

One Annoying Tell-Tale Sign of Doggy Dementia

If your dog is 10 years or older, he's at risk for dementia, or canine cognitive dysfunction syndrome (CCDS). While there are six signs of CCDS to watch out for, this symptom can be one of the most troubling for human companions.

Analysis by Dr. Karen Shaw Becker

STORY AT-A-GLANCE

- If your older dog has trouble sleeping, it could be a sign of dementia, also known as canine cognitive dysfunction syndrome (CCDS)
- Researchers found that dogs with higher dementia scores and worse performance on a problem-solving task spent less time in NREM and REM sleep
- Dogs with CCDS may have difficulty sleeping, pace or vocalize at night and may sleep more during the daytime
- In addition to shorter time spent sleeping, when dogs with CCDS do sleep, their brain activity is closer to wakefulness
- Adding in more daytime activity may help your dog with CCDS rest at night if sleep troubles are an issue; some dogs also sleep sounder if they're allowed in their owner's bedroom

If your older dog has trouble sleeping, it could be a sign of dementia, also known as canine cognitive dysfunction syndrome (CCDS). This could be a useful signal for owners to watch out for, as it's easy to overlook the sometimes-subtle signs of neurodegeneration.

While changes in the sleep-wakefulness cycle are common with advancing age, humans with Alzheimer's disease are also known to experience insomnia, sleep fragmentation and other sleep disruptions.¹ CCDS shares similarities with Alzheimer's disease in humans, including the development of amyloid plaques in the brain and cortical atrophy, or degeneration of brain tissue that gets progressively worse.²

So it makes sense that dogs may experience similar symptoms. "Owners of dogs with CCDS report that their dogs suffer from difficulty sleeping, increased pacing and vocalizations at nighttime, and/or increased sleeping at daytime," North Carolina (NC) State University researchers wrote in *Frontiers in Veterinary Science*.³

They conducted a study to help quantify whether dogs with dementia do, in fact, suffer from disrupted sleep, revealing a significant connection.

CCDS Leads to Disrupted Sleep in Dogs

The study involved 28 dogs between the ages of 10 and 16. Electroencephalography, or EEGs, were used to record the dogs' brain activity during a two-hour nap. A sticky gel was used to affix electrodes to the dog's heads, offering a noninvasive method for gathering this new data.

"Past sleep studies in dogs often involved surgically implanted electrodes," lead study author Alejandra Mondino, postdoctoral researcher at NC State, said in a news release. "Non-invasive studies are relatively new. We are one of a handful of groups doing this work."⁴

The EEGs measured periods of wakefulness, drowsiness, non-REM (NREM) and REM, or rapid eye movement, sleep. "In NREM, the brain clears toxins, including the beta-amyloid proteins that are involved in diseases like Alzheimer's," Mondino said. "REM sleep is when dreams happen, and this stage is very important for memory consolidation."⁵

The dog owners also filled out questionnaires about their dogs to indicate whether they had, or were at risk of, dementia. Out of the 28 dogs, 20 were **cognitively impaired** — eight of them severely.⁶ The tests revealed that dogs with higher dementia scores and worse performance on a problem-solving task spent less time in NREM and REM sleep.⁷ Mondino explained:⁸

"These dogs have dementia and sleep disruption is part of that. In addition to the shorter time spent sleeping, when we look at the EEG, we saw their brain activity during sleep was more akin to wakefulness. In other words, when they do manage to sleep, their brains aren't really sleeping."

Professor Natasha Olby, senior author the study, added in The Guardian, "Changes in sleep habits should be expected in older dogs, and could be a harbinger of decline in cognition."⁹

How to Determine if Your Dog Has Dementia

Signs of CCDS can mimic those caused by many other health conditions, so it can be difficult to determine if your dog is simply getting older or if he's suffering from a neurodegenerative disease. In a previous study, Olby and colleagues with North Carolina State University set out to determine whether cognitive function could be quantified in aging pet dogs.

Their study involved 39 dogs from 15 different breeds, which were either in the senior or geriatric age range. While the owners filled out diagnostic questionnaires, the dogs participated in cognitive tests to assess executive function, memory and attention.

Physical and orthopedic exams were also given and blood tests were conducted to measure neuronal death. It turned out that the cognitive tests and blood test results correlated with the owners' questionnaire scores, suggesting that the combination multi-dimensional approach may help to quantify cognitive impairment in dogs.

"The approach we took isn't necessarily designed to be diagnostic," Olby said in a news release. "Instead, we want to use these tools to be able to identify dogs at an early stage and be able to follow them as the disease progresses, quantifying the changes."¹⁰

Six Signs of CCDS to Watch Out For

Because CCDS is so common, affecting an estimated 28% of 11- to 12-year-old dogs and 68% of 15- to 16-year-old dogs,¹¹ it's a good idea to be on the lookout in your senior pup. The acronym DISHAL can be used to help remember some of the most common signs and symptoms of CCDS:

1. **Disorientation**, including staring at walls or floors or getting stuck in odd places, like behind furniture
2. **Interactions**, especially those that are abnormal, such as aggression, irritability or changes in frequency of social interactions with familiar family members and pets
3. **Sleep-wake cycle changes**, including sleeping more during the day or difficulty sleeping at night; changes in sleep-wake cycle are often among the earliest signs of CCDS
4. **House soiling**, such as urinating inside the house right after they were let outside or not letting you know when they need to go out
5. **Activity changes**, which may include decreased activity or increased repetitive activities like walking in circles. Anxiety may make activity changes worse
6. **Learning difficulties/memory loss**, such as having difficulty performing tasks they once knew or learning new tricks

If your dog has CCDS — or you suspect he does — don't panic. Dogs that have it tend to live just as long as dogs experiencing healthy aging.¹² However, you can help ease the burden on your pet by keeping stress to a minimum. Ideally, maintain a regular routine for meals, walks and bedtime/wake time.

Adding in more daytime activity may also help your dog rest at night if sleep troubles are an issue. Some dogs also sleep sounder if they're allowed in their owner's bedroom. You can find out more about [**how to slow doggy dementia here**](#).

Sources and References

^{1,3,7} [Front. Vet. Sci., 28 April 2023](#)

^{2,10} [NC State University May 9, 2022](#)

^{4,5,8} [NC State University April 28, 2023](#)

^{6,9} [The Guardian April 28, 2023](#)

¹¹ [Texas A&M University, Veterinary Medicine & Biomedical Sciences April 15, 2021](#)

¹² [J Vet Intern Med. 2015 Nov-Dec; 29\(6\): 1569–1577](#)
