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Cognitive Dysfunction Syndrome in Cats

Orlando Adan was used to his cat meowing a lot. From the day he adopted her, Roxy was a talker. The meowing continued as the years went by. In fact, she became even more vocal as she aged. It was part of her charm, and Orlando never failed to be amused by the little “conversations” that he and Roxy had experienced over the years. A week after her 18th birthday, however, Roxy’s initiated a conversation that was a bit different than most.

“I was upstairs reading, and Roxy was downstairs, in the kitchen. She started meowing for food, as usual. But this time, there were subtle differences. Her crying was a bit more urgent, a bit more strained. It wasn’t her “feed me” meow. Call me crazy, but after 18 years, I *know* my cat pretty well.”

Orlando went downstairs to find Roxy sitting in the narrow space between the refrigerator and the dishwasher, staring off into space with an odd expression. “Roxy used to get between the fridge and the dishwasher and hide, and when I passed by, she’d leap out and surprise me. It’s a game we’ve played for years”, he explained. “This time, though, she was staring ahead with a vacant, almost blank look in her eyes, meowing as if she had no idea where she was. And what was even more upsetting,” he laments, “was that she seemed confused as to who *I* was, too”.

As pets get older, they will sometimes experience a decline in cognitive function. Changes in memory, learning, perception, and awareness are well documented in aging people, and similar changes have been described in aging companion animals. In dogs and cats, this decline may manifest itself in several ways. Forgetting previously learned behaviors such as housetraining, acquiring new fears and anxieties, failure to recognize people, places, and other pets, altered sleep-wake cycles, and acting generally “disoriented” are the most common behavior changes described by owners of aging pets. Not all of these behavior changes are due solely to cognitive dysfunction, however. While primary behavior problems may develop in aging cats and dogs, the possibility of an underlying medical condition should first be considered. “I took my cat to my veterinarian as soon as Roxy started acting weird”, notes Orlando. “Aside from the expected physical problems – dirty teeth, mild kidney failure – she was in pretty good health. My vet said that this one incident of bizarre behavior wasn’t enough to make a certain diagnosis, but he felt that Roxy probably had Cognitive Dysfunction Syndrome, a condition that dogs and cats sometimes develop as they age”.

Cognitive Dysfunction Syndrome (CDS) is a clinical syndrome defined as the development of one or more geriatric-onset behavior problems that cannot be attributed to an unrelated medical condition such as cancer, infection, or organ failure.

Although most studies of CDS have focused on the condition in dogs, the occurrence of the syndrome in cats has become a hot topic of study in recent years. Amy D. Shojai is the author of more than a dozen pet books, including "Pet Care in the New Century: Cutting –Edge Medicine for Dogs and Cats". She is currently researching CDS in cats and dogs. "I hear owner concerns all the time about older cats (greater than 9 years old) having lapses in litter box allegiance, crying or howling especially at night, staring into space, not seeming to recognize people, places, or animals, pacing aimlessly, getting lost in corners of rooms, and 'forgetting' how to do normal behaviors", says Shojai. "One woman described how her cat seemingly forgot how to eat! Smokey, a 17 year old cat, stood over the food bowl and simply looked confused until he was prompted with a finger-tap against the bowl to take a taste. Another owner with a 15 year old Manx described looking into her cat's eyes and there being 'nobody home'".

There haven't been very many studies of behavior problems in aging pets, especially cats. One unpublished study in 1998 showed that 55% of cats aged 11 – 15 years develop at least one geriatric-onset behavior problem, and that the percentage increases to 80% for cats aged 16 – 20. Disorientation in particular is seen in 2.5% of cats aged 11 – 15, and dramatically increases to 40% of cats aged 16 – 20! Shojai's review of the handful of published cat studies shows a similar trend, namely, that the incidence of behavior problems in cats increases greatly with age. Dr. Debra Horwitz is a board certified veterinary behaviorist. She tells of a study presented at the American Veterinary Society of Animal Behavior last July in which 45 of 152 cats aged 11 years and older demonstrated signs consistent with cognitive dysfunction. "When the cats were further divided into those aged 11 – 15, and those age 15 and older", she reports, "the cats in the older group showed even more signs of cognitive dysfunction per cat than the younger group". While cats show similar types of geriatric-onset behavior problems as dogs, the percentage of cats that are affected with CDS is much lower. "Bottom line", says Amy Shojai, "is that cats age very gracefully!"

Exactly why pets develop behavior problems when they age is not fully understood. Several theories have been put forth. The threshold theory basically asserts that an individual animal will tolerate a certain number of stimuli without actually exhibiting a behavior problem. When a stimulus exceeds the threshold, or if multiple stimuli combine to exceed the threshold, behavior problems may be seen. For example, a cat that is fearful may not exhibit undesirable behavior such as aggression until another stimulus (for example, pain from dental disease) "pushes" the cat beyond the threshold to a point where behavior problems are manifested. Alternatively, some medical conditions might "lower" the threshold. This lower level of tolerance is especially significant in aging pets, as organ function begins to weaken, sensory awareness begins to decline, and age-related central nervous system pathology begins to develop. True brain pathology, including accumulation of a substance called amyloid within the brain and associated blood vessels, has been seen in humans with Alzheimer's disease, and similar findings have been described in dogs and cats. The brain of a cat may become chronically deprived of oxygen due to slowly declining heart function and/or high blood pressure (common in older cats with renal failure and/or hyperthyroidism). Examined microscopically, the brains of these cats show cerebral atrophy and a decrease in the number of neurons. It can be difficult to differentiate which changes are normal, expected changes and which ones are pathological and may be contributing to the clinical signs of CDS. There are also a number of neurochemical changes that occur in the brains of aging cats and dogs, such as alterations in the levels of dopamine and serotonin, two chemicals that

affect mood and behavior. There are no simple explanations when assigning a cause for the development of geriatric-onset behavior problems.

Treatment options for cats with Cognitive Dysfunction Syndrome are limited. In early 1997, Canada gave approval for the use L-deprenyl, a drug used in humans with Parkinson's disease, for the treatment of canine CDS. The drug had already been approved for use in the United States (and Canada) for treatment of canine Cushing's disease, a disorder of the adrenal glands. The drug is now approved for use in CDS in the United States, but only for dogs. There are currently no drugs specifically licensed in North America for the treatment of cognitive dysfunction in cats, however, drugs that help normalize the levels of neurotransmitters that become depleted as cats age, such as dopamine and serotonin, as well as drugs that increase blood flow to the brain, hold promise for cats. Although there are no published studies on the use of L-deprenyl in cats, anecdotal reports of cats being given the drug off-label suggest that some cats might benefit from this drug. Cat owners should be aware that administration of medication that is not approved for use in that particular species is considered to be "extralabel" usage, and cat owners are asked to sign a form stating that they understand this and are willing to assume the risks involved.

Orlando decided not to take risks with Roxy. "I spoke to my veterinarian at length about this, and we decided to not prescribe any medication, since these episodes don't occur very often, and she's fine in every other way", he says. "I've had her for 18 years, and I can deal with her being a space-cadet every now and then."

Sidebar

Signs of CDS

Description

Disorientation	Appears lost or confused, doesn't recognize familiar people, places, or other pets in the house
Altered interaction with family	Solicits attention less, has less tolerance for petting
Decreased greeting behavior	No longer greets owners, or shows a less enthusiastic greeting
Change in sleep-wake cycles	Sleeps more overall, but sleeps less at night
Change in activity	Demonstrates more aimless activity, such as wandering or pacing.
Loss of housetraining	Urinate or defecates inappropriately; signals less to go outside (dogs), fails to use the litter box consistently (cats)