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Dog Tips

Why Does Your Pet Get So Excited When You Walk Through the Door?

Have you ever wondered why you're greeted with such enthusiasm when you come home, even if you've only been gone for a short while? Could be this peak of activity in this particular part of your pet's brain that these researchers discovered with this group of study animals.

Reviewed by Dr. Becker

STORY AT-A-GLANCE

- When dogs were shown human images while in an MRI scanner, activity increased in the temporal cortex region of the brain
- The temporal cortex is used to process complex stimuli like faces in humans and, apparently, also in dogs
- Human images, but not images of inanimate objects, also led to increased activity in the caudate brain region, which is involved in reward processes
- This suggests that dogs found viewing human faces to be more rewarding than viewing inanimate objects
- Dogs are not simply chowhounds — they're social creatures who appear to enjoy spending time with their owners just as much, if not more so, than a good meal

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Have you ever wished you could read your dog's mind? What is really going through his head when he greets you at the front door, doggy smiles, sloppy kisses, tail wagging and all?

Well now you can, at least to some extent, thanks to an intriguing study by researchers from the University of Mexico.[1] It's well-known that dogs relate socially to humans and have for thousands of years.

Dogs recognize their owners' faces and pay close attention to their cues in order to gauge their emotions.

In humans, brain regions exist that help us to process other human faces much in this same way, and the researchers wanted to find out if similar brain regions exist in dogs.

Your Dog May Visually Process Human Faces the Way You Do

The study involved seven dogs (five border collies, one **golden retriever** and one Labrador retriever), which were first trained to remain awake, still and unrestrained inside an MRI (magnetic resonance imaging) scanner.

While in the MRI, the dogs were then shown 50 images of humans and 50 images of everyday inanimate objects. When the dogs saw human images, activity increased in the temporal cortex region of the brain.

The temporal cortex is part of the ventral visual pathway and is used to process complex stimuli like faces, in humans and, apparently, also in dogs.

What this suggests is that viewing human faces triggers the same brain regions — those used to process facial cues — in both humans and dogs. The human images also led to increased activity in subcortical structures like the caudate, which is involved in reward processes.

This suggests that, as you'd imagine, dogs found viewing the human faces to be more rewarding than viewing inanimate objects.[2] The thalamus also showed increased activity when dogs were shown photos of human faces; this brain area has been related in humans to an emotional response toward faces.[3]

Dogs Have a Remarkable Ability to 'Read Your Mind'

Dogs are uniquely integrated into humans' social structures, making them a perfect choice to study social cognition. As the researchers noted, "they possess unique cognitive skills that make them more similar to a human infant than other species."[4]

For instance, dogs can discriminate between two human faces, even if they're similar.

"… [T]he detail of the information that a dog can acquire from a mere glimpse towards a human face, even without training, is extraordinary," the researchers continued, noting that dogs have a "remarkable ability" to pick up on small signals indicating a person's mind frame.

Your dog can, for example, tell when you're smiling or in a neutral state, as well as when you're paying him attention and when you're not (and may be more likely to ask for food from a person he can establish eye contact with).

Other intriguing "dog habits" include the tendency to look at an unfamiliar human face longer than a familiar one, as well as pay less attention to his owner if his head is covered. According to the researchers:[5]

> *"This tendency to look at a human face during interaction has not been found in other canids, not even in extremely socialized wolves. Altogether, these findings show that dogs are capable of perceiving subtle traits in human faces and that they use this information to modulate their behavior."*

This makes perfect sense, as a dog's ability to recognize and respond to human facial cues may be crucial for its survival.

As the study noted, some dogs may have more contact with human faces than they do with other dog's faces, so perhaps that's why they are able to recognize human facial cues without any training while other canids, like wolves, likely cannot.

Proof That Dogs Love Their Humans?

Other research on dogs' brain activity, and in particular the "reward center" or caudate nucleus, has also revealed fascinating insights into dogs' emotional capacity.

The caudate plays a role in human anticipation of enjoyable things (like food and love) and is activated accordingly. Previous research by Emory University neuroscientist Dr. Gregory Berns and colleagues revealed remarkable similarities in caudate activation in dogs.

Activity increased in response to hand signals indicating food, the return of an owner who had stepped out of sight and other scenarios that would similarly activate the caudate in humans. Berns wrote in The New York Times:[6]

> *"Do these findings prove that dogs love us? Not quite. But many of the same things that activate the human caudate, which are associated with positive emotions, also activate the dog caudate. Neuroscientists call this a functional homology, and it may be an indication of canine emotions.*
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> *The ability to experience positive emotions, like love and attachment, would mean that dogs have a level of sentience comparable to that of a human child. And this ability suggests a rethinking of how we treat dogs."*

If you're a dog lover you already know that your dog is a thinking, sentient creature, but in case there was any doubt, one of the most revealing studies to date looked into whether a dog would willingly choose to receive a food treat or praise from its owner.[7]

You might assume a dog would gobble up a treat over praise any day, but the study actually found the opposite.

Most of the dogs preferred praise over food or liked both equally, which suggests dogs are not simply chowhounds — they're social creatures who appear to enjoy spending time with their owners just as much, if not more so, than a good meal.

Sources and References

[1, 3, 4, 5] PLOS One March 2, 2016

[2] IFL Science March 4, 2016

[6] The New York Times October 6, 2013

[7] Social, Cognitive and Affective Neuroscience July 7, 2016