

Smiling baby monkeys and the roots of laughter

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Fig. 2 Sample pictures of spontaneous smiles in Japanese macaques

Japanese macaque infants show spontaneous smiles (pictured above)

When human and chimp infants are dozing, they sometimes show facial movements that resemble smiles. These facial expressions—called spontaneous smiles—are considered the evolutionary origin of real smiles and laughter.

Researchers at Kyoto University's Primate Research Institute show that this not only happens to higher-order primates like humans and chimpanzees, but also in newborn Japanese macaques, which are more distant relatives in the evolutionary tree.

"About a decade ago we found that chimp [infants](#) also display spontaneous smiles," says study author Masaki Tomonaga. "Since we see the same behavior in more [distant relatives](#), we can infer that the origin of smiles goes back at least 30 million years, when old world monkeys and our direct ancestors diverged."

Lead author Fumito Kawakami caught macaque infants smiling when they were receiving routine health checkups. "These checkups can take quite long, so the infants tend to nap in between," says Kawakami. "We took this opportunity to empirically examine the behavior."

In total they observed 58 spontaneous smiles from seven macaque infants, all of which showed spontaneous smiles at least once.

"Spontaneous macaque smiles are more like short, lop-sided spasms compared to those of human infants. There were two significant similarities; they both happened between irregular REM sleep, and they show more lop-sided smiles compared to symmetrical, full smiles," says Kawakami. "A major difference, though, is that the smiles were much shorter."

Some researchers have argued that infants' spontaneous smiles exist to make parents feel that their children are adorable and to enhance parent-child communication. On the other hand, this study suggests that spontaneous smiles don't express feelings of pleasure in chimpanzees and Japanese monkeys; rather, the smiles are more similar to submissive signals (grimaces) rather than smiles (play faces). The team interpreted that spontaneous smiles facilitate the development of cheek muscles, enabling humans, chimpanzees, and Japanese monkeys to produce smiles, laughs, and grimaces.

So is smiling special to monkeys and primates? Tomonaga says he won't rule out the possibility.

"There are case reports about mice laughing when they get tickled and dogs displaying facial expressions of pleasure. It may be the case that many mammal infants display spontaneous [smiles](#), in which case smiling would have an older [evolutionary origin](#). Who knows?" he says with a smile.

More information: Fumito Kawakami et al, The first smile: spontaneous smiles in newborn Japanese macaques (*Macaca fuscata*), *Primates* (2016). [DOI: 10.1007/s10329-016-0558-7](https://doi.org/10.1007/s10329-016-0558-7)

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