

TOOLBOX

Video technique measures monkeys' social interest

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Male rhesus macaques show more interest in videos with social content, such as another monkey displaying aggression, than in videos of landscapes or other animals, according to a study published 26 October in *PLoS One*¹.

The study describes a method to monitor monkeys' gaze and pupil diameter while they watch images of social interactions. The method could allow researchers to study the brain circuits responsible for processing social information, which are disrupted in individuals with autism.

Many of the complex social interactions that are relevant to autism are **unique to higher-order mammals** such as monkeys. For cognitive studies, monkeys also offer some advantages over humans, because researchers can inactivate neural circuits in monkeys through targeted brain lesions, or with less invasive techniques such as **optogenetics**.

In the new study, researchers used plastic helmets to lightly restrain monkeys watching videos, and tracked the animals' gaze and pupil diameter using a non-invasive infrared **eye-tracking** device.

In the experiment, six rhesus macaques watched videos twice a day for 12 days. In a control session, they were shown only screen savers. Then, the monkeys watched a series of three different videos: videos that feature caged rhesus macaques looking directly at the camera and in many cases displaying aggression, social videos of rhesus macaques participating in activities such as mating or play, and nature videos of landscapes or other animals.

The researchers played these videos in sequence for 30 seconds at a time, interspersed with a gray screen. After the series of videos, a target screen showing a cross was displayed. When the monkeys looked at the cross, confirming that they were paying attention to the videos, they received a juice reward.

To gauge the monkeys' level of interest, the researchers measured the number and average length of their individual glances at the screen, dubbed 'fixations.'

Monkeys are more interested in social rather than non-social scenes, the study found. They looked at the videos of caged monkeys most often overall and the individual fixations were longer compared with the social scenes and non-social nature videos.

And although the monkeys gazed at the social scenes less often, they looked at more points on the screen compared with the other two categories. This may be because there are more details in these scenes than in the videos show a single, caged monkey, the researchers say.

Within the social videos, the monkeys showed some discrimination among the types of behaviors shown. In particular, they looked longer at mating compared with foraging activity.

The researchers also looked at pupil diameter, a measure of physiological arousal. On average, pupil diameter was larger when the monkeys watched the two types of videos containing social content compared with the non-social nature scenes, the study found.

The researchers **created 600 videos** for the study that are available to others for cognitive studies.

REFERENCES:

1. Machado C.J. *et al.* *PLoS One* **6**, e26598 (2011) [PubMed](#)