# How Pain Affects Animals

Dr Kersti Seksel

BVSc (Hons) MRCVS MA (Hons) FACVSc (Animal Behaviour) Dipl ACVB CMAVA

Registered Veterinary Specialist in Animal Behaviour

Immediate Past President Australian Veterinary Association

Sydney Animal Behaviour Service
55 Ethel St, Seaforth NSW 2092, Australia

Phone: 61-2-99498511
Fax: 61-2-99496364
Email: sabs@sabs.com.au
www.sabs.com.au

**ABSTRACT**

Pain management is an essential part of current veterinary medicine. The first indication of pain is usually a change in normal behaviour. Therefore, it is essential that people who interact with animals are familiar with the normal behaviour of the species as well as the individual animal. Each animal displays distinctive individual and species specific behavioural changes. It is important that people involved with animals recognise these behavioural changes. This will enable them to first assess the animal, establish if it is in pain and the severity of the pain and then determine how best to then manage the pain. Recognition of even subtle changes in investigatory, ingestive, eliminative, care – seeking, shelter – seeking, agonistic, social, sexual or care – giving behaviours is important in this process. This will enable veterinarians to offer the best options for the treatment and management of pain in animals.

**PAIN**

Pain is a sensation (feeling) which is very aversive. It usually involves specialised nociceptors and often involves some sort of injury. It may elicit motor and vegetative reactions, may cause emotional reactions and may modify behaviour. It may involve fear and lead to anticipation of pain. Pain is a subjective and emotional experience and results in a complex integrated response.

But: before we discuss how pain affects animals we need to ask two questions:

1) Can we actually recognise pain? If so

2) How do we recognise pain?

## Perception of animal pain

How people perceive that animals perceive pain will be to some degree affected by the country in which they live, the culture in which they were raised and the attitudes of the community in which they live. Additionally, in each of these areas the knowledge of pain and the expectations of the standards will also affect this perception.

## Can we assess the level of pain by observing behaviour?

Any change in an animal's behaviour may be the first indication that an animal is experiencing pain. To what degree this is reflected as the true level of pain remains to be seen, however, it is the best indication we have for day to day use in the real world

## BEHAVIOUR

Behaviour is what an animal actually does. The study of behaviour involves not only WHAT an animal does but when, how, where and why it does the behaviour. Behaviours should always be considered in the context in which they occur, not in isolation.

To effectively assess any pain that an animal may be experiencing it is first essential to be familiar with the normal behaviour of the animal. This involves not only being familiar with the species but also with the individual. Pet owners are very astute at recognising minor changes in their pet's behaviour.

Behaviour is influenced by three main factors. These are

1. An animal's genetically inherited tendencies or predisposition to exhibit a particular behaviour.
2. The animal's previous experience and what it has been learnt.
3. The particular environment at the time.

## Behavioural Responses to Pain

Pain is lowers thresholds for aggression and lower tolerance to handling. It alters mobility, this can be a problem for animals who must graze and flee predators. Animals may develop a learned aversion, for example to walking into the dairy, being ridden, visiting the veterinary clinic etc. Chronic pain has been shown to reduce immuno-competence leading to increasing susceptibility to disease Pain can also be categorised as acute or chronic.

When people experience acute pain the following signs may be seen

**Acute pain**

- Increased Heart Rate
- Increased Stroke Volume
- Increased Blood Pressure
- Pupillary Dilation
- Sweating
- Increased Respiration Rate
- Restlessness
- Avoidance Behaviour
- Anxiety State

**Chronic pain**

- Sleep Disturbance
- Irritability/aggression
- Decreased Appetite
- Constipation
- Mental depression, immobility
- Decreased pain threshold
- Social withdrawal
- Abnormal behaviour
- Marked depression

## Assessment of animal pain

When we attempt to assess if an animal is pain or even the degree of pain the most common indicators used are:

- Vocalisation
- Aggression
- Abnormal gait
- Reluctance to move
- Changes in Temperature, Respiration Rate and Heart Rate

Why?
Because they are overt and we can generally recognise them. Covert signs of pain are more difficult, if not impossible for us to detect in any species, including our own.

We rely on them as we cannot ask animals if they are in pain or how much pain they are experiencing. People are most likely to treat “painful” animals that vocalise. This means that animals that do not vocalise are likely to not be treated or the treatment is inadequate.

The degree to which an animal may exhibit signs of pain that we recognise will be affected by:

- Environment
- Presence of others (owners, other animals)
- Species
- Medication
- Severity of pain
- Previous experience

Prey species (eg horses, sheep) show less overt signs of pain than predator species (eg dogs) which will generally show more overt signs of pain. Prey cannot afford to let potential predators know that they are injured or unwell by vocalising or limping, as they are likely to draw attention to themselves and hence be attacked.

If an animal feels that it cannot escape the source of pain learned helplessness may result. The animal literally appears to “give up” and not respond or react at all to manipulation or palpation of painful areas. This gives the impression of not being in pain. Additionally the signs of pain may overlap with signs of fear or anxiety and this can be difficult for people to distinguish. The affects of fear itself is probably underestimated.

**Fear**

Fear is a physiologic, behavioural and emotional reactions to stimuli.

Physiological signs may include:

- Increased heart rate
- Increased respiration rate
- Sweating
- Trembling
- Pacing
- Urination/defaection

Behavioural signs may include:

- Changes in body posture
- Changes in activity
- Avoidance behaviours
- Flight, fight, freeze or fiddle responses (displacement behaviours)

These signs are very similar and overlap with the signs of pain.

Some behavioural indicators of pain

**DOGS**

- Avoidance - degree depends on severity
- Vocalisation
- Frowning
- Escape / Aggression
- NB a dog may still wag its tail and appear to be “happy” while experiencing quite severe pain.

**CATS**

- Avoidance
- Vocalisation
- Aggression / Escape
- “Depression”, reluctance to move
- NB purring can occur when the cat is experiencing pain.

**HORSES**

- Difficult to distinguish pain from other behavioural problems
- Escape / Flight
- Aggression
- Severe pain - sweating, increased heart rate, increased respiration rate
- Restlessness / Agitation
- Site of pain – increased response when touched

**CATTLE**

- Inappetence
- Depression (DDL)
- Increased respiration rate
- Grunting
- Severe Pain-increased bellowing, teeth grinding, decreased rumination

**SHEEP**

- Inappetence
- Depression (DDL)
- Increased respiration rate
- Loss of bodily condition
- Severe Pain-increased teeth grinding, decreased cudding
- Less likely to vocalise

**PIGS**

- Tolerate handling more readily
- Reluctance to move
- Inappetence is variable
- Depression (DDL)
- Vocalisation - grunting

**GOATS**

- Vocalisation
- Inappetence
- Depression (DDL)
- Increased respiration rate
- Severe Pain-increased teeth grinding, decreased cudding

**BIRDS**

- Subtle Behavioural Changes
- Reluctance to move - immobility
- Inappetence
- Depression (DDL)
- Vocalisation
- Wing flapping -increased Wing droop
- Increased respiration rate - mouth breathing
- Decreased Preening (may be increased in localised areas)

**RODENTS**

- Difficult to assess - Behaviours are subtle
- Avoidance / Aggression
- Salivate – nasal/ocular discharge when stressed
- Vocalisation
- Immobility
- Eliminations patterns change

## Conclusion

Recognition of pain is a complex area. It involves learning to recognise covert as well as overt signs of pain. If people do not learn to recognise the behavioural signs of pain this leads to lack of action in the management or treatment of animals of pain. Sadly, if people get used to seeing animal in pain on a regular basis they are less likely to do anything to alleviate pain.

## FURTHER READING

Neuroscience: exploring the brain.(1996) Bear, M F, Connors, B W, Paradiso, M A. Williams & Wilkins, Baltimore.

Pain management in Animals. (2000). Eds Flecknell, P. & Waterman-Pearson, A. WB Saunders London.

Stress and Animal Welfare. (1993). Eds Broom D M & Johnson K G. Chapman Hall, London.

Assessment of the welfare of dairy cattle using animal based measurements; direct observations and investigations of the farm records. Whay et al (2003):Vet Record Vol 153 197-202