Dog Tips

8 Signs Your Dog May Be in Pain

Often it can be challenging to 'read' your dog's level of pain, yet there are clues if you pay attention. Thanks to this new research, we now know certain dog breeds are more sensitive to pain than others, and stress and anxiety can make it worse.

Analysis by Dr. Karen Shaw Becker

STORY AT-A-GLANCE

- Pet parents and veterinarians often don't see eye-to-eye when it comes to pain sensitivity (pain tolerance) in dogs

- A recent study from North Carolina State University shows that pain sensitivity does differ by dog breed; however, the study also revealed that a dog's temperament may influence how veterinarians perceive his or her pain sensitivity

- Veterinarians and their staffs should consider pain-scoring every patient, just as all patients are weighed, have their temperature, pulse, and respiration measured, and their body condition scored

- Scoring animals who can't tell us their level of pain involves not only careful observation, but also factoring in the pain known to be associated with certain conditions and veterinary procedures

- One of the major benefits of pain scoring is it raises the level of awareness of everyone in the veterinary clinic who is caring for that patient (and hopefully, lowers the level of subjective decision-making based on a dog's temperament during vet visits)

A recent study led by veterinary researchers at North Carolina State University suggests that dog breeds differ in terms of perceived and actual pain sensitivity.[1] Interestingly, these differences don't always support the assumptions held by both the general public and veterinarians with regard to breed-specific pain sensitivity.

To add another twist, the study results suggest that a dog's temperament — in particular how he or she interacts with strangers — may influence how veterinarians perceive pain sensitivity in different breeds.

Vets, Clients Often Don't See Eye-to-Eye on Pain Sensitivity

According to study co-author Margaret Gruen, an associate professor of behavioral medicine at NC State:

"*Veterinarians generally agree on their ratings of pain sensitivity in dogs of various breeds. However, their opinions often conflict with those of the public.*

"*We were keen to find out whether these beliefs were accurate. For instance, if we tested the sensitivity thresholds of 15 dogs from 10 breeds rated as having high, medium, and low sensitivity, would we notice any differences? Would these differences align with what veterinarians believe? Or could these perceptions be influenced by a dog's emotional reactivity and behavior during interactions with a veterinarian?*"[2]

For the study, the researchers recruited 149 healthy dogs, both male and female, from 10 different breeds. Each breed was ranked by veterinarians for levels of pain sensitivity, with the following results:

- Group 1 was ranked as high sensitivity, and included the Chihuahua, German Shepherd, Maltese, and Siberian Husky

- Group 2 was ranked as average sensitivity, and included the Border Collie, Boston Terrier, and Jack Russell Terrier

- Group 3 was ranked as having low sensitivity, and included the Golden Retriever, Labrador Retriever, and Pitbull

The above breeds represented a broad range of perceived sensitivity.

How the Dogs' Pain Sensitivity Was Evaluated

According to study co-author Duncan Lascelles, professor of translational pain research at NC State, the research team used a human measure of pain sensitivity — reactivity to external stimuli — as a model for the experiment and adapted the measure for use with family dogs.

The researchers tested each dog's sensitivity to pressure and temperature by gently pushing a pressure tool and then a warm thermal probe against the top of a back paw. As soon as the dogs moved their paw, the stimulus was removed. Each test was repeated five times, and the results were used to measure sensitivity.

The dogs also underwent two emotional reactivity tests to evaluate how they responded to strangers or unfamiliar objects. The tests were also intended to simulate some of the elements of a veterinary visit known to be stressful for dogs, including a "novel object test" (in this case, a noisy, moving stuffed monkey) and a "disgruntled stranger test" (a person involved in a loud phone call) before calling the dog over.

The researchers then compared the results of these sensitivity tests with questionnaires completed by veterinarians and the general public about breed-specific pain sensitivity.

Study: Breed Differences in Pain Sensitivity Are Real

The study co-authors learned that indeed, there are real differences in pain sensitivity thresholds between breeds; however, these differences don't always agree with veterinarians' rankings. For example:

- Maltese dogs displayed a high sensitivity threshold (low pain tolerance). They were quick to respond to the pressure and temperature stimulus, which agreed with veterinarians' assessments of the breed.

- Siberian Huskies, which vets assess as highly sensitive, actually fell into the mid-range sensitivity category, and in fact, several larger breeds thought to be sensitive by veterinarians displayed average-to-high pain tolerance.

- Dogs who showed reluctance to engage with the noisy animated monkey or the grumpy person on the phone were often rated (by veterinarians) as having a lower pain tolerance, which suggests that perhaps a dog's stress level and emotional reactivity during veterinary visits impacts vets' pain tolerance assessment for that breed.

As is the case with so much research into dogs, this study demonstrates the need for a deeper understanding of our canine family members.

> "*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.*"[3]

And according to Gruen:

> "*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. And they can help explain why veterinarians may think about certain breeds' sensitivity the way they do.*"[4]

Pain Scoring in Veterinary Medicine

Most of us are familiar with pain scoring. It's when a doctor or nurse asks us to rate the pain we're experiencing with a number, for example, 0 to 10, with 0 indicating almost no pain, and 10 signifying excruciating pain.

> "*... [A] pain score is a subjective number that gauges a patient's pain intensity based on behavioral and physiological parameters,*" says Dr. Phil Zeltzman in a 2016 article for Veterinary Practice News. "*Several pain scales are available, such as the Visual Analog Scale, the Colorado Pain Scale and the Glasgow Composite Pain Scale.*"[5]

The Colorado Pain Scale uses just five numbers (0 to 4), making it quick and easy to use. Unfortunately, pain scoring is almost exclusively a human medicine tool. The veterinary community hasn't yet "embraced the concept," according to Zeltzman, and I've certainly seen evidence of this myself. Zeltzman, a board-certified veterinary surgeon, urged his veterinary colleagues to get onboard with pain scoring.

> "*With practice, attributing a pain score to cats and dogs will become second nature to you and your team,*" he says. "*It shouldn't be much more complicated than attributing a body condition score to a patient.*"[6]

Evaluating Patients Who Can't Tell Us About Their Pain

In veterinary medicine, our patients can't tell us in words how much they're hurting, so pain scoring must be done primarily through observation. It can be used not only with animals who've had surgery, but also any pet dealing with an injury or illness.

Since every animal is an individual with a specific pain threshold, to use pain scoring effectively, we must observe the patient before painkillers are given and before any procedure is attempted, no matter how minor (e.g., a blood draw).

We also need to apply some science to the art of observation when determining a pet's pain score. We need to know average pain levels for the condition the animal has or the surgery about to be performed, and factor those into the equation.

This is necessary because many dogs are stoic even when in significant pain.

"We all have encountered a young Lab hit by a car," says Zeltzman. "Despite extensive open wounds and fractured bones, he might be wagging his tail. The same applies to cats that may be purring despite significant trauma. Therefore, expected pain levels for a particular surgery or condition are taken into account when we give a pain score."

Benefits of Pain Scoring Veterinary Patients

Dr. Zeltzman explains four benefits for veterinarians and their staffs who measure each patient's pain level:

1. Pain scoring increases the awareness of everyone on the vet staff who is caring for the patient. It also allows for customizing and modification of pain management protocols based on the individual pet and the procedure being performed.

   "[Using the Colorado Pain Scale] a pain score of 0 or 1 should be our goal," says Zeltzman. "A score of 2, 3 or 4 should lead you to immediately reassess the analgesic plan and better understand what is happening to your patient."

2. Zeltzman believes any veterinary clinic can benefit from pain-scoring every animal, just as all patients are weighed, their temperature, pulse, and respiration are measured, and their body condition is scored.

3. Pain scores are not static — they change over time depending on a wide range of factors, including patient characteristics, veterinary procedures performed, pain medication and dose timing, and others. Pain scores in hospitalized patients should be taken every few hours.

4. Zeltzman suggests veterinary staffs incorporate pain scoring as the "fourth vital sign" following temperature, pulse, and respiration (TPR) measures.

Colorado State University Pain Scales

Pain scales such as Colorado State University's (CSU) are obviously intended for use by veterinarians and their staffs, but they can also be helpful for pet parents who want to learn what signs to look for to determine if their dog or cat might be in pain.

- **Pain score: 0 —** No pain present. The patient is happy, acts normally, moves comfortably, has a normal appetite and (if applicable) does not bother the surgery site. TPR is normal.

- **Pain score: 1 —** Mild pain present. This is usually displayed by a slight limp, difficulty getting up or down, or a slight increase in TPR. The patient is eating, tail wagging or purring and not depressed.

- **Pain score: 2 —** Moderate pain present. The patient shows sensitivity and may lick or chew at the surgical site or wound. The patient may vocalize, may refuse to eat and may seem depressed, and has slow, shallow respirations.

- **Pain score: 3 —** Severe pain present. Signs include depression, reluctance to move and sensitivity at the surgical site or wound. The patient will usually not eat, may vocalize and may lie down but not sleep.

- **Pain score: 4 —** Excruciating pain present. The patient shows all the signs described with a pain score of 3, in addition to intermittent panting, increased TPR – even at rest – constant vocalizing, profound depression, dilated pupils, aggressiveness and deep breathing.

To view the full detailed CSU pain scales, which include rough drawings of how your dog or cat might appear with a pain score of 0, 1, etc.: **Canine Pain Scale**, **Feline Pain Scale**.

Signs Your Dog May Be in Pain

It might not be obvious when your dog is in pain, as they may try to hide their discomfort and may not openly whine or cry unless the pain is severe. However, if you notice any of the following, a trip to your veterinarian is in order to determine if pain relief is needed:

- Lack or loss of appetite

- Trembling/shivering

- Not bearing weight on a leg

- Reluctance to climb up or down stairs

- Not greeting you as usual

- Crouching

- Taking longer than usual to urinate or defecate

- Excessive panting

Sources and References

[1] Caddiell, R.M. et al. Front. Pain Res., 26 June 2023, Sec. Veterinary and Comparative Pain, Volume 4 - 2023

[2,3,4] Earth.com, June 29, 2023

[5,6] Veterinary Practice News, September 16, 2016