

# Scientists develop a device to allow monkeys in a Finnish zoo to play sounds and music

October 7 2020

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Aalto University researchers designed a sound device for white-face sakis living in Korkeasaari Zoo. Credit: Annika Sorjonen / Korkeasaari Zoo

Sound is a promising way to stimulate zoo animals and increase their welfare, as shown by a study from Aalto University collaborating with

Helsinki's Korkeasaari Zoo. Researchers built a sound device for a group of white-faced saki monkeys to listen to in their enclosure. They were interested in the saki monkey's behavior, exploring whether they want to use the device, when they would use it, and what they would choose to listen to.

Little is known so far about the [sound](#) preferences of primates, so the researchers wanted to choose as varied a soundtrack as possible. The researchers chose to play four soundtracks, avoiding sounds of animals that prey on sakis or sudden loud noises.

The Animal-Computer Interaction research team at Aalto University's Department of Computer Science designed and built the tunnel-shaped sound [device](#) of wood and plastic for small [monkeys](#) and placed it in their residential area in the Amazon House of Korkeasaari Zoo. The monkeys were able to turn the device on themselves and therefore choose to listen to sounds or remain in silence.

"We didn't measure welfare factors, but from a welfare perspective, it was essential to give animals decision-making power and independence. These issues have been linked to well-being in other studies. Instead of just playing music and other sounds in their [living environment](#) and seeing how it works, we gave them a system that they could approach and use themselves," says Roosa Piitulainen, the first author of the research paper and doctoral candidate at Aalto University.

The researchers observed how the monkeys used the tunnel for several months. They found that the sakis used the sound system regularly throughout the study and, after the first few days, also began to sleep, groom, and socialize with other monkeys inside the sound device.

Kirsi Pynnönen-Oudman, research coordinator at Korkeasaari Zoo, says that food is often used to enrich the lives of animals in zoos. However,

non-food stimuli must also be provided, especially for small animals that are prone to gain weight. "Sounds are really important to many animals in their communication with each other. The rainforest is full of [different sounds](#), and little monkeys are supposed to be sensitive to different sounds."



The sakis preferred a tunnel-shaped sound device over another design. Credit: Roosa Piitulainen / Aalto University

### **The way of the future to stimulate the life of zoo animals**

The fact that animals are so interested in sounds is also reflected in the results of the study. The sakis were allowed to choose how much either calm music, fast-paced electronic music, sounds of rain, silence or traffic noises they prefer to hear. The sakis preferred the sounds of traffic over all other sounds.

Ilyena Hirskyj-Douglas, postdoctoral researcher at Aalto University, says

that the result was both unexpected and expected. "I've been working with animals for a long time, and learned to keep an open mind. However, given that the sound of traffic is so unfamiliar to the sakis and not related to their normal daily life—unlike, for example, the sound of rain—it came as a surprise that they were interested in those sounds."

According to Dr. Hirskyj-Douglas, the result suggests that scientists need to think carefully about what technologies work for animals, keeping an open mind and leaving the human perception at the door.

In addition to influencing what sounds they want to listen to, the white-faced sakis were able to influence the final form of the device. The researchers initially tested two prototypes and built the final sound device from the option that the monkeys used significantly more.

The tunnel-like box, with its plywood floor and a transparent acrylic roof, was the sakis' favorite. Both materials were already familiar to white-faced sakis, and thanks to the shape and materials of the box, the tunnel acoustics were good without completely enclosing the space. The shape and material were suitable for their habitat and to support the species-specific behavior of the [animals](#).

Dr. Pynnönen-Oudman from Korkeasaari Zoo says that sound stimuli have been used in zoos to some extent, but so far, quite little has been tailored to particular species. "This could very well be the way of the future to stimulate the life of [zoo animals](#)."

**More information:** Roosa Piitulainen et al. Music for Monkeys: Building Methods to Design with White-Faced Sakis for Animal-Driven Audio Enrichment Devices, *Animals* (2020). [DOI: 10.3390/ani10101768](https://doi.org/10.3390/ani10101768)

Provided by Aalto University

Citation: Scientists develop a device to allow monkeys in a Finnish zoo to play sounds and music (2020, October 7) retrieved 3 May 2024 from <https://phys.org/news/2020-10-scientists-device-monkeys-finnish-zoo.html>

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