

A special advertising section

# Recognizing, documenting and treating canine pain

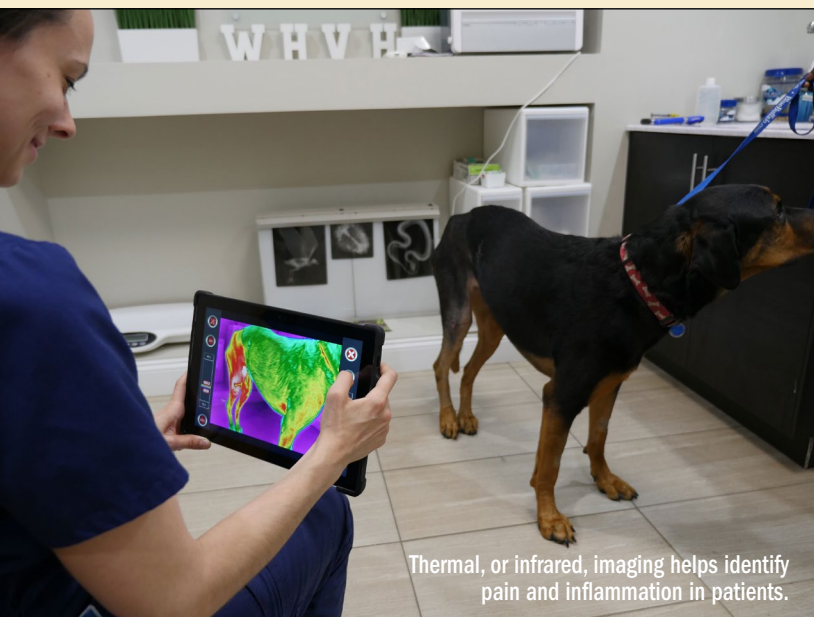
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For The Education Center

The first research papers discussing canine pain were published in the early 1950s, yet up until the early 1980s our profession believed that animals did not perceive pain like their human counterparts.<sup>1,2</sup>

Before the 1980s it was accepted that “the body produced pain to protect itself from reinjuring healing tissues,” therefore to control it risked recovery. Even into the 1990s many neonatal procedures were done without any regard to pain management since “neonates were too young to sense pain.”<sup>3</sup>

Within the last 10 years, through the publication of new textbooks,<sup>4</sup> association guidelines<sup>5</sup> and scientific studies,<sup>6</sup> a keen awareness and a more thorough knowledge have developed into how to recognize and manage pain experienced by our patients.

Pain is defined by experts as “an unpleasant sensory and emotional experience associated with actual or potential tissue damage.” Pain is personal; it is an experience and a physiological response. Pain is often difficult to recognize; it is very subjective and difficult to measure.



Thermal, or infrared, imaging helps identify pain and inflammation in patients.

Patients often suffer in silence since they often don't cry, limp, whimper or show obvious signs of pain. In the human field we describe our pain, whereas our patients' pain levels are what we say they are. It is now the standard of care in our profession to evaluate pain in every patient on every visit.

## How It Is Measured

Evaluation and recognition of pain begins with the patient's history. Question subtle behavior patterns. Has appetite decreased, has the patient become withdrawn, dull or inactive, is he reluctant to climb stairs, change positions, run or play, or is he lagging behind on walks? Has there been a change in personality, aggression or panting? Increased licking of a particular area? An uncharacteristic reaction when touched?

These behavior assessments are subject to interpretation first by the owner and then by the clinician. Standardize the owner evaluation by implementing both a practice-specific pain scale and a validated tool such as the Canine Brief Pain Inventory.<sup>7</sup>

Both physical and physiological exams will begin the

process of collecting the information needed to formulate an individualized pain management program. Routine collection of physiological data such as heart and respiratory rates, blood pressure and pupil dilation is helpful but, due to patient individuality, often is not an accurate response to the noxious stimuli experienced.

Digital palpation of all anatomical locations will yield useful data essential in formulating a pain management plan, but these findings often have mixed results in a stoic patient. Implementing standardized pain scales, such as Colorado State University's Canine Acute Pain Scale, ensure an equal assessment of each patient and should be used as an adjunct to a good physical exam.<sup>8</sup> Blood work should be done to establish baseline data.

## Enter Thermal Imaging

Digital thermal imaging provides an accurate, objective and quantifiable evaluation of a patient's physiological status. The equipment detects radiant energy being emitted from the patient. Utilizing specialized medical software, the pattern of emitted energy is converted to a visible image. This image is objective and may be analyzed, measured and compared to other images of the patient.

Each patient is its own control, and differences in symmetry are easily identified. A direct correlation exists between increases within the thermal gradients and increases in the blood flow and inflammation within that anatomical area. Conversely, decreases within the expected thermal gradient depict nerve damage, scarring and muscle wasting or atrophy.<sup>9,10</sup>

Digital thermal images identify areas eliciting pain, depict the extent of the painful area, show all secondary and tertiary areas in need of evaluation, and monitor the progress of the pain management plan.<sup>11</sup>

The goal is a definitive diagnosis as to the etiology of the pain. This should be concluded through the use of any other diagnostic testing warranted by the patient, such as stance analysis and radiographic or ultrasound studies.

When the case has had a complete workup, a multidimensional, individualized pain management plan should be created. This plan should be based on a definitive diagnosis and an assessment of environmental, behavioral and nutritional aspects, the severity of the pain, and the final treatment goals. The plan should note any changes needed in the environment, any nutritional or nutraceutical recommendations, the pharmaceutical approach and possible side effects, laser therapy or other modalities, physical therapy or rehabilitation, and behavior modification.

## Case Study

**Signalment:** Toby, a 31-pound, 9-year-old castrated Scottish terrier

**Client complaint:** Approximately three months ago the owner noticed Toby slowing down. Over the past two weeks Toby has become reluctant to move and is not eager to go for a walk. He still jumps into the car to go for a ride.

**History:** Toby has very little medical history. No health problems or lameness issues. He is a typical Scottie in that he is very stoic and passive. He is slightly

overweight and not on any nutraceuticals. The only medications he takes are heartworm preventives and flea and tick products.

**Physical exam:** TPR all normal. Palpation revealed a slight rigidity to the thoracolumbar musculature, more on the right than left, slight pain within the musculature surrounding both stifles. No other palpable pain or lack of PROM within any other anatomical area.

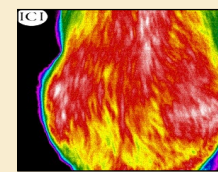


Figure 1

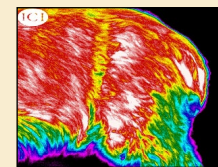


Figure 2

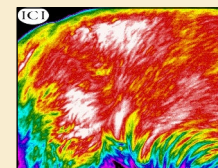


Figure 3

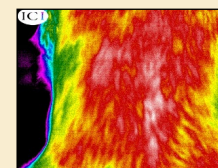


Figure 4

## Physiological Exam (digital thermal imaging):

■ Lumbosacral spine and adjacent musculature depicts an increased thermal gradient throughout, with increased gradients on the right (Figure 1). Both hips illustrate an increase in the thermal gradients throughout, with a much greater increase on the right.

■ Both hip and stifle joints and surrounding musculature show an increase within their thermal gradients (Figure 2).

■ This image (Figure 3) displays a much higher increase within the thermal gradients when compared to the left side.

■ This image (Figure 4) of the thoracolumbar spine and adjacent musculature shows an increase within the thermal gradients on the right side. This is the only area that pain was digitally palpated.

**Summary:** Both stifles, the hips and lumbar spine need radiographic evaluation. Further palpation revealed slight swelling within adjacent musculature of the right stifle but no pain response.

**Diagnosis:** Early stages of osteoarthritis are confirmed on radiographs

## Multimodal pain management plan:

■ Oral glucosamine, chondroitin, MSM

■ Photobiomodulation (laser therapy): Thoracolumbar spine and adjacent musculature, on-contact at 8 J/cm<sup>2</sup>; lumbosacral spine and adjacent musculature, on-contact at 10 J/cm<sup>2</sup>; both hip and stifle joints and surrounding musculature, on-contact, PROM, 6 J/cm<sup>2</sup>. Three treatments a week for two weeks, re-evaluating before each session.

■ Pharmaceutical options were discussed.

**Outcome:** No palpable pain was detected after two PBMT treatments. Patient was active and resumed normal activities. Digital thermal images indicated a decrease in thermal gradients throughout. Six therapy sessions were completed, and Toby is now on a maintenance program of one laser treatment every two weeks.

**Conclusion:** The complete alleviation of or management of pain should be closely monitored and documented. When the patient is presented for re-evaluation, another complete assessment should be performed, including a physical exam, blood work and digital thermal images. Follow-up radiographic studies may be necessary. Vigilant monitoring of these cases and making the necessary adjustments will establish and then maintain a high quality of pain-free life for the patient. ●

This Education Center article was underwritten by Digatherm Digital Thermal Imaging of Ocala, Fla.

## REFERENCES

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