

# Even healthy cats act sick when their routine is disrupted

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A cat regularly vomiting hairballs or refusing to eat probably isn't being finicky or otherwise "cat-like," despite what conventional wisdom might say. There is a good chance that the cat is acting sick because of the stress caused by changes in its environment, new research suggests.

Healthy cats were just as likely as chronically ill cats to refuse food, vomit frequently and leave waste outside their litter box in response to changes in their routine, according to the Ohio State University study. Veterinary clinicians refer to these acts as sickness behaviors.

The researchers documented sickness behaviors in healthy cats and in cats with feline interstitial cystitis, a chronic illness characterized by recurring discomfort or pain in the bladder and often both an urgent and frequent need to urinate.

When the cats experienced what were called "unusual external events," such as a change in feeding schedule or caretaker, the healthy cats were just as likely to exhibit sickness behaviors as were the chronically ill cats. The two groups had the same number of sickness behaviors in response to unusual events, and both groups were at more than three times the risk of acting sick when their routines were disrupted.

Previous research has indicated that a diagnosis of interstitial cystitis, known as IC, in cats is strongly associated with a number of other health problems. The fact that healthy cats exhibit some of those same problems in the face of stress suggests that veterinary clinicians should

consider cats' [environmental conditions](#) during assessments for health problems, researchers say.

"For veterinary clinicians, when you have a cat that's not eating, is not using the litter box or has stuff coming up out of its mouth, the quality of the environment is another cause that needs to be addressed in coming up with a diagnosis," said Tony Buffington, professor of veterinary clinical sciences at Ohio State and senior author of the study.

"We are cautious about extrapolating these findings to the average home, but we will say that anyone who has a pet accepts the responsibility of understanding their pet's needs and providing them," he added. "And what we've learned is that all cats need to have some consideration of environmental enrichment."

The study is published in the Jan. 1, 2011, issue of the *Journal of the American Veterinary Medical Association*.

This research project didn't begin as a study of cats' tendency to exhibit sickness behaviors. Ohio State's Veterinary Medical Center was housing 12 healthy cats and 20 cats with IC, including those at risk of euthanasia because their previous owners were unable to tolerate their sickness behaviors, for a variety of other research efforts, many related to better understanding the chronic disease.

Judi Stella, a doctoral candidate in veterinary preventive medicine, was the primary caretaker of this colony of cats. Based on previous work by Buffington about the benefits of environmental enrichment for cats that stay indoors, Stella spent months setting up a standardized feeding, play and cleaning schedule that seemed the least stressful for all of the cats.

And then she noticed that the cats with the chronic illness looked better: Their coats were shinier, their eyes were clearer and, perhaps most

surprising of all, none of these cats missed the litter box or vomited for two weeks.

"At the time, we assumed the IC cats were always going to have these problems. When I started looking at the data, it was the lack of sickness behaviors that tipped me off. It was not expected," said Stella, lead author of the study.

"This became a study of enrichment as an approach to therapy for these syndromes because there is no good drug therapy in cats, or in people, for that matter, with this disorder. What we found, in other clinical studies and with this study, is that by enriching the environment, you can reduce IC cats' symptom burden by about 75 or 80 percent," Buffington said.

Another important finding: "A healthy cat – or any healthy mammal – can feel the stress of environmental disruption and exhibit sickness behaviors as a result," he said.

After the environment was stable for all of the cats, Stella observed them for another 77 weeks. The nature of the research changed again over the course of the observation. When Stella took a vacation and was replaced by substitute caretakers, or when she changed the feeding schedule for the cats as part of yet another project, it became clear that these changes had an influence on the cats' sickness behaviors. So she tracked those changes.

During the period of observation, these changes – called unusual external events – included a discontinuation of contact with Stella, the longtime primary caretaker; a combination of husbandry schedule changes, food removal, restraint stress and withdrawal of playtime and music; a three-hour delay in feeding time; and a dramatic change in caretaker personnel.

During control weeks, when the routine was unaltered, the healthy cats, on average, exhibited 0.4 sickness behaviors and the cats with IC exhibited 0.7 sickness behaviors – virtually no difference. Similarly, during weeks containing unusual external events, those numbers increased to 1.9 sickness behaviors for healthy cats and 2.0 sickness behaviors for cats with interstitial cystitis. Overall, this translated to a 3.2-fold increase in the risk for sickness behaviors by all cats when their routines were disrupted.

The three most common sickness behaviors – vomiting, urination or defecation outside the litter box and decreased food intake – accounted for 88 percent of all sickness behaviors in healthy cats and 78 percent of sickness behaviors in the cats with IC.

Buffington noted that these three signs of illness are among those that often lead pet owners to take their cats to a veterinarian for evaluation. And interestingly, these sickness behaviors also are seen in other captive housing environments, such as zoos, kennels and shelters.

So how does a cat owner enrich the animal's environment? In this study, this included routine care and feeding at the same time every morning, keeping food and litter boxes in consistent locations, daily cleaning of cages, provision of a clean litter box, regularly washed bedding, hiding boxes, numerous commercial cat toys and classical music for one to two hours each day. Stella also released all cats from their cages for 60 to 90 minutes each afternoon to allow them to interact and play with toys or use climbing and scratching posts.

"I think a huge part of this is giving cats resources they can interact with and control. Litter boxes and food bowls go without saying, but I also think that equally important are predictable schedules and some semblance of control so they don't feel trapped. And their humans can focus on quality interaction rather than the quantity of interaction.

Understanding how they live in the world can allow humans to interact with them more effectively," Stella said.

There is also a need to recognize that what might be common isn't necessarily normal.

"There is not another mammal on the planet that wouldn't be hospitalized for throwing up once a week," Buffington said. "Vomiting hairballs is not normal. What we think happens is that stress changes motility in their stomach and that leads to vomiting. Pet owners have to recognize that vomiting is not normal in cats."

The researchers noted a few other findings of interest: Older cats had a higher risk for an increase in the total number of sickness behaviors and for an increase in upper gastrointestinal symptoms and avoidance behavior. The oldest cat in the study was 8 years old.

In addition, the sickness behaviors of cats with interstitial [cystitis](#) were reduced even though they were not treated with any drugs and were eating commercially available dry food, which suggests these cats do not require drugs or special diets as part of their therapy.

"You get the environment right and they'll recover," Buffington said. "It's like having lactose intolerance – you can't put the corrective gene into the intestinal tract, but you can teach people to avoid milk sugar and that's just as good. That's what we're doing – teaching these [cats](#) how to avoid threats that cause stress."

Provided by The Ohio State University

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