

## A world of hurts—is pain special?

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### The Focus on Pain

The approach to pain has recently undergone revolutionary changes in human and veterinary medicine. In what could be regarded as a period of enlightenment, the past two decades have seen a rapid increase in awareness of and intensified efforts to treat pain.<sup>1</sup> After decades of being undervalued, undertreated, and in many cases ignored, pain is now regarded as a critically important factor in the quality of life of humans and other animals. Articles on pain management are commonplace in veterinary journals and textbooks, and pain has become a popular continuing education topic.<sup>1</sup> National veterinary organizations, such as the AVMA<sup>2</sup> and the American College of Veterinary Anesthesiologists,<sup>3</sup> have recently developed formal position statements on pain and its importance to well-being. The American Animal Hospital Association is proposing the inclusion of pain management requirements within its hospital accreditation standards,<sup>4</sup> a step similar to that taken recently in human medicine, when the Joint Commission on Accreditation of Healthcare Organizations<sup>5</sup> mandated that human hospitals measure pain in their patients and take steps to manage it. The AVMA's Twelfth Annual Animal Welfare Forum was devoted exclusively to pain management, and the proceedings from that meeting were published in the July 15, 2002 *JAVMA*.

The enlightened attitude and intensified efforts to alleviate pain have facilitated dramatic improvements in patient well-being. However, in the process, pain has acquired, or been ascribed, a unique status as a special form of suffering deserving of the highest priority consideration. This narrow focus has left other causes of distress and suffering less attended. First, the advancements in pain management have been restricted to physical pain; that is, the mental experience associated with nociceptive receptors and pathways activated by tissue damage. The many forms of emotional pain<sup>6,8</sup> have not been beneficiaries of the invigorated efforts to promote modern analgesic treatment. One presenter at the AVMA's Animal Welfare Forum on pain management<sup>9</sup> acknowledged that physical pain was under consideration, whereas emotional pain was not. Moreover, physical pain is now often viewed as the only suffering worthy of consideration. This is evident in the evaluation of clinical patients and illustrated by the common scenario in veterinary practice in which the owner of a terminally ill animal is contemplating euthanasia and poses the ques-

tion to the veterinarian, "Is he in pain?" By intending to use the clinician's response to determine whether euthanasia is the appropriate choice, the pet owner is attaching the ultimate weight to this single form of suffering. In a research context, the Animal Welfare Act (AWA), which sets minimum standards for the care and treatment of laboratory animals, requires the use of anesthetics and analgesics for all pain resulting from experimental procedures.<sup>10</sup> This standard mandates treatment of a single type of suffering; the AWA designates no other specific type of suffering to be alleviated. If a research animal were to undergo bilateral nephrectomy, the perioperative pain would necessitate treatment, whereas the subsequent suffering from the developing uremia would not.

### Pain and Suffering—Pain in a Class by Itself

Traditional terminology further reflects the special status ascribed to pain. Common in everyday usage and scientific terminology are the phrases pain and suffering and pain and distress: pain and suffering is regularly used in an effort to comprehensively refer to all forms of suffering an animal or person could experience; pain and distress is used in regard to animal care by the USDA, in the AWA, and in innumerable scientific reports.

The flaw in this terminology is that physical pain is a cause and thus included in the description of distress and suffering. If physical pain is separated from suffering or distress, then the latter terms become indefinable. Once physical pain (or any other specific cause of suffering) is separated from the category of suffering, then no definition can apply to only nonphysical-pain-induced suffering. In the phrase pain and suffering, does suffering refer to nonpain induced suffering or all suffering? If the latter, then pain is included in the term suffering. An analogy would be removing red from the concept of color and then trying to define color. Would color refer to nonred color or all color? If the latter, then color includes red, and red and color is nonsensical. The phrase red and color is the conceptual equivalent of pain and suffering.

The separation of physical pain from suffering or distress creates a special category for one feeling state distinct from other forms of suffering. By the same logic, fear (or nausea or pruritus, for example) could be separated into its own category, creating fear and suffering, among many others. By making physical pain the only form of suffering to warrant its own category, it elevates its importance above all others. The same would be true

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if news reporters used the phrase earthquakes and natural disasters or the police constantly spoke of robbery and crime. Another interpretation of pain and suffering could conceivably be that only moderate to severe physical pain causes suffering, whereas mild physical pain does not. In this view, it could be argued that pain and suffering refers to all pain (including the mild pain that is not associated with suffering) and all other suffering. However, this interpretation also treats physical pain as a special case, because pain in this case is viewed as harmful in all its intensities, whereas no other unpleasant feeling state is. In any interpretation of the phraseology, the implication is clear: the individual item stands apart from the collective and hence acquires a special status.

This prioritizing of physical pain above all other unpleasant feelings and suffering has led to an intensive effort to protect animals from one form of suffering. Whether physical pain warrants a special status among the many sufferings that animals may experience remains to be convincingly argued. There are many other types of hurt in the world.

### Emotional Pain

The discomfort of unpleasant emotional states has been regarded as a form of pain in standard<sup>11</sup> and medical<sup>12</sup> dictionaries. Pain has been defined as physical or mental suffering caused by injury, disease, grief, anxiety,<sup>11</sup> and an awareness of acute or chronic discomfort occurring in varying degrees of severity and resulting from injury, disease, or emotional distress, as evidenced by biological or behavioral changes or both.<sup>6</sup> The various physical and emotional pains have the capacity to induce suffering in animals.

Research has provided a scientific rationale for the common reference to many unpleasant emotional states as a form of pain. Separation anxiety and loneliness are regulated by endogenous opioids,<sup>13-15</sup> which also regulate the intensity of physical pain. Anatomically, the emotional systems of social separation (eg, separation anxiety, social isolation, and loneliness) are located close to those generating physical pain responses.<sup>15</sup> Evidence strongly suggests that in the course of brain evolution, the systems that mediate separation anxiety emerged, in part, from preexisting and more primitive pain circuits.<sup>7</sup> These neuroanatomic and neurophysiologic findings have affirmed that separation distress is related to perceptions of pain.<sup>7</sup> Opioid systems evolved in the early brain to modulate the experienced intensity of physical pain; it appears that these discomfort-reducing neurochemistries were adapted to ease the pain evoked by social isolation and loss in the more recently evolved mammalian brain.<sup>7</sup>

### Evolutionary Value—Is Pain Special?

It is widely accepted that unpleasant feelings evolved to be associated with threats to well-being and life, arising as a means of maximizing well-being and fitness.<sup>7</sup> The mentally experienced unpleasantness of these feelings appears to serve important survival functions, specifically, alerting the animal to threats, focusing attention on important stimuli, and motivating the animal to take self-protective action to lessen the threat.

Unpleasant feelings are experienced mentally but

are of physical or emotional origin. Sources of unpleasant feelings may originate physically (eg, pain, hypoxia, thirst, hunger, toxicosis, nausea, urinary bladder distention, pruritus, and temperature extremes) or emotionally (eg, fear, anxiety, social isolation, frustration, boredom, grief, and anger).<sup>7,16-23</sup>

It is generally accepted that because unpleasant feelings represent potential threats to survival, they command more mental attention, priority, and urgency than do pleasurable feelings of life. They do this by inflicting feelings that hurt, which ensures that the animals pay attention to and act to rectify the problem. In addition, as the threat grows (eg, the urinary bladder continues to fill, oxygen intake diminishes, or a predator approaches), the unpleasantness increases in intensity, increasingly focusing attention more intensely and narrowly on the threat and lessening the mental focus on all other matters.<sup>7</sup> If the threat remains unresolved, mental focus is ultimately narrowed solely to the unpleasant feeling.<sup>7</sup> In this way, the individual is increasingly compelled to focus on the threat and not on matters less relevant to survival. This evolutionary development is ideally exemplified in the motto of the American Lung Association: "When you can't breathe, nothing else matters." These seven words summarize one of the most important evolutionary functions of unpleasant feelings, which is to focus attention on the suffering, until it is alleviated.

The unpleasantness experienced serves not only to focus attention on threats, but it appears to motivate the individual to act in ways that are beneficial to its well-being and survival (eg, fear motivates the escape from a threatening situation, loneliness motivates the seeking of companionship, and physical pain motivates behavior that protects injured tissue). Because of the mental construction that has forged associations between harmful stimuli and unpleasant feelings, when the animal acts to lessen the intensity of unpleasant feelings, it is lessening the threat to its well-being.

Current evidence points toward a central principle for our approach to unpleasant feelings and suffering: feelings represent value (to survival), and the intensity of the feeling represents the degree of value.<sup>7,24</sup> This is why feelings intensify as threat intensity increases (eg, water deprivation persists, one approaches the edge of a high cliff, or ambient temperature rises) and why the greatest risk to survival is associated with most intensely unpleasant feelings. For example, when a person is trapped underwater and perceives that he or she may not make it to the surface in time to get a breath, the feelings elicited include panic and terror, in addition to hypoxia.<sup>7</sup> This is because one of the greatest and immediate threats to survival is inadequate intake of oxygen, and because feelings represent value to survival, the situation of inadequate oxygen evokes unpleasant feelings of the greatest intensity.<sup>7</sup> The urgency for survival is signaled to the individual in the form of feelings, and corrective action is urgently compelled. Anything less than the strongest motivational force and the individual may ignore the signal—and perish (and thus not pass on the genes that built the brain with weak and ineffective feelings). This behavior is observed frequently in animals, such as when cats with severe pleural effusion are positioned on their backs for radiography. The compromise

to oxygenation elicits the greatest intensity of unpleasant feelings, including terror. Motivated by such feelings (which are the mental representations of the degree and urgency of the threat), the cats will take forceful and aggressive action to lessen the feelings, with the goal of lessening the survival threat.

For some unpleasant feelings, the intensity is time-dependent, increasing over time if the survival threat persists. Examples are thirst and hunger, which represent unmet physiologic needs. Unmet psychosocial needs appear to act similarly. For example, the magnitude of feelings of social isolation (loneliness) may increase over time.<sup>25</sup> Because the threat to life for certain situations increases with time (for example, food deprivation and being alone in an environment where predators reside), the intensity of the associated feelings increases correspondingly.

In judging the impact of unpleasant feelings on well-being, it is important to understand that the potential for distress differs among the specific unpleasant feelings. Because unpleasant feelings represent survival value, and survival value of stimuli and circumstances differ, states of unpleasant feeling differ in their intensity and hence their potential to induce distress or suffering. The principle that the greatest threats to survival elicit the greatest degree of unpleasantness is essential to understand in animal care, because our urgency in attending to an animal's unpleasant feelings needs to match their distress potential. That is, the urgency conveyed to the animal by its feelings is the same degree of urgency with which we should be working to help alleviate them.

Because the intensity of unpleasant feelings generally correspond to the degree of the threat to life and well-being, it is possible for us to develop a list of situations prioritized by their threat to survival. It is reasonable to propose three situations as the greatest risk to survival and their elicited feelings: (1) deficient oxygen intake: extremely unpleasant feelings of hypoxia, panic, and terror<sup>7</sup>; (2) actual or potential tissue damage: pain<sup>26</sup>; and (3) impending bodily harm or death: fear.<sup>7</sup> Because these three feeling states are associated with the gravest of threats to survival, we presume them to be the greatest sources of suffering in animals. Other feelings, especially those that are time-dependent, may increase to a high intensity. In such cases, they would be ranked high in priority for suffering potential.

The logic and value of using evolutionary survival to determine the suffering potential of feelings has limitations. Some unpleasant feeling states appear to be capable of inducing great suffering, yet are associated with a lesser degree of survival value. For example, intense pruritus appears to be a cause of a high degree of suffering, but does not represent a great threat to life. In caring for animals, therefore, it is important to not use survival value as the sole measure of distress potential for the array of unpleasant feeling states.

### **Physical and Emotional Pain—is One Worse?**

Unpleasant physical and emotional feelings seem to share the same general functions—they alert the animal to a threat, focus attention on the threat, and motivate behavior to lessen the threat. Veterinary medical training focuses on the alleviation of unpleasant feel-

ings of physical origin<sup>27</sup> and, as stated, the recent prioritization of management of physical pain implies that pain is the most serious cause of suffering. Can physical and emotional pain be compared?

Contrary to the prevailing view, there is evidence that emotional pain may induce greater suffering than physical pain. Studies have shown that emotional factors weigh more strongly in animals' behavioral choices than physical pain. In one study,<sup>28</sup> an electrified grid was placed between puppies and persons to whom they had formed a social attachment. The puppies crossed the grid, receiving shocks the entire way, to reestablish contact with the person. In another study,<sup>29</sup> infant rats were taken from their mothers and placed on the opposite side of an electrified grid. The mother rats could hear their pups' distress vocalizations but would have to walk across the active grid to reach them. The mother rats crossed the grid, picked up the pups, and carried them back across the grid to their nest, receiving constant electric shocks in both directions. One mother rat retrieved her pup 58 times before the experimenters terminated the testing. Anecdotal stories provide further evidence for the greater distress potential for emotional pain. In a well-publicized news story out of Brooklyn, New York,<sup>30</sup> a mother cat was nursing a litter of 4-week-old kittens in an abandoned building that caught fire. The mother cat reentered the blazing building five times to retrieve each of her five kittens. In the process, the mother cat received severe burns to her face and head so damaging that her eyes were swollen tightly shut, her whiskers and facial hair were burned off, and her face was badly disfigured from the burned skin. Many experiments in mammals have shown that the infant's call of distress is highly arousing and motivating for the mother, and it has been proposed that the sounds of an infant's distress vocalizations arouse distress circuits in the parents that parallel the separation distress of the infant.<sup>7</sup> Experimentally and anecdotally, it appears clear that some emotional distresses outweigh the suffering of physical pain.

The 1983 Central Intelligence Agency training manual contains a passage comparing emotional and physical pain that states, the threat to inflict pain can trigger fears more damaging than the immediate sensation of pain.<sup>31</sup> Evidence supports the contention that certain emotional pains may induce a greater degree of suffering than physical pain. Accordingly, an exclusive focus on physical pain leaves other sufferings, even those that may be of greater magnitude and more damaging to the animal, inadequately treated.

### **Recommendations**

Aggressively treating physical pain is beneficial to animal well-being and should remain a high priority in veterinary medical practice. However, an exclusive focus on physical pain leaves other causes of suffering unalleviated. Some specific suggestions for comprehensive management of distress and suffering include the following:

- Recognize that physical pain is one of many causes of distress and suffering and does not outrank all other unpleasant physical and emotional feelings in animals.

- The AVMA, AAHA, and all other veterinary organizations should cease singling out physical pain as a uniquely special form of suffering.
- Because some emotional pains may induce more suffering than physical pain, the veterinary profession should stop viewing emotional pains as less important and less worthy of diligent treatment efforts. Animals with unalleviated fear, anxiety, isolation distress, and boredom should be regarded as inadequately treated as we now view animals with inadequately treated physical pain.
- As a first step toward a practical guide for relieving distress and suffering, establish a preliminary priority list for the feelings that induce distress and suffering on the basis of evolutionary value. The survival value will, in general, correspond to the potential to induce distress and suffering.
- Adopt a treatment philosophy based on suffering potential: the urgency and intensity of our efforts to alleviate unpleasant feelings should match the urgency and intensity experienced by the animal. That is, when the animal's brain sends signals of urgency and motivation to lessen the threat in the form of unpleasant feelings, we should be responding to those signals as strongly as nature intends the animal to respond.
- Incorporate coursework on all causes of suffering and the importance and methods for their alleviation into the curricula of veterinary medical schools and colleges.
- Replace the use of the phrases pain and suffering and pain and distress with, respectively, suffering and distress.

An aggressive approach to treating pain is important and should be pursued more intently.<sup>32</sup> However, assigning physical pain a special status as a feeling more worthy of treatment than all other causes of distress and suffering does animals a grave disservice, as it denies animals the proper attention to the full array of unpleasant feelings they may experience. Physical pain is high on the list of causes of suffering but is not necessarily the highest. Hypoxia probably ranks higher, and some emotional pains rank higher than physical pain.

In 1987, Bernard E. Rollin published a book<sup>33</sup> that described the scientific community's widespread dismissal of pain in animals and how unconscionable it was that animals in pain would be left untreated. Reflecting this inattention to the animals' needs, the book was entitled *The Unheeded Cry*. Today, it is clear that we are now heeding those cries. However, with our current knowledge of the array of other hurts, distresses, and sufferings animals can experience, it is time to pay attention to all of them. The dog tied up alone in the backyard howling for attention, the horse cribbing in its stall out of lack of companionship, the cat urinating all over the house because of unrelieved emotional stress—these animals are suffering. Their cries must not go unheeded.

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