

Can Dogs Ponder the Past?

Once thought to be reserved for humans, bottlenose dolphins and chimpanzees, the ability to remember recent actions and past personal experiences may apply to dogs as well. Does this study suggest dogs may have more of a human-like memory than we give them credit for?

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STORY AT-A-GLANCE

- Dogs may have the ability to consciously recollect their past personal experiences, an ability that was once thought to be reserved for humans, bottlenose dolphins and chimpanzees
- Researchers looked into dogs' memories specifically to determine if they could recall recently performed actions, then use their memories to repeat the actions
- All three dogs in the study learned to repeat recent actions when cued to do so
- The study may give clues about what dogs can remember about their recent actions, how long they retain the memories and how they use mental representations of their actions

In the scientific community, it's long been assumed that dogs can't remember their recent actions. This cognitive ability was believed to be reserved for humans and a select group of other mammals. Research is now challenging that notion, showing that dogs, too, may have the ability to consciously recollect their past personal experiences.¹

"Our study shows that dogs are capable of conceptualization, placing them in an expanding category of other animals that includes bottlenose dolphins and chimpanzees," study author Allison Scagel, Ph.D., from the University at Buffalo explained.² Scagel and colleagues looked into dogs' memories specifically to determine if they could recall recently performed actions, then use their memories to repeat the actions.

While previous studies have examined dogs' ability to recall objects, images and spatial cues, it's less understood how, or if, dogs are able to recall their past experiences. The findings were encouraging and could even point to new methods of how to best train our furry companions. Scagel said:³

"Dogs can do more than learn the relationship between a person's cue and which specific trick they should perform," she says. "They can understand the concept of repetition: Whatever you just did, do that again. It can apply to anything they do."

Dogs Can Be Trained to 'Think Back' on Cue

The study, published in the Journal of Comparative Psychology,⁴ involved three dogs — a male long-haired chihuahua and two female golden retrievers. Typically, when dogs are trained it's using a cue and response. Dogs are trained to hear or see a cue and respond in a certain way. First, the researchers used this conventional technique to train the dogs to spin in a circle, lie down or walk around an object.

Then, they learned a cue — a specific hand gesture accompanied by the word “again” — that meant “repeat,” instructing them to repeat the action they had just done. Essentially, they had to remember the activity they had just completed in order to know how to repeat it. All the dogs were successful at the task. According to the study:⁵

“All dogs learned to repeat recent actions when cued to do so. Dogs also proved to be able to repeat actions after short delays, to repeat actions multiple times without additional training, and to repeat actions that they were not explicitly trained to repeat, including untrained actions that they innovated on cue.”

The fact that the dogs were able to repeat actions on cue may give clues about what dogs can remember about their recent actions, how long they retain the memories and how they use mental representations of their actions.⁶

“Collectively, these findings suggest that dogs can flexibly access memories of their actions and can form an abstract concept of repeating that generalizes across many different actions,” the study concluded.⁷

The findings suggest that humans aren’t the only species capable of these cognitive functions and that dogs may be capable of remembering more than we give them credit for, Scagel noted:⁸

“We found that dogs could be trained to repeat specific actions on cue, and then take what they’d learned and apply it to actions they had never been asked to repeat. Our findings showed that they were able to apply the concept of repetition to new situations.”

More generally, we found evidence that dogs are capable of forming abstract concepts ... This is an important step toward a greater understanding of how other species form abstract concepts.”

Dogs May Also Be Self-Aware

While it’s believed that most species are somewhat self-aware, meaning they have the ability to be aware of their body, personality, feelings and behaviors, higher-order self-awareness has long only been attributed to humans, great apes (chimpanzee and bonobo), elephants, dolphins and magpies.

But similar to the ability to remember recent personal experiences, it’s increasingly being suggested that dogs may have this ability, too. Researchers at Eötvös Loránd University in Budapest tested self-awareness in dogs via body-awareness, which is “the ability to hold information about one’s own body in mind, as an explicit object, in relation to other objects in the world.”⁹

The dogs passed the test with flying colors, recognizing their own bodies as physical obstacles, which is a “fundamental building block of self-representation.” Since your dog recognizes its body as an existing entity, it’s likely that he has some level of self-awareness. Along these lines, dogs also likely possess episodic memory, a trait that’s tied to self-awareness.

Episodic memory is your individual recollection of an event, such as what you did for your last birthday. In a study to uncover a study to uncover whether dogs were capable of episodic memory,¹⁰ dogs were able to recall past events such as human actions even if they did not expect to be tested on them, providing evidence for episodic-like memory.

In 2014, researchers also demonstrated the presence of declarative memory — the ability to recall facts and events — in dogs.¹¹

What Does Your Dog Remember?

The extent of dogs' memories still remains a mystery to science, but many dog lovers are aware that our canine companions may be remembering more than researchers officially recognize. For instance there are countless anecdotal reports of dogs remembering their owners when they're reunited after being apart for years.

And the changes in behavior and personality among dogs that have been abused cannot be discounted. It seems logical that dogs would have to have some memory or recollection of the abuse in order to continue being physically and mentally affected by it. It's even likely, Scagel said, that having a human-like memory may not be distinctly human. "We're learning," she explained, "that humans aren't that cognitively unique after all."¹²

Sources and References

^{1,2,3,8,12} [University at Buffalo July 13, 2022](#)

^{4,5,6,7} [Journal of Comparative Psychology, 136\(2\), 121–139](#)

⁹ [Scientific Reports volume 11, Article number: 2761 \(2021\)](#)

¹⁰ [Current Biology November 23, 2016](#)

¹¹ [Anim Cogn \(2014\) 17: 237](#)
