



Press Release

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Otters like juggling stones

Tübingen researchers investigate otters' use of stones for work and play

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Otters love stones. They roll and stack them, juggle them, and bang them together or on the ground. Almost all otter species around the world do it. This is shown by a new research project at the University of Tübingen, which maps how widespread this behavior is across both wild and captive otters. The study has been published in the journal *Animal Behavior & Cognition*.

Until now, there have only been scattered reports and videos of otters handling stones. To find out how widespread the behavior really is, Dr. Elisa Bandini, Margherita Bandini and Dr. Claudio Tennie from the Institute of Prehistory, Early History and Medieval Archaeology asked otter experts around the globe about their observations. When they analyzed the reports, they found that ten of thirteen otter species worldwide have been observed to roll or juggle stones, or use them to hammer or tap. This proved true for animals both in the wild and in captivity. "It is very likely that these activities also exist in the remaining three species. But because these species live in areas that are difficult to access, nothing like this has been observed in them so far," says Elisa Bandini.

In the animal kingdom, any predilection for handling stones in play is a rarity. It is otherwise only found, so far, in some species of macaques, monkeys that live in Asia and North Africa. Most otters use the stones playfully. Only sea otters also use stones specifically as tools with which they crack open mussels, oysters and crabs.

Further research is being conducted into the biological significance of the otters' playful use of stones. It may be that playing with stones at a young age supports the animals' motor development and perhaps in sea otters, allows for the development of stone tool-use later in life. This hypothesis is supported by the finding that wild macaques in Thailand that practice stone handling as juveniles are more likely to develop stone tool-use as adults than juvenile macaques that do not practice stone handling

behavior. On the other hand, playing with stones may also help slow down the decline of cognitive performance in older otters, although this remains to be tested.

The study highlights that not all stone-related behavior must be copied from others. The fact that handling stones is so widespread across otter species strongly suggests a genetic predisposition for it, says Bandini. "It is interesting to see that a genus other than primates exhibits stone handling behavior - especially in light of the fact that stones are the first tools found in the archaeological record that were used by early humans. If we study how different animal species handle stones, we may also be able to better reconstruct how our ancestors began to understand the properties and utility of stones as tools," Bandini says.

Video: https://youtu.be/yID6v4W8J_4

Publication:

Elisa Bandini, Margherita Bandini & Claudio Tennie: A short report on the extent of stone handling behavior across otter species. *Animal Behavior and Cognition* 2021, 8(1), 15-22.
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