

# What is suffering in animals?

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## 1. Abstract

5           In much of the recent animal welfare literature the word suffering is used simply as  
an adjunct (as in ‘pain and suffering’) or to emphasize that the animal consciously  
perceives pain or some other negative affect. A stronger usage of the term implies that the  
negative feelings are prolonged, high intensity or both, but without any clear line to  
distinguish when suffering begins. Researchers in human medicine have developed more  
10       explicit definitions of suffering that also reference concurrent negative feelings (including  
fear, anxiety, sadness and depression) and the patient’s ability to cope. Applying this  
broader definition of suffering to animal welfare will require a new approach to the  
research we do. Research on animal suffering will require not only the assessment of  
negative affective states but also an assessment of how concurrent negative states interact,  
15       a general assessment of the animal’s emotional health and its ability to cope with  
adversity.

## 2. Introduction

          The word suffering comes with moral loading, suggesting an extra responsibility for  
20       action, and explaining why it is often used in the rhetoric of animal advocates and in  
criminal law relating to animal care (e.g. “Causing unnecessary suffering” as specified in  
section 445.1 of the Criminal Code of Canada). Thus a clear understanding of suffering is  
central to animal welfare, but few scholars have explicitly addressed the issue of animal

suffering and those that have often seem to use the word simply as an adjunct (as in ‘pain  
25 and suffering’), providing little guidance for how actually to assess or prevent suffering.  
In contrast, the human medical literature has delved deeply in how patients conceive of  
their own suffering and offers a range of methods for assessing and preventing suffering  
in practice. This chapter provides a brief summary of this literature and suggests how we  
might adapt these ideas from the medical literature for application to animals.

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### **3. Current usage**

In the scientific literature on animal welfare the word ‘suffering’ is typically used in  
conjunction with the experience of some negative affective state. Most often this  
affective state is pain, as is clear from many of the examples I use below, but suffering is  
35 also used in conjunction with other negative feelings including fear.

The simplest usage of the term is adjunctive, as in ‘pain and suffering’, without  
attempt to distinguish the two ideas (e.g. Elwood, 2011; ESFA, 2012). I suggest that use  
is essentially meaningless and should be avoided in the academic literature.

A second usage suggests that for an animal to suffer it must consciously experience  
40 the negative state. It is likely in this sense of the word that some authors interested in the  
conscious experience of pain in invertebrates and fish use the word suffering, not to  
comment on the quality or magnitude of pain, but to emphasize that the pain is in some  
way felt by the animal. For example, Chandroo *et al.* (2004, p241) wrote “Affective  
states of pain, fear, and psychological stress are likely to be experienced by fish. This  
45 implies that like other vertebrates, fish have the capacity to suffer.” Other authors (e.g.  
Sherwin, 2001) are less explicit, but comment on cognitive complexity in the animals of

interest, suggesting that some level of cognitive complexity is associated with the ability consciously to perceive pain or other types of negative affect.

I suggest that this usage is also weak, at least as applied to most species studied by  
50 animal welfare scientists. Unless specified otherwise, research on affect in the animal  
welfare literature assumes that the experience is felt and matters to the animal in the  
sense that the animal would work to access or avoid conditions that result in positive or  
negative affective states. The exact nature of subjective experiences in any other  
individual is ultimately unknowable, but any applied welfare research (e.g. the search for  
55 effective analgesics) can only proceed on the presumption that the individual is in some  
way aware of the affect.

For a more meaningful usage of the term, let us turn to Marian Dawkins' elegant  
and provocatively titled book "Animal Suffering" (Dawkins, 1980). Early in the text  
(p25) Dawkins contends that suffering includes "a wide range of unpleasant emotional  
60 states", but also argues that the magnitude and duration of these experiences is important  
to consider. For example, she argues (p76) that "Not all fear, frustration or conflict  
indicates suffering. But prolonged or intense occurrences of these same states may  
indicate great suffering." Later in the book (p114) she adds that if "animals had shown  
evidence of a build up of physiological symptoms that were known to be precursors of  
65 disease ... we might conclude that the animals were suffering. If, in addition they showed  
every sign of trying to escape from their cages and avoiding them when given the  
opportunity, the evidence they were suffering would be even stronger."

Dawkins also acknowledges the difficulty in establishing a clear line where suffering can be said to begin. For example, on p115 she writes: “There is a subjective  
70 element, for example, in deciding how much fear, conflict etc. constitutes ‘suffering’.”

In these quotes we see the word suffering used to distinguish severe or prolonged negative affect, from experiences that are short or mild. But does the experience of negative affect necessarily change qualitatively when severe or prolonged? If not, it may be more parsimonious to specify the duration and magnitude directly. Consider, for  
75 example, a dairy cow that becomes lame. This may be quantified using a gait score of 4 on a lameness scale that spans from 1 to 5. Upon closer examination we may find that that the cow has a sole ulcer, a condition that we know persists for several weeks. The cow in all likelihood is experiencing pain, explaining the altered gait, and this pain is likely intense and relatively long lasting. What extra evidence should we require before  
80 we call this suffering?

#### **4. Literature on suffering in human patients**

As we have seen, other authors have defined suffering as experiencing a negative subjective state. Some go on to specify that the animal must be aware of this state, and  
85 others specify that the affect must be of considerable magnitude or duration. I suggest that these conditions are necessary but not sufficient, as can be seen from the literature on suffering in human patients. Work by social scientists has attempted to understand the effects of pain and illness on patients, primarily by recording the patients’ own narratives and using these stories to understand how people distinguish pain from suffering (see  
90 Bendelow, 2006). For example, Black (2007, p37) recounts the story of “Mrs S” - a

patient diagnosed with severe arthritis. When asked if she was suffering she said no, explaining:

I do not let myself. I force myself to face my fears. I do not allow myself to feel  
sorry for myself. I look at some of the young people here in the building [where  
95 Mrs S is living] who have never walked a step in their life. I can walk and dance.

A common theme from these studies is that the way patients respond to pain relates  
to a range of other factors affecting their mental and emotional state. When patients  
experience multiple, interacting negative states they become more likely to characterize  
their state as suffering. One obvious example is sadness or depression. Here we can turn  
100 to a story told by Mrs S of when, as a young woman, she was ill with a sexually  
transmitted disease acquired from her husband. Although she experienced “severe pain”  
as a result of the illness, she did not “suffer” while she remained hopeful that she would  
be able to reconcile with her husband from whom she had become estranged.

Paradoxically, the suffering “didn’t start until after I was well” when Mrs S learnt that her  
105 husband had moved to another city and filed for divorce (Black, 2007, p40).

Fear is another powerful concomitant. Cassell (1982) recounts that one patient  
required “small doses of codeine” for pain when she thought that this pain was due to  
sciatica, but required much higher doses when she found out that the cause was cancer.  
This and other examples indicate that when pain is associated with fear the likelihood of  
110 suffering increases; fear that the pain will increase to the extent that it can no longer be  
controlled with analgesics, fear that it will last forever, fear that the patient will become  
overwhelmed by the pain, or fear that the pain is a sign of a serious disease.

Frank (2001, p354) recounts from his own experience how fear can turn even the perception of disease into suffering, while the lack of fear can make intense pain

115 manageable:

During the month between getting the bad news of the irregular chest X ray and receiving the good news about the biopsy, my paradoxical condition was to enjoy very good health in the verified presence of serious illness. I experienced the suffering of illness without experiencing any disease. My bizarre confluence of  
120 circumstances turned that month into a controlled experiment in pure suffering. I contrast that experience to a recent attack of tendonitis in my shoulder. The tendonitis caused extraordinary pain ... but I knew what was happening and had reasonable assurance that the acute phase would not last long. The pain lasted a couple of months, especially at night, but once I knew there was no damage  
125 requiring surgery, the pain was nothing more than pain. I had no particular plans that involved more than the minimal use of my shoulder. So here is the reverse experiment: pain with more annoyance than suffering.

Fear associated with loss of control is a recurrent theme in studies of human  
130 suffering. As described by Cassell (1999, p531), “Suffering can start with anguish over the possibility that if the symptom continues, the patient will be overwhelmed or lose control — ‘I won’t be able to take it’.” Loss of control is sometimes characterized as loss of the essence of who you consider yourself to be as a person. In this way, suffering is seen as “a state of severe distress associated with events that threaten the intactness of the  
135 person” (Cassell, 1982, p640), and “defined as a specific state of distress that occurs

when the intactness or integrity of the person is threatened or disrupted.” As succinctly expressed by Frank (2001, p355), “To suffer is to lose your grip.” The importance of loss of ‘personhood’ to the concept of suffering can be seen even in the definition of torture as “The use of methods upon a person intended to obliterate the personality of the victim or  
140 to diminish his physical or mental capacities, even if they do not cause physical pain” (Organization of American States, 1995).

One way to operationalize such threats to personhood is to see when patients are no longer able to do those things that are most important to them. Snyder (2005, p69) makes this point when he states that “Pain is a physical sensation of discomfort, whereas  
145 suffering taps the degree to which a person has let the pain prevent him or her from doing the important things in life.” This view was also illustrated in the above quote by Mrs S, who stated that her current arthritis was not a source of suffering as she was still able to ‘walk and dance.’

A reduction in the rate of previously highly motivated behaviour may also be  
150 indicative of anhedonia, when patients no longer take pleasure in what they previously enjoyed. Anhedonia is a sign of clinical depression; thus reduced rates of these behaviours may be both a cause of suffering (when patients can no longer perform the activity, threatening their personhood) and a sign of suffering (if sufficiently depressed to show signs of anhedonia).

155 How patients understand the meaning of their pain can be another predictor of suffering. In one sense this can again be related to fear as in the cancer example discussed earlier, but patients also report positive meanings to their pain, such as that associated with childbirth, and even that which is self-inflicted in attempts at ‘spiritual cleansing’

(Cassell, 1982). Thus pain that is perceived to have value is less likely to be associated  
160 with suffering by the patient.

## **5. How can this be applied to animals?**

### *5.1. 'Asking' the animals*

The insights into suffering from human patients described above are all based upon  
165 verbal reports, suggesting that these ideas will be difficult to apply to the animals we are  
most interested in. But older readers will remember a time when verbal reports were  
thought to be the only legitimate way of assessing pain; the astounding development of  
innovative behavioural methods of pain assessment in recent years, including work on  
facial expressions of pain in infants and laboratory rodents (e.g. Langford *et al.*, 2010),  
170 illustrates that creative (and reliable) methods can be developed and used to 'ask' non-  
verbal humans and other animals a range of questions about their affective states. The  
challenge now is to be able to assess in animals the combination of factors that, in human  
patients, are known to contribute to suffering.

### *5.2. Reduced performance of motivated behaviours*

Of the various contributing factors discussed in the previous section, the easiest to  
apply to animals is a decline in (previously) motivated behaviours. The animal behaviour  
literature provides a wide range of methods to record the frequency and duration of  
behaviours, and even to assess changes in the animal's motivation to express these  
180 behaviours (Fraser and Nicol, 2011). Thus my first suggestion for identifying animal  
suffering, is that the animal is experiencing a negative affect such as pain *and* the animal



shows a reduced frequency (or magnitude) of behaviours that are known to be important to it. I also suggest distinguishing between those behaviours that decline as a direct result of the pain (i.e. because performing the behaviour is now painful) and those behaviours  
185 that reduce in frequency as a result of changes in mood indicative of depression. The former may be associated with suffering in some cases (as in the example of Mrs S, who would likely suffer if she was no longer able to walk or dance) but not in others (as in the example of Frank, who was unconcerned that his injured shoulder may have prevented certain activities). The latter (i.e. pain accompanied by evidence of depression) provides  
190 stronger evidence of suffering.

The examples above were all of positively motivated behaviours – those that animals do because they find them pleasurable or otherwise rewarding. But the idea of reduced performance of motivated behaviours can also be applied to those that are negatively motivated – those that animals perform to avoid or escape stimuli that they  
195 find aversive. In cases where animals have repeatedly experienced aversive conditions that they cannot avoid, such as repeated exposure to electric shock, animals can develop a condition called ‘learned helplessness’ characterized by extreme lethargy and reduced attempts at avoiding the shock. Learned helplessness in humans is associated with frustration and depression (Eisenstein *et al.*, 1997). Animals experiencing pain and  
200 showing signs of learned helplessness should thus be considered to be suffering.

### *5.3. Indicators of sadness or depression*

People in sad moods rate their probability of success less than do happy individuals in tasks involving some risk, so performance in tasks involving risk might also be used to

205 assess mood in animals (Paul *et al.*, 2005). A series of experiments has also shown  
evidence of such ‘cognitive bias’ in animals (Mendl *et al.*, 2009). In one experiment  
researchers trained rats to distinguish between positive and negative training tones. Some  
rats were kept in standard housing and others were kept in unpredictable housing  
conditions known to produce depression-like responses in rats. Rats from the  
210 unpredictable housing were more likely to show negative responses to ambiguous test  
tones (at frequencies intermediate to the two training tones).

Responses to ambiguous stimuli provide just one way of assessing negative or  
positive hedonic states in animals, but these recent successes shows that such assessments  
are possible. These advances provide another immediate method by which we could  
215 begin the assessment of animal suffering – for example by combining measures of  
cognitive bias with measures of pain. According to this paradigm, the pain can be  
labelled as ‘suffering’ if it is accompanied by low mood, as evidenced by a negative bias  
in response to ambiguous stimuli.

Heather Neave, a member of our research group, recently applied this approach in  
220 examining calf responses in the hours after hot-iron disbudding, a procedure that is  
known to cause post-operative pain for 24 h or more (Stafford and Mellor, 2005). Neave  
trained calves to distinguish between video screens that were either white or red, and then  
tested calves with intermediate colours (i.e. shades of pink). Before disbudding, calves  
showed the expected generalization response, with intermediate responses to the  
225 intermediate colours, but after disbudding (when they were experiencing post-operative  
pain) calves showed a negative response bias, responding less often than expected to the  
intermediates but with no change in responding to the positive and negative training

stimuli (Neave *et al.*, submitted). I conclude that the calves were suffering; there was evidence that they experienced both pain and low mood associated with the pain during  
230 the hours after dehorning.

This way of thinking also suggests that the treatment of suffering may require more than just treating the underlying negative affective state such as pain; it will also require treating the low mood, or better still addressing the conditions that resulted in the low mood. In some cases the low mood will be a direct result of the affective state (as  
235 evidenced by the change in bias with onset of the pain in the disbudding example above), in which case treating the pain alone may be adequate.

#### *5.4. Indicators of fear or anxiety*

Fear and anxiety in animals have been defined by Boissy (1995, p166) as  
240 “emotional states that are induced by the perception of any actual danger (fear state) or potential danger (anxiety state) that threatens the well-being of the individual, and which are characterized as a feeling of insecurity.” Fear responses can include alarm calling, escape, defence reactions, and in some cases immobility. Many domestic animals may perceive their human caretakers as predators, eliciting some of these responses (Rushen  
245 *et al.*, 1999). These findings suggest that many domestic animals may be experiencing fear, and in situations with poor facilities or handling this fear may be long lasting or severe. Suffering is more likely if pain or other negative affect is associated with fear, for example, fear associated with inappropriate handling methods that cause pain. This conclusion suggests that research on negative handling and negative human-animal

250 relationships (especially those that cause both fear and pain) deserves special focus if we  
are to confront animal suffering.

The fear of losing control is frequently referenced in the human literature and thus  
also deserves consideration. Thus providing animals with more opportunity for control  
may reduce the risk of suffering; providing animals the ability for self-control in painful  
255 situations may be especially beneficial. For example, training animals using positive  
reinforcement to approach a handler who will perform a routine veterinary procedure,  
such as taking a blood sample, may be less likely to result in suffering than if the same  
blood sample was taken from the animal using physical restraint with no opportunity for  
the animal to control the duration or severity of procedure. Another approach is to  
260 provide opportunities for self-medication with analgesics, anxiolytics etc. (e.g. Sherwin  
and Olsson, 2004), allowing the animals to mitigate the negative feelings of, say, pain,  
and also learn that the mitigation methods are under their own control.

### 5.5. *Loss of 'personhood'*

265 The concept of personhood, let alone the loss thereof, is difficult to apply to animals,  
but given the importance of this idea to the concept of suffering in the human literature I  
believe that some attempt to understand what this means for animals is required.

Consider *phajaan* – the traditional process of ‘breaking’ wild elephants. The young  
calf is separated from its mother, restrained in a crush or shackled by the legs, and goaded  
270 by the mahout and others who use an ankus or other tools to inflict pain. The idea is to  
break the will of the elephant, making it much easier to work with and handle once the  
process is complete (Kontogeorgopoulos, 2009). In this case fear and pain are used in

combination with the explicit intention of removing the will of the animal to act independently. Phajaan would seem to be an explicit attempt to remove the ‘personhood’ of the young elephant and provides a clear example of suffering. Phajaan would also seem to meet the definition of torture as outlined above.

## 6. Next steps

Above I have reviewed a series of scientific approaches. Although these approaches may be challenging to implement, they are well within the grasp of modern animal welfare science. We can measure motivation and changes in motivation and recognize the signs of learned helplessness, we have scientific methods of assessing mood, including techniques such as cognitive bias testing, and we can recognize signs of fear and anxiety in animals, and even identify assaults to an animal’s ‘personhood’. This provides a research agenda for the coming decade and beyond for scholars who wish to address the issue of suffering seriously. Challenges remain in finding ways of addressing other factors that are thought to be important in cases of human suffering. For example, Cassell (1999, p532) suggests that assessments of suffering require a qualitative assessment of the patient’s condition that goes beyond the physical evidence we have concentrated on to date.

Suffering is related to the severity of the affliction, but that severity is measured in the patient’s terms and is expressed in the distress they are experiencing, their assessment of the seriousness or threat of their problem, and how impaired they feel themselves to be. The language that describes and defines the patient’s suffering is different from the language of medicine — there is too often an actual

disconnect between the case history and the patient's narrative. Herein lies one of the reasons for the inadequate relief of suffering. Physicians are trained primarily to find out what is wrong with the body ... in terms of diseases or pathophysiology: they do not examine what is wrong with persons. It would seem, from looking at training programs and physicians' actions, that people, with all their ideas, conceptions and misconceptions, fears and fancies, and misleading behaviors, are too often seen as something a physician has to get out of the way in order to diagnose and treat diseases and their manifestations. When physicians attend to the body rather than to the person, they fail to diagnose suffering.

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Researchers working on suffering in human patients have developed more quantitative instruments that, with some imagination, may be applicable to animals. For example, Bruera *et al.* (1991) developed the 'Edmonton Symptom Assessment System', a rating scale used to evaluate signs of fatigue, depression, anxiety and pain. Others have focused on other factors contributing to suffering, including loneliness, frustration, and feelings of uselessness (Wilson and Cleary, 1995). One survey (Vodermaier *et al.*, 2009, p1482) reported 1416 studies testing the efficacy of questionnaires in assessing emotional distress in cancer patients. According to the authors, among the most useful scales were those that assessed domains such as "depressive symptoms, anxiety symptoms, quality of life (global), quality of life (number of days impaired), perceived social support, and social support desired." Mount *et al.* (2007, p386) suggest a number of strategies for improving Quality of Life in human patients:

Identify sources of healing connections for this person before and during illness.

320 Minimize uncertainty: for example, introduce caregivers by name and occupation;  
discuss hospital routines, assessment, treatment options, related plans, possible  
side effects, and anticipated timing of intervention ... Promote a calming, pleasant  
atmosphere characterized by efficiency, accompaniment, and caring, thus  
promoting a sense of security.

325 With some imagination much of this could be applied to animals and there has been  
some interest in the animal welfare literature on how assessments of quality of life could  
be performed (e.g. FAWC, 2009). Much of the advice listed above (consistency of  
routine, familiar comfortable conditions, known and trusted caretakers, calming  
atmosphere etc.) could be used in good husbandry manuals today, but the role of these  
330 practices in reducing the opportunity for suffering suggest that these should be applied  
especially for ill animals and those experiencing pain and distress.

The literature on human patients underscores the importance of social support,  
especially as a means of buffering the negative effects of stressors (Cohen and Willis,  
1985), and the effects of social buffering have been seen in animal studies examining the  
335 effects of access to a social partner before, during and after exposure to a stressor  
(Hennessey *et al.*, 2009). Providing animals with a social partner is thus likely to help  
mitigate negative affective responses to procedures that are unpleasant for the animals;  
for example, dairy calves vocalize much less in response to weaning from milk if they are  
kept in the company of a familiar pen mate (De Paula Vieira *et al.*, 2010). Moreover,  
340 isolating animals from familiar social companions, especially those that are closely

bonded, may be especially likely to contribute to suffering when animals are subjected to pain, fear and other negative affects. In some cases domestic animals may form social bonds with human caregivers and in these cases the human may be a source of social support.

345           The nature and strength of the relationships with caretakers not only influences the likelihood that negative affect will lead to suffering; it also influences the likelihood that this suffering will be recognized and treated. As Charmaz (1999, p375) points out, people vary the moral significance they attribute to suffering depending upon their relationship with that individual:

350           A person's moral standing also reflects prior relationships and the web of reciprocities within them. Hence, moral claims of suffering wither when relationships are strained and reciprocities have waned.

          Thus animals that are considered to be of low value, like a chronically lame dairy cow no longer producing much milk and unable to become pregnant, may be doubly  
355           damned as both more likely to experience suffering and less likely to receive compassion treatment from her caregiver. This reasoning suggests that work to build relationships between animals and their caretakers is important to reducing suffering in animals.

## **7. The last word**

360           It seems appropriate to leave the last word to E.J. Cassell, whose 1982 paper inspired many of the studies cited above. Cassell wrote as a physician who treated human patients, but if we substitute just a few words (such as 'caregiver' for 'physician' and



‘animal’ for ‘person’) we find a call-to-arms for addressing suffering in animals (p641) (and see Figure 1).

365 A distinction based on clinical observations is made between suffering and  
physical distress. Suffering is experienced by persons, not merely by bodies, and  
has its source in challenges that threaten the intactness of the person as a complex  
social and psychological entity. Suffering can include physical pain but is by no  
means limited to it. The relief of suffering and the cure of disease must be seen as  
370 twin obligations of a medical profession that is truly dedicated to the care of the  
sick. Physicians' failure to understand the nature of suffering can result in medical  
intervention that (though technically adequate) not only fails to relieve suffering  
but becomes a source of suffering itself.

## 375 **8. Conclusions**

- The existing literature in animal welfare science uses the term suffering in three ways: as an embellishment when we describe negative affect in animals, to imply conscious experience of negative affect, and to identify negative affect that is severe or prolonged. All three uses are weak and should be avoided.
- 380 • Human patients most commonly characterize their condition as suffering when negative affective states are combined or interact, especially with fear. For example, suffering may be likely when repeated poor handling subjects the animal to pain and the animal learns to fear the handler.

- The literature on human patients also points to indicators of suffering that may be applicable to other animals. These include reduced performance of motivated behaviours, learned helplessness, and loss of ‘personhood’.

### **9. Questions for discussion**

1. Can you think of situations in your own life when you have felt pain but when you would not say that you were suffering? Can you also think of situations when you have been suffering? How do the two kinds of situations differ?
2. Suffering can mean different things to different authors. Should animal welfare science avoid considering this type of subjective issue, and focus instead on issues like disease and longevity?
3. Suffering requires that pain or other negative affective states are felt by and matter to the animal. What evidence should be required to justify these assumptions?
4. If phajaan (the process of ‘breaking’ wild elephants) provides a clear example of suffering, what about methods commonly used to ‘break’ other animals such as horses?

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485 Figure 1: Robbie (pictured above playing in the sand at the local beach) is a 9-year old  
boxer with degenerative myelopathy, resulting in the loss of muscle control to his  
hindquarters. His caregivers have gone to great lengths to avoid his suffering. For  
example, a cart that supports his hindquarters (pictured in background) allows Robbie to  
go on valued walks and socialize with other dogs, and may also provide him with a  
490 greater sense of control.

Photo credit: Leanne McConnachie