

Research shows reciprocity an important component of prosocial behavior

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While exchanging favors with others, humans tend to think in terms of tit-for-tat, an assumption easily extended to other animals. As a result, reciprocity is often viewed as a cognitive feat requiring memory, perhaps even calculation. But what if the process is simpler, not only in other animals but in humans as well?

Researchers at the Yerkes National Primate Research Center, Emory University, have determined [monkeys](#) may gain the advantages of reciprocal exchange of favors without necessarily keeping precise track of past favors. Malini Suchak, a graduate student at Emory University, and Frans de Waal, PhD, director of the Living Links Center at Yerkes and C.H. Candler Professor of Psychology at Emory, led the study. Their findings will appear in an Early Online Edition of the [Proceedings of the National Academy of Sciences](#) this week.

"Prosocial is defined as a motivation to assist others regardless of benefits for self, explained Suchak. "We used a prosocial choice test to study whether direct [reciprocity](#) could promote [generosity](#) among brown [capuchin monkeys](#). We found one monkey willing to do another favors if the first monkey was the only one to choose, and we found the monkeys became even more prosocial if they could alternate and help each other. We did not find any evidence that the monkeys paid close attention to each other's past choices, so they were prosocial regardless of what their partner had just done," she continued.

Suchak and de Waal suggest the [synchronization](#) of the same actions in

alternation creates a more [positive attitude](#) the same way humans who row a boat together or work toward a shared goal develop a more positive attitude about each other.

Another interesting finding according to the researchers is the capuchin monkeys were prosocial whether they were paired with a familiar partner from their own group (in-group) or a partner from a different social group (out-group).

According to de Waal, "This research has several implications for better understanding human behavior. First, we observed an increase in prosocial behavior as a result of reciprocity, but the monkeys did not develop a contingency between their own and their partners' behaviors. Like humans, the capuchins may have understood the benefits of reciprocity and used this understanding to maximize their own benefits. Second, that the capuchins responded similarly to in-group and out-group partners has implications for the commonly held view that humans are unique in their ability to cooperate with strangers," de Waal explained.

According to the researchers, capuchin monkeys (*Cebus apella*) are ideal subjects for this type of study given the numerous observations of cooperative and prosocial behavior in the field, their sensitivity to other monkeys' efforts in coordination experiments, and their robust, spontaneous prosocial behavior in the prosocial choice test compared with, for example, chimpanzees, which seem more sensitive to methodological variables.

In this study, the researchers tested 12 brown capuchin monkeys in pairs on a prosocial choice task. The monkeys had the choice between a selfish token that benefited only them and a prosocial token that benefited themselves and a partner. By comparing each monkey's behavior with a familiar partner from the monkey's own group and a

partner from a different [social group](#), the researchers examined the influence of each monkey's relationship outside the experimental context on prosocial behavior. There was no difference between in-group and out-group pairs in any of the test conditions. To test the role of reciprocity, the researchers allowed the monkeys to take turns making choices and found this greatly increased prosocial behavior, but the researchers did not observe any tit-for-tat [behavior](#). The researchers also tested whether the monkeys could overcome their aversion for inequity by creating a situation in which both individuals could provide each other with superior rewards, making reciprocity an even more attractive strategy. The monkeys did, but again without keeping track of each other's choices. Finally, through a series of control conditions, the researchers established the monkeys were responding to their partners' behaviors, rather than the rewards delivered by their partners, and that the monkeys understood the values of the tokens and were flexibly responding to changing conditions throughout the test sessions.

This research opens several avenues for future research, including further examining the emergence of reciprocity among humans without the cognition required for tit-for-tat and the tendency to cooperate with out-group partners.

Provided by Emory University

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