



For Active Dogs!

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VOLUME 1 | ISSUE 8 | July 2018

Paw Preference & Dog Emotion

Does your dog prefer to hold his Kong™ toy with one paw rather than the other when licking out the peanut butter? Does your dog push the bathroom door open with one paw in preference to the other as she plots to invade your privacy? **Most dogs, like most humans, have a paw preference** and, just like humans, more are right-sided than left.

This feature is called **laterality** and it has been studied in many different species, from picas to primates, and of course, in man's best friend. Laterality derives from the fact that the two hemispheres of the brain have evolved to have specialized functions. The **right brain is thought to specialize in detecting novelty and the expression of intense emotions** such as aggression and fear – it activates “fight or flight” responses (1). In contrast, the **left brain is responds to routine experiences and calming stimuli**.

An **easy way to judge whether a dog is right-pawed or left-pawed** is to note which front leg the dog advances first when moving forward down a set of three steps from a position with both forelegs level (**Figure**).



(A) Start position. Dog showing (B) right paw preference and (C) left paw preference. Test is performed with the handler on both sides of the dog.

Sensory Lateralization

Interestingly, studies have shown that dogs have laterality not only in their paw use, but when using different senses including vision, hearing and olfaction.

Vision: When an **alarming stimulus** (a cat showing a defensive posture) was shown to dogs, they preferentially **turned their heads to the left**, indicating that the right brain was

responding to the arousing stimulus (Note: the two halves of the brain drive motor functions on the opposite sides of the body).

Hearing: When dogs were presented with **audio recordings of a thunderstorm**, dogs preferentially **turned their heads to the left** suggesting an alarm-based response. In contrast, they turned their heads to the right when hearing the familiar sound of dog vocalizations.

Olfaction: Dogs **used the right nostril** (which is controlled by the right brain) **when sniffing an arousing odor** such as adrenaline. When a non-aversive odor such as food was used, dogs sniffed with the right nostril initially because the odor was novel but shifted to the left nostril on subsequent presentations of the odor.

Paw Preference and Emotions

Dogs' paw preferences can have different strengths. Some dogs use the same paw much more consistently for a given task, while others have a weaker preference, sometimes using one paw, and sometimes the other. One study showed that **dogs with weaker paw preference showed more stress behaviors when exposed to threatening noises**. In contrast, **dogs with stronger paw preferences were more confident and relaxed in unfamiliar environments** and when presented with novel stimuli (3).

In another series of studies, scientists examined how dogs wagged their tails in response to different emotional stimuli. **When dogs were presented with an unfamiliar dog showing clear antagonistic behavior, the dogs wagged their tails more to the left**. When presented with a positive emotional stimulus, such as their owner, the dogs wagged their tails more to the right. Interestingly, it appears that the amplitude of tail wagging (the distance over which the tail wags) is related to the level of arousal elicited by the emotional stimulus. Dogs wagged their tails to the right when presented with both their owners and a neutral stranger, but the **wagging response to the owner had greater amplitude**.

The Take-Home Message

These studies suggest that laterality in dogs might provide us with **new insights into the emotional lives of dogs and might even help us predict a dog's behavior or help dogs adapt to stressful situations**. For example, right-pawed dogs were found to be more successful in completing guide dog training than left-pawed or ambidextrous dogs (4). Perhaps strength of paw preference might be used as a way to assess vulnerability to stress in dogs in shelters. Studies of lateralization continue to **improve our understanding of canine cognition**, and that can only help improve our relationships with this species that does so much for us.

References (Full articles available [here](#)):

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