fact, studies have shown that people are more likely to help their imitators, and under appropriate circumstances, even leave them more generous tips. Such imitation is thought to provide the basis by which human beings ultimately form lasting social groups.

Before the current study, however, no one had ever determined if nonhuman primates were also predisposed to bond with individuals who imitated them.

The researchers chose capuchins because they are a highly social species that forms strong social groups. For the study, each monkey was given a wiffle ball. Dr. Paukner explained that the monkeys commonly displayed three behaviors: poking the ball with their fingers, putting it in their mouths, or pounding it on a surface.

In sequence, each monkey was paired with two human investigators, each of which also had a wiffle ball. One investigator would mimic the monkey's behavior, poking, mouthing, or pounding the ball, as appropriate. The other investigator would adopt a different behavior, for example, pounding the ball when the monkey poked it.

After the imitation sequence, the monkeys consistently spent more time near the investigator who imitated them than with the investigator who did not—which the researchers interpreted as a sign that the monkeys felt a sense of affiliation toward their imitator.

In addition, the monkeys were given a simple task: taking a small trinket from the investigator's hand, and then returning it to the investigator, in exchange for a small food reward. Although the imitator and the non imitator each had identical rewards, the monkeys consistently chose the imitator to execute the task.

The study authors wrote that wild capuchin monkeys have been observed to match each other's behaviors when feeding, traveling, or avoiding predators. Such behavior matching, they theorized, may provide the basis for the formation of social groups. Individuals who match each others' behaviors feel a sense of affinity for each other, making conflicts less likely, and cooperation more likely. Eventually, such connections extend throughout the group.

"It has been argued that the link between behavior matching and increases in affiliation might have played an important role in human evolution by helping to maintain harmonious relationships between individuals," the study authors wrote. "We propose that the same principle also holds for other group-living primates."

Source: NIH/National Institute of Child Health and Human Development ([news](#) : [web](#))

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