

Wolves understand cause and effect better than dogs

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Lead researcher Michelle Lampe conducts a test with a wolf in the Wolf Science Center. Credit: Caroline Ritter

Domestic dogs may have lost some of their innate animal skill when they came in from the wild, according to new research conducted at the Wolf Science Center in Austria.

In a study comparing [wolves](#) and dogs living in near-identical environments, wolves were better at working some things out, particularly at grasping the notion of cause and effect.

The research, by an international team in Austria, the Netherlands, Germany and England, is published in *Scientific Reports*.

Recently graduated lead author Michelle Lampe, of the Radboud University, in the Netherlands, said: "Children learn the principle of cause and effect early on, that if you touch a hot stove you will get burned, for example. Our study has shown the wolf also understands such connections, but our four-legged domesticated companions don't.

"It seems wolves are better at working some things out than dogs, which suggests domestication has

changed dogs' cognitive abilities.

"It can't be ruled out that the differences could be due to wolves being more persistent in exploring than dogs. Dogs are conditioned to receive food from us, whereas wolves have to find food themselves in nature."

Michelle Lampe, Dr Zsófia Virányi, of the University of Veterinary Medicine in Vienna, Dr Juliane Bräuer, of the Max Planck Institute for the Science of Human History, Germany, and Dr Juliane Kaminski, of the University of Portsmouth, UK, investigated the reasoning abilities of 14 dogs and 12 human-socialised wolves.

The tests included the animals having to choose between two objects, one containing hidden food and the other empty to see whether the animals could make use of communicative cues, such as direct eye-contact and pointing gestures to choose the correct container.

Both dogs and wolves were able to follow communicative cues to find hidden food. However, in the absence of a human to show them where the [food](#) was, only the wolves were able to make causal inferences.

Dr Kaminski said: "In this experiment, the wolves showed a high understanding of cause and effect, which the dogs lacked.

"The wolves' use of cues connected to eye-contact was particularly interesting because it may help science better understand the process by which wild animals became our four-legged companions."

Dr Bräuer said: "The wolves' ability to understand human communicative cues after being socialised with humans, may have made it possible to become domesticated."



Lead researcher Michelle Lampe works with a wolf, as reported in *Scientific Reports*. Credit: Felicity Robinson, Wolf Science Center

The authors say the results are compelling because in addition to comparing dogs and wolves living under identical conditions, with the same history and training regime, they also compared [dogs](#) living in packs to pets living with their human families.

Fourth author, Dr Virányi, said: "We were able to tease apart the influence of domestication from raising and living conditions. Few studies have achieved such strong, clear comparisons, though we must caution, too, that the wolves we studied are used to humans, which needs to be taken into account."

Provided by University of Portsmouth

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