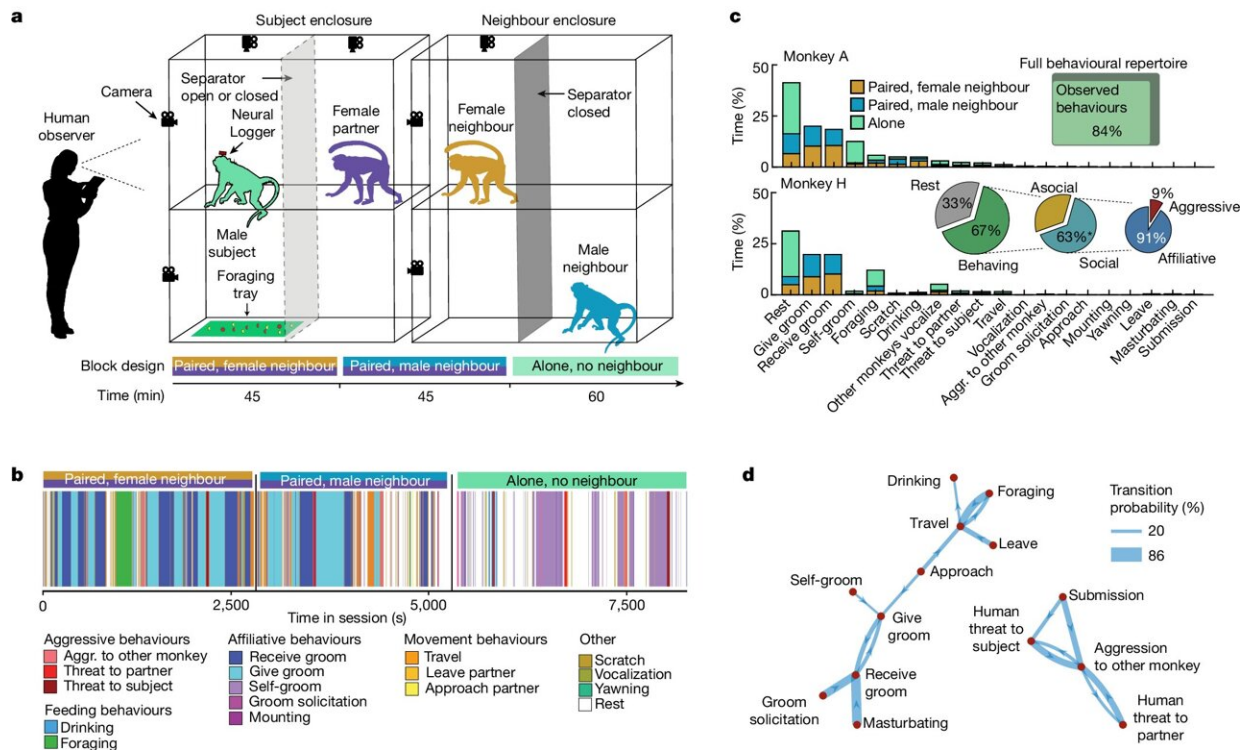


# How social behavior is encoded in the monkey brain during everyday tasks

March 15 2024, by Bob Yirka



a, Experimental set-up with two male–female pairs in adjacent enclosures. Neural activity was recorded from two male monkeys during various social contexts and behaviors in 2.5 h sessions. b, Species-typical behaviors expressed over three social contexts during a typical recording session. c, The proportion of time engaged in each behavior across 7 sessions for each male monkey. d, Behavioral state transition probabilities excluding rest and less ethologically relevant behaviors, such as scratching segregated into affiliative (left) and aggressive (right) clusters. Credit: *Nature* (2024). DOI: 10.1038/s41586-024-07178-6

A team of neuroscientists at the University of Pennsylvania has, for the first time, observed how social behavior is encoded in the brain when monkeys are doing normal, everyday things rather than sitting in a laboratory setting.

In their [study](#), published in the journal *Nature*, the group affixed brain monitoring devices to adult male macaques as they went about their normal business.

As the researchers in this new effort note, most of the [research](#) involved in studying brain function is conducted in sterile lab environments. So it is not known what differences there might be when humans or animals are simply going about their normal day-to-day activities.

To find out whether there are differences and to learn something about their nature, the researchers conducted experiments with adult male lab macaques as they went about their business under three scenarios: when alone, when with interacting with another male, and when interacting with a well-established female partner.

Four adult rhesus macaques were involved in the experiments, though only the males were fitted with neural recording devices. Prior to the experiments, both of the males were fitted with neural implants. At the outset of each experiment, the male to be tested was fitted with a [device](#) that recorded [neural activity](#) in the prefrontal and temporal cortex lobes. Each interactive experiment lasted for approximately 2.5 hours.

The research team identified 24 specific behavioral patterns along with [social contexts](#). Further analysis showed a nearly perfect reciprocity in males and females during grooming. The researchers also found that when the male being recorded was confronted with an aggressive

intruder, its behavioral and neural responses showed some degree of empathy, which could be buffered by the presence of a friendly female partner.

The team suggests their experiments demonstrate highly distributed neurological responses to a wide variety of everyday activities, and that similar patterns likely occur in the [human brain](#).

**More information:** Camille Testard et al, Neural signatures of natural behaviour in socializing macaques, *Nature* (2024). [DOI: 10.1038/s41586-024-07178-6](#)

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