

Dogs, humans affected by OCD have similar brain abnormalities

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Another piece of the puzzle to better understand and treat obsessive compulsive disorder (OCD) has fallen into place with the publication of new research that shows that the structural brain abnormalities of Doberman pinschers afflicted with canine compulsive disorder (CCD) are similar to those of humans with OCD. The research suggests that further study of anxiety disorders in dogs may help find new therapies for OCD and similar conditions in humans.

Published online in advance of print on April 13 in *Progress in Neuro-Psychopharmacology & Biological Psychiatry*, the findings are a collaboration between veterinarians at the Cummings School of [Veterinary Medicine](#) at Tufts University and researchers at the McLean Imaging Center at McLean Hospital, in Belmont, Mass.

The causes of [OCD](#), which affects about 2 percent of the population, are not well understood and the disorder often goes untreated or undiagnosed for decades. People with OCD often exhibit repetitive behaviors or persistent thoughts that are time consuming and interfere with daily routines. Dogs with CCD engage in repetitious and destructive behaviors such as flank- and blanket-sucking, tail chasing, and chewing. However, both OCD and CCD often respond to similar treatments.

"While the study sample was small and further research is needed, the results further validate that dogs with CCD can provide insight and understanding into [anxiety disorders](#) that affect people. Dogs exhibit the same behavioral characteristics, respond to the same medication, have a

genetic basis to the disorder, and we now know have the same structural [brain abnormalities](#) as people with OCD," said Nicholas Dodman, BVMS, DACVB, professor of clinical sciences at the Cummings School of Veterinary Medicine at Tufts University.

The Tufts/McLean research team, led by Niwako Ogata, BVSc, Ph.D., who was a behavior researcher at the Cummings School of Veterinary Medicine and is now an assistant professor of animal behavior at Purdue University College of Veterinary Medicine, examined a sample of 16 Dobermans. Comparing MRI brain images of eight Dobermans with CCD to the control group, Ogata found that the CCD group had higher total brain and gray matter volumes, lower gray matter densities in the dorsal anterior cingulate cortex and right anterior insula, and higher fractional anisotropy in the splenium of the corpus callosum (the degree of which correlated with the severity of the behavioral traits). These findings are consistent with those reported in humans with OCD.

"It has been very gratifying to me to use our imaging techniques developed to diagnose human brain disorders to better understand the biological basis for anxiety/compulsive disorders in dogs, which may lead to better treatments for dogs and humans with these disorders," said Marc J. Kaufman, Ph.D., associate professor of psychiatry at Harvard Medical School and director of the McLean Hospital Translational Imaging Laboratory.

"Canines that misbehave are often labeled as 'bad [dogs](#)' but it is important to detect and show the biological basis for certain behaviors," said Ogata. "Evidence-based science is a much better approach to understanding a dog's behavior."

The study builds on existing research to better understand the etiology of compulsive disorders in animals such as [CCD](#), which affects Doberman pinschers and other canine breeds. In 2010, researchers from the

Cummings School of Veterinary Medicine, the University of Massachusetts Medical School and the Broad Institute at the Massachusetts Institute of Technology identified a genetic locus on canine chromosome 7 that coincides with an increased risk of OCD.

More information: Ogata N, et al, Brain structural abnormalities in Doberman pinschers with canine compulsive disorder, Prog Neuro-Psychopharmacol Biol Psychiatry (2013), [dx.doi.org/10.1016/j.pnpbp.2013.04.002](https://doi.org/10.1016/j.pnpbp.2013.04.002)

Provided by Tufts University

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