If a Dog Fails This Test, He Won't Make a Good Service Dog

Scientists are honing in on what it takes to make a good service dog, following failure rates of up to 70% of dogs entering the program. Even those who outwardly appear to be good candidates often fail because of this counter-productive trait that lurks beneath the surface.

Reviewed by Dr. Becker

STORY AT-A-GLANCE

- About 70% of service dogs in training don't graduate due to behavioral issues

- Due to long waiting lists for the dogs and lengthy and costly training, service dog organizations need better ways to determine which dogs are unlikely to complete the program

- An fMRI study of in-training service dogs shed some light on the subject, suggesting that a dog's calm exterior can hide a tendency toward excitability that is counterproductive

- This study shows that fMRI scans can improve the ability of service dog organizations to make early identification of dogs who aren't good candidates for the program

- Unfortunately, the equipment is costly, so this approach won't be feasible for individual dog trainers. But it can certainly be of benefit to organizations like CCI that train a large amount of dogs every year

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If you have canine family members who are just average, ordinary, lovable dogs with no special talents, you've probably marveled at the skills and abilities of **service dogs**. A little known fact about these remarkable dogs is that as many as 70% who start a service training program don't make it to graduation for behavioral reasons.

Since it's a very costly (from $20,000 to $50,000) and lengthy process to develop these pups into working dogs, and waiting lists for dogs are long, one of the goals of organizations that provide service animals is to find better ways to determine early on which dogs are least likely to succeed.

Neuroscientist Dr. Gregory Berns at Emory University, a pioneer in the use of functional magnetic resonance imaging (fMRI) learned about canine brains and behavior, set out to determine if the technology could help predict whether a dog would be a successful service dog.[1]

43 Dogs Completed the 1-Year Brain Scan Study

Berns and his colleagues recruited dogs from Canine Companions for Independence (CCI) in Santa Rosa, CA. According to the study abstract:

"CCI's dogs undergo a controlled socialization process. After they are weaned, puppies are raised by a volunteer puppy raiser until 17 [to] 21 months of age. Then, the dogs are returned to one of CCI's training facilities for service training, which can take [six to nine] months.

Dogs that complete the training 'graduate' into one of several roles: 1) service dog (assists adults with physical disabilities with daily activities); 2) skilled companion (assists adults and children under the guidance of a facilitator, e.g. parent or spouse); 3) facility dog (works with a facilitator in an institutional setting, e.g. hospital); 4) hearing dog (trained to recognize specific sounds and alert the person); and more recently, 5) PTSD dog (provides social buffer, conducts room searches and provides 'all-clear' signal).

Those who are unable to complete training, for either medical or behavioral reasons, are 'released' and adopted, often by the puppy-raiser."[2]

Over the course of a year, the Emory researchers selected 54 dogs to participate in the fMRI study — primarily Labrador/Golden Retriever mixes, plus a few purebred Labs and Goldens. The dogs were selected within two weeks of starting service training, and were evaluated initially for absence of noise reactivity to scanner sounds. Then six to 12 dogs were selected every three months until the study target of 50 was reached.

Four dogs weren't able to complete the training, another completed the training but kept exiting the scanner before completing the MRI sessions, four females were removed for breeding and two dogs were released for medical reasons, leaving a total of 43 dogs who completed the full study.

Successful Service Dogs Are Reward-Motivated

Berns and his team were the first to perform fMRI studies on dogs who are awake and able to move around. In Berns' lab, the safety and comfort of the dogs is paramount. They're never restrained and enter and exit the scanner on their own. The dogs are trained to wear earmuffs to protect them from the noise of the scanner, and they also learn to hold their heads perfectly still on a chin rest during the scanning process so the researchers can obtain clear images.

In an earlier experiment, the team trained dogs to respond to hand signals while in the scanner. One signal meant the dog would receive a food treat; the other meant there would be no treat. The researchers observed that the area of the brain associated with rewards in humans, the caudate, was activated when the dogs got the treat signal, but not when they received the no-treat signal.

For the service dog study, the researchers again taught the hand signals, but in this experiment, the signals were sometimes given by the dog's trainer, and other times by a stranger.

The dogs with stronger activity in the caudate in response to the treat hand signal by either their trainer or a stranger were slightly more likely to successfully graduate from the service dog training program. Dogs with more activity in the amygdala region of the brain, which is linked to excitability, were more likely to fail the program. This was especially true if the signal was given by a stranger.

fMRI Scans Can Improve Our Ability to Identify Dogs Who Are Not Good Service Training Candidates

> *"The ideal service dog is one that is highly motivated, but also doesn't get excessively excited or nervous," Berns told ScienceDaily. "The two neural regions that we focused on — the caudate and the amygdala — seem to distinguish those two traits. Our findings suggest that we may be able to pick up variations in these internal mental states before they get to the level of overt behaviors."[3]*

All the dogs underwent behavioral testing before being selected for the study to insure they had a relaxed temperament. However, despite their calm appearance, the fMRI scans showed that some of the dogs had a stronger tendency toward excitability.

> *"The brain scans may be like taking a dog's mental temperature," says Berns. "You could think of it as a medical test with a normal range for a service dog. And the heightened neural activity that we see in the amygdala of some dogs may be outside of that range, indicating an abnormal value for a successful service dog."*

These study results suggest fMRI scans can improve the ability to identify dogs who are not good service training candidates to 67%, up from about 47% without the use of fMRI. "What the brain imaging tells us is not just which dogs are more likely to fail, but why," says Berns.

Unfortunately, the equipment is costly, so this approach won't be feasible for individual dog trainers. But it can certainly be of benefit to organizations like CCI that train a large amount of dogs every year.

Sources and References

The Bark, June 2021 (Archived)

[1,2] Scientific Reports, Volume 7, Article number: 43704 (2017)

[3] ScienceDaily, March 7, 2017