

Monkeys get more selective with age

June 23 2016



A very old female Barbary macaque at "La Forêt des Singes" in Rocamadour, France. Credit: Julia Mörchen/German Primate Center

As people get older, they become choosier about how they spend their time and with whom they spend it. Now, researchers reporting in the Cell Press journal *Current Biology* on June 23 find, based on a series of experimental and behavioral studies, that similar changes take place in

Barbary macaques. The findings offer an evolutionary perspective on why aging humans behave as they do, according to the researchers.

"An important psychological theory suggests that humans become more socially selective when they know that their remaining life time is limited, such as in old age," says Laura Almeling of the German Primate Center in Göttingen, Germany. "We assume that monkeys are not aware of their own limited future time. Therefore, if they show similar motivational changes in old age, their selectivity cannot be attributed to their knowledge about a limited future time. Instead, we should entertain the possibility that similar physiological changes in aging monkeys and humans contribute to increased selectivity."

The researchers investigated Barbary macaques' selectivity regarding their interest in the nonsocial and social environment in a large sample of more than 100 monkeys of different ages kept in the enclosure "La Forêt des Singes" in Rocamadour.

To assess monkeys' curiosity to explore new things, the researchers presented them with novel objects such as animal toys, a cube filled with colorful plastic pieces in a viscose liquid, and an opaque tube closed with soft tissue at both ends and baited with a food reward. By early adulthood, the monkeys had lost interest in the novel objects. Only the tube containing food held interest for all but the oldest monkeys.



An old female Barbary macaque at "La Forêt des Singes" in Rocamadour, France. Credit: Julia Fischer/German Primate Center

To study their social interests, the researchers showed the monkeys photographs of newborn monkeys, "friends" and "non-friends" and played recorded screams of "friends" and "non-friends." They also observed how often and how long monkeys interacted with each other. They found that the aging monkeys maintained a keen interest in other monkeys, especially when the other monkey was a socially important individual. Older females continued to make vocalizations in response to interactions of group members in their vicinity, such as infant handlings or conflicts. However, older females engaged in fewer social interactions, although other group members continued to invest in relationships with them.

"With increasing age, the monkeys became more selective in their social interactions," Almeling says. "They had fewer 'friends' and invested less in social interactions. Interestingly, however, they were still interested in what was going on in their social world."

"Older females continued to respond particularly strongly to hearing a scream for help from their best friend," Almeling adds. "Older males still looked preferentially at pictures of the newborns", she says, noting that Barbary macaque males use infants as status symbols.



An old female Barbary macaque at "La Forêt des Singes" in Rocamadour, France, being groomed. Credit: Julia Fischer/German Primate Center

Overall, the studies suggest that, just like humans, monkeys become more selective as they age: they select social over non-social information, and they are more selective regarding their social interactions. However, the reduced social behavior is not due to a general loss of interest in others. "Changes in social behavior in monkeys and humans may occur in the absence of a limited time perspective and are most likely deeply rooted in primate evolution," concludes Alexandra Freund from the University of Zurich, who was also involved in the study.

Julia Fischer, principal investigator of the study, suggests that "older monkeys might spend less time socializing because they find social interactions increasingly stressful and therefore avoid them." She says they will explore these issues and changes in the [monkeys'](#) cognitive performance in future studies.

More information: Current Biology, Almeling et al.: "Motivational Shifts in Aging Monkeys and the Origins of Social Selectivity"
[www.cell.com/current-biology/f ... 0960-9822\(16\)30460-2](http://www.cell.com/current-biology/fulltext/S0960-9822(16)30460-2) , DOI:
[10.1016/j.cub.2016.04.066](https://doi.org/10.1016/j.cub.2016.04.066)

Provided by Cell Press

Citation: Monkeys get more selective with age (2016, June 23) retrieved 3 May 2024 from
<https://phys.org/news/2016-06-monkeys-age.html>

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