

Canine cognitive traits linked to everyday behavior

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Toffee trying to solve the cylinder task. Credit: Mainossatama Oy

In recent decades, canine cognitive tests which measure, for example, problem-solving ability, memory, logical reasoning and impulse control in various situations, have been extensively used in many studies.

Until now, it has remained unknown whether the traits measured by the tests can be seen in everyday life as well. Are dogs that fare well in these tests, for example, easier to train in everyday settings? Is coexistence perhaps easier with such dogs?

A study conducted at the University of Helsinki found that [self-control](#) and turning to humans in problem situations are valuable traits for [pet dogs](#), while impulsiveness and an independent problem-solving style can lead to challenges in daily life.

"We found surprisingly many connections between everyday canine behavior and cognitive traits, even after taking into account, for example, the age, sex, background and training history of dogs," says Doctoral Researcher Saara Juntila from the Faculty of Veterinary Medicine.

Extensive study on the links between cognition and everyday behavior

The study dataset was composed of 987 Finnish dogs who had undergone the smartDOG cognitive test battery developed by Docent of Animal Behavioral Science Katriina Tiira.

The study included five tests that measure the ability to read human gestures, [impulse control](#), problem-solving ability and strategy, and logical reasoning. In four of these tests, a direct link was observed with the dogs' everyday behavior. The findings are [published](#) in the journal *Animal Behaviour*.

As the study focused on the behavior of dogs in everyday life with their owners, the owners of the participating dogs were sent two previously validated surveys with questions relevant to the topic.

"It's impossible to collect such data relying on [research funding](#) alone. Instead, you have to specifically combine commercial tests and research," Tiira notes.

Dogs that ask humans for help and have good impulse control are easier to train

A so-called impossible task was used to measure the dogs' primary problem-solving strategies. In problematic situations, dogs may attempt to solve the task independently, or they may turn to humans, as if asking for help. Dogs can also abandon the task and go elsewhere.

Dogs that spent the most time asking humans for help were, according to their owners, more obedient and easier to train in everyday life, and they also had fewer management issues, such as pulling on the leash, stealing food, running away and chewing on objects.

Everyday obedience was also associated with what is known as the cylinder test, which is assumed to measure self-control. In the test, the dog must go to the open end of a transparent cylinder to get a treat. The study confirmed this link, as the dogs that made the most mistakes in the cylinder test were more impulsive, and also more difficult to train in everyday life, according to the owners.

"It appears that good impulse control could make everyday co-existence with the owner easier, while impulsiveness can make it considerably more difficult," Junttila says.

At the same time, traits detrimental to the everyday lives of pet dogs may be valuable to working dogs or dogs used in dog sports. For example, impulsiveness can be useful in dog sports or work-related tasks where fast reactions and excitability can be assets, while independence

(as opposed to reliance on humans) may be a valuable trait in scent work.

The results will help to better identify the kinds of traits in dogs that facilitate everyday life with them, improving the welfare of both owner and dog. "In an earlier study, we observed differences between breeds and sex in different test sections, and these results can together help in choosing a suitable individual puppy," Tiira says.

Problem-solving tests linked to the speed of learning

The logical reasoning test was associated with the speed of learning assessed by the owners—dogs that successfully completed the task were assessed to be faster learners. There were also indications that dogs who learn faster in everyday life may solve a spatial problem-solving task more quickly and make fewer mistakes in the cylinder test.

"This is the first test package available to all dog owners in which a connection to the dog's trainability and also to the rate of learning has been observed. Thanks to the smartDOG test already being available, Finnish dog owners can directly make use of the research findings. This research dataset of more than 6,000 dogs is continuously growing, and next we will investigate how early these traits can be seen in puppies, as well as their heritability," Tiira sums up.

More information: Saara Junttila et al, Do cognitive traits associate with everyday behaviour in the domestic dog, *Canis familiaris*?, *Animal Behaviour* (2024). [DOI: 10.1016/j.anbehav.2024.04.012](https://doi.org/10.1016/j.anbehav.2024.04.012)

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