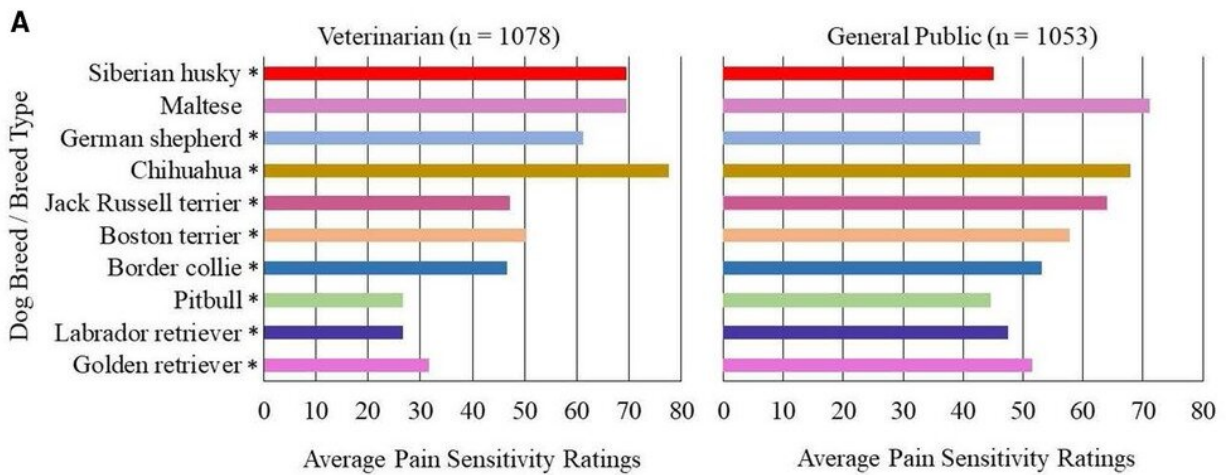


A dog's breed can affect pain sensitivity, but not necessarily the way your vet may think

June 28 2023, by Tracey Peake



Ten dog breeds/breed types selected for study inclusion. (A) Findings from Gruen et al. (1) demonstrating the average pain sensitivity ratings by both veterinarians and general public members for the ten dog breeds selected. The scale ranged from 0 = not at all sensitive to 100 = most sensitive imaginable. In Gruen et al. (1), median pain sensitivity ratings between veterinarians and the general public were compared using two-sample t-tests, and p-values = 0.001 are indicated using asterisks (*). (B) Visual representation of the ten dog breeds/breed types selected based on the classification of pain sensitivity ratings by veterinarians. Height is demonstrated for each breed, as consideration was provided to include dog breeds/breed types of varying sizes. Credit: *Frontiers in Pain Research* (2023). DOI: 10.3389/fpain.2023.1165340

Dog breeds differ in pain sensitivity, but these differences don't always match up with the beliefs people—including veterinarians—hold about breed-specific pain sensitivity. The results appear in a new study from North Carolina State University published in *Frontiers in Pain Research*, which also found that a dog's temperament (specifically in the way they interact with strangers) may influence the way veterinarians view breed pain sensitivity.

"Veterinarians have a fairly strong consensus in their ratings of pain sensitivity in dogs of different breeds, and those ratings are often at odds with ratings from members of the public," says Margaret Gruen, associate professor of behavioral medicine at NC State and co-corresponding author of a paper describing the research.

"So we wanted to know—first—is any of it true? If we take 15 dogs of 10 breeds rated as high, medium, and low sensitivity and test their sensitivity thresholds, would we see differences, and if so, would they be consistent with what [veterinarians](#) believe? Or is it possible that these views are the result of a dog's emotional reactivity and behavior while interacting with a veterinarian?"

To answer the question the researchers looked at both male and female adult healthy dogs from 10 breeds subjectively rated by veterinarians as having high (chihuahua, German shepherd, Maltese, Siberian husky), average (border collie, Boston terrier, Jack Russell terrier), or low (golden retriever, pitbull, Labrador retriever) pain sensitivity. A total of 149 dogs participated in the study.

To measure pain sensitivity, the NC State team looked to methods used in human clinical medicine.

"Reactivity to [external stimuli](#) is a measure commonly used in neurology and pain clinics for humans," said Duncan Lascelles, professor of translational pain research at NC State and co-corresponding author of the work. "We have adapted these measures for pet dogs and used them in this study."

Each dog's sensitivity to pressure and temperature was tested by pressing a pressure tool (think of both ends of a ball point pen—pointed and blunt) then a warm thermal probe against the top of the back paw. The stimulus was withdrawn immediately when the dog moved their paw. Each test was repeated five times and the results were used to measure sensitivity.

The researchers also conducted two tests of emotional reactivity that were designed to see how the dogs reacted to unfamiliar things or people and to mimic some of the stressful aspects of a visit to the vet: the novel object test and the "disgruntled stranger" test. The novel object was a stuffed monkey that moved and made noise. The disgruntled stranger was a person involved in a loud phone conversation prior to noticing and calling the dog over.

The sensitivity test results were compared to questionnaires that veterinarians and the general public had filled out on breed pain

sensitivity.

The researchers found that there are real breed differences in pain sensitivity thresholds, but that those differences don't always match up with rankings from veterinarians.

For example, Maltese tended to have a high sensitivity threshold, or low pain tolerance, which meant they reacted quickly to pressure and temperature stimulus. This finding was in line with how veterinarians ranked them.

However, veterinarians also thought Siberian huskies were highly sensitive—but test results placed huskies in the mid-range. In fact, several of the larger breeds veterinarians ranked as sensitive actually had an average-to-high pain tolerance.

The researchers noted that dogs who were less likely to engage in the novel object and disgruntled stranger scenarios were also sometimes rated as having a lower pain tolerance, which raises the question of whether an animal's stress level and emotional reactivity at a vet visit could influence a veterinarian's pain tolerance rating for that breed.

"These behavioral differences might explain the different veterinarian ratings, but not actual pain tolerance between breeds," says Lascelles. "This study is exciting because it shows us that there are biological differences in [pain sensitivity](#) between breeds. Now we can begin looking for potential biological causes to explain these differences, which will enable us to treat individual breeds more effectively."

"On the behavioral side, these findings show that we need to think about not just pain, but also a dog's anxiety in the veterinary setting," Gruen says. "And they can help explain why veterinarians may think about certain breeds' sensitivity the way they do."

More information: Rachel M. P. Caddiell et al, Pain sensitivity differs between dog breeds but not in the way veterinarians believe, *Frontiers in Pain Research* (2023). [DOI: 10.3389/fpain.2023.1165340](https://doi.org/10.3389/fpain.2023.1165340)

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