

Arguing over meat, finding comfort with friends: The emotions of the great apes

September 29 2022



A group of chimpanzees eats together in the Ugandan jungle. Credit: Adrian Soldati

With the aid of thermal imaging cameras, scientists have delved a little deeper into chimpanzee psychology. Their apparatus measured the

primates' stress levels during mealtimes in the depths of the Ugandan jungle.

Do the animals experience feelings similar to ours? And if so, how might it be possible to determine the existence of these emotions without a shared language? These questions have been a topic of debate since time immemorial. A team has produced new findings to help answer them. Scientists from the University of Neuchâtel have used thermal imaging to evaluate the feelings of wild chimpanzees. In an article published in the journal *Philosophical Transactions of the Royal Society B: Biological Sciences*, they show that nasal temperature is a good indicator of [stress](#).

In chimpanzees and other primates (including humans), nasal temperature varies as a function of arousal levels. Several studies have shown that [temperature rises](#) in response to [positive emotions](#) and falls in response to negative ones. The phenomenon has been confirmed in [laboratory tests](#), but can it be used on the ground with primates living in the wild? This is what the team from the University of Neuchâtel set out to investigate. Accompanied by French and British colleagues, they tested their hypotheses with a group of chimpanzees living in the Ugandan jungle.

To be precise, the scientists went to a research center specializing in the primates. Located in the middle of the rainforest, this unique center has been attracting primatologists from around the world for over thirty years. They come to study the animals in their natural environment so that they can observe their behavior without interfering, explains Adrian Soldati, one of the co-authors of the study. "These chimpanzees are used to humans and that's a crucial consideration. We wouldn't be able to measure their stress levels if we were stressing them just by being there."

The apes meet as a group several times a day to eat the food that they

have hunted or gathered. During these communal meals, the researchers measured the animals' nasal temperatures by focusing compact thermal imaging cameras on their faces from a distance of about seven meters.

Alpha males increase the stress level

The first thing they found was that stress levels during meals change with the type of food contributed by the participants. Since figs are plentiful, they do not arouse any particular feelings. But when meat—a coveted treat—is on the menu and provokes much stronger emotions in certain individuals, the thermometer drops. "Chimpanzees often quarrel over meat because they rarely get it. Fighting and stealing are commonplace and the drop in the apes' nasal temperature reflects the stress of the situation," Adrian Soldati explains.

They also found that stress levels increase when males are present, particularly dominant individuals who are more likely to bully their fellows so they can take their food. "By revealing the stress this situation causes, [thermal imaging](#) shows us just how much individual males dominate chimpanzee society. To put that into context, we did not measure any drop in nasal temperature if there were only females at a meal."

Finally the researchers found that individual chimpanzees' nasal temperatures tended to rise again if their "friends"—individuals to whom they were closer, dubbed "social partners" by the scientists to minimize the risk of anthropomorphism—were present. According to Adrian Soldati, this suggests positive emotions. "It shows that individuals experience a type of reassurance when they're with these partners."

Meals take place several times a day in varying configurations. This fact enabled the researchers to gather sufficient data to demonstrate that their approach works. Going forward, Adrian Soldati envisages using the

same apparatus to explore chimpanzees' feelings during other key moments in their social life, such as grooming.

"Our aim was to test not only the concept on the ground, but also the camera, material and approach. Now that we have shown our method works, we can start to fully exploit its potential." This work has given scientists a new tool to help them better understand the psychology of humans' closest living relative.

More information: Claire Barrault et al, Thermal imaging reveals social monitoring during social feeding in wild chimpanzees, *Philosophical Transactions of the Royal Society B: Biological Sciences* (2022). [DOI: 10.1098/rstb.2021.0302](https://doi.org/10.1098/rstb.2021.0302)

Provided by Swiss National Science Foundation

Citation: Arguing over meat, finding comfort with friends: The emotions of the great apes (2022, September 29) retrieved 5 February 2023 from <https://phys.org/news/2022-09-meat-comfort-friends-emotions-great.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.