

# Comparing the controllability of young hand-raised wolves and dogs

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Hungarian researchers at the Family Dog Project, Eötvös Loránd University assessed the development of tractability in hand-raised wolves and similarly raised, 3-24-week-old dogs during fetching, calling, obeying sit signal, hair brushing and walking in a muzzle. Credit: Járdány / Eötvös Loránd University

During domestication, dogs most probably have been selected for

increased tractability (meant as controllability or ease in handling). If so, then considerable differences should be found between domestic dogs and their closest wild relatives, wolves, in this trait. To reveal if such a difference exists, researchers at the Family Dog Project, Eötvös Loránd University assessed the development of tractability in hand-raised wolves and similarly raised, 3-to-24-week-old dogs during fetching, calling, obeying sit signal, hair brushing and walking in a muzzle. They found that despite intensive socialization, wolves remained less tractable than dogs, especially in contexts involving access to a resource. Dogs also appeared to be more prepared to follow human initiation of action than wolves. Based on these results they suggest that tractability is indeed a major factor in the making of 'man's best friend.'

Dogs live in 45% of households, integrated into various human groups across societies. Dogs' increased tractability, i.e. how easily the animals' behavior can be managed through control and handling, might account for a crucial difference to wolves and explain why dogs are so widespread. Researchers in Hungary were interested if the role of tractability in dogs' domestication is reflected in species differences today. "We hand-raised 16 wolves and 11 dogs and regularly tested their behavior from the age of 3 to 24 weeks. We combined a variety of behavioral tests to measure how the animals control their impulses in everyday situations, such as during hair brushing," said Dorottya Ujfalussy, first author of the study and postdoctoral researcher at the Family Dog Project, Department of Ethology, ELTE.

Hand-raised puppies, both wolf and dog, were individually assigned to caregivers before their eyes opened. The pups received intensive socialization, spending 22-24 hours a day in close contact with their assigned caretaker. Socialization is the process by which puppies learn to relate appropriately to people and other animals, and to become used to a wide range of events, environments and situations.

They were carried in pouches and accompanied their caregivers throughout their everyday activities. Pups also had the opportunity to meet and socialize with each other 2-3 times a week. The researchers avoided competitive, dominating situations, or aggressive interactions with the animals; similarly to wolf mothers and adult pack members under natural circumstances. The behavior of the subjects was experimentally tested regularly and the present study is part of a larger research series.

In the present study, published in *Scientific Reports*, the animals participated in five tests: fetching, calling, obeying the sit signal, hair brushing and walking in a muzzle. The researchers found that at 9 weeks of age hand-raised dogs retrieved an object (a paper ball) to the experimenter more often than wolves. If wolf pups grabbed the ball, they tended to carry it away. Furthermore, unlike any of the dogs, 4 out of 16 wolves showed aggressive behavior when the experimenter tried to take away the ball. In contrast to fetching, dogs and wolves behaved largely similarly when being called, walked in muzzles or requested to sit down for a piece of food. Only at older ages (16 and 24 weeks) and in a social context (in the presence of mates) were wolves more difficult to call back than dogs. When being brushed, wolves made more biting attempts than dogs at the age of 12 weeks; however, this difference diminished by the age of 16 weeks when dogs also attempted to bite more often than at a younger age.



Hungarian researchers at the Family Dog Project, Eötvös Loránd University found that despite intensive socialization, wolves remained less tractable than dogs, especially in contexts involving access to a resource. Credit: Járdány / Eötvös Loránd University

"The intensively socialized wolves reacted to calls, sat down upon request and walked in muzzles nicely, but they remained less manageable and controllable than dogs, especially in contexts involving access to a resource (e.g. toy or food reward). Dogs appeared to be more prepared to follow human guidance. When we tested mother-reared dogs in fetching and calling, we found no evidence that different rearing conditions (i.e., intensive socialization with humans vs. mother-rearing) would affect controllability in dogs. This confirmed our hypothesis that during domestication dogs have been selected for increased tractability,"

said Enikő Kubinyi, lead author of the study and a senior researcher at ELTE, Department of Ethology.

The strength of the current study is that pups were compared at young ages, thus the differences and similarities detected here had not yet been modified by developmental processes as strongly as in adult individuals. However, comparing very young subjects carries the risk of detecting developmental differences if [dogs](#) and wolves develop at a different pace. For example, the fact that wolves attempted more bites at a younger age in the brushing task may be due to differences in the pace of maturation, since older dog puppies behaved similarly. It is important to note that, although wolves can be controlled and trained to perform tasks (for example to sit down, as the results of the current study showed), they are not suitable as pets. For captive [wolves](#) in zoos and other licensed facilities, however, socialization and training are valuable means of enrichment as well as useful to husbandry related welfare.

Provided by Eötvös Loránd University (ELTE)

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