On-Farm Welfare

Sickness, Disease & Injury

Forms of Animal Suffering

- Pain
- Social isolation
- Fear and anxiety
- Depression
- Frustration
- Starvation and hunger
- Dehydration and thirst
- Excessive cold or heat
- Sickness and Disease
- Breathlessness
- Exhaustion
- Boredom
- Discomfort
- Victimisation

Forms of Suffering in Sickness and Disease

- Pain
  - inflammatory pain
  - ischaemic pain
  - headache
- Depression
- Breathlessness
- Nausea
- Malaise
- Fever
- Anhedonia
- Fatigue
- Discomfort
- Debilitation
- Irritability & restlessness
- Osmotic stress

Examining an animal for Pain

- ***Examining for on-going pain***

  back arching, grunting, groaning, teeth grinding, limb guarding, tail flicking, head pressing

- ***Examining during a normal activity***

  limping, difficulty standing, awkwardness in climbing the stairs, straining whilst voiding

- ***Examining for hyperalgesia***

  response to pressure

- ***Examining for allodynia***

  response to touch or manipulation

Hyperalgesia Exaggerated response to a painful stimulus

Allodynia A pain response to a stimulus that would not normally be painful

Primary hyperalgesia - at the painful site
Secondary hyperalgesia - around the painful site

There are three common features during inflammation:-

1. **redness**
2. **swelling**
3. **heat production**

In humans, the pain associated with inflammation relates more strongly to <u>redness</u> than to <u>swelling</u> or <u>heat production</u>.

Fit for Transport ?

Facial eczema

Pythomyces chartarum

Ischaemic pain

Accumulation of H^+, K^+ or lactate proximal to the ligature stimulates pain receptors which cause ischaemic pain.

Usually takes 2 or more hours to develop.

Headache

Head pressing

Head massaging

Pain

Not all injuries are immediately painful

because

it takes about 5 minutes for pain agonists to leak into a wound before they stimulate receptors which cause severe pain.

(Inflammatory pain is not immediate)

Time to onset of pain after an injury

Type of injury	**Time to onset of pain (min)**
Fracture	5
Cut	13
Bruise	15
Laceration	21
Sprain	105

Using pathology to assess pain severity

Examples of pathological features which show a quantitative relationship with pain in humans:-

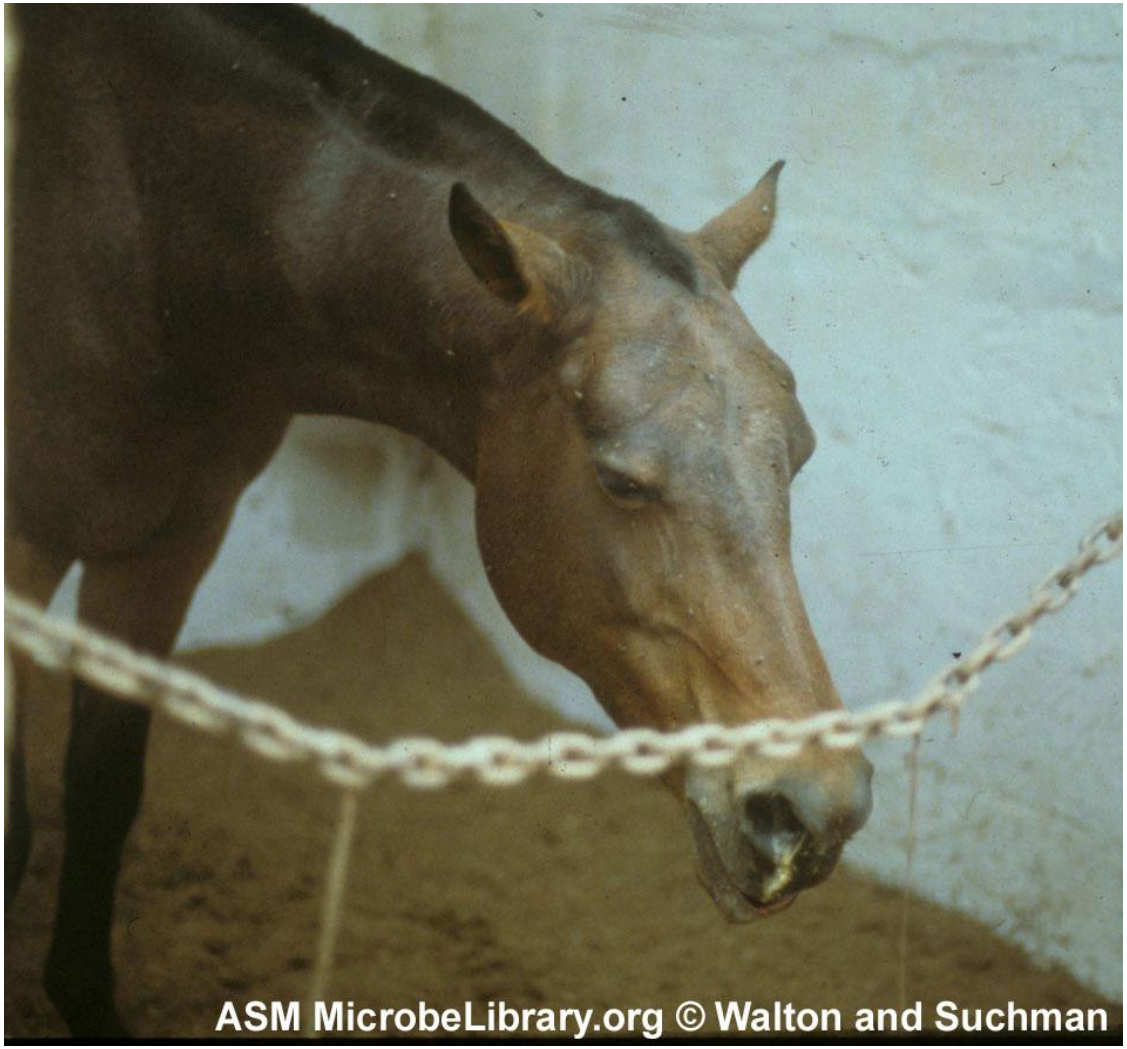
inflammation (especially redness); ileitis; mucositis; fasciitis; synovitis; arthritis; vertebral disc herniation; sciatica; scoliosis; myalgia; cancer; arteriosclerosis; skin ulcers; skin and oral neuropathies; hepatopathy; chronic pulp disease of teeth.

Gregory, N.G. 2010. Relationships between pathology and pain severities: a review. *Animal Welfare 19*, 437-448.

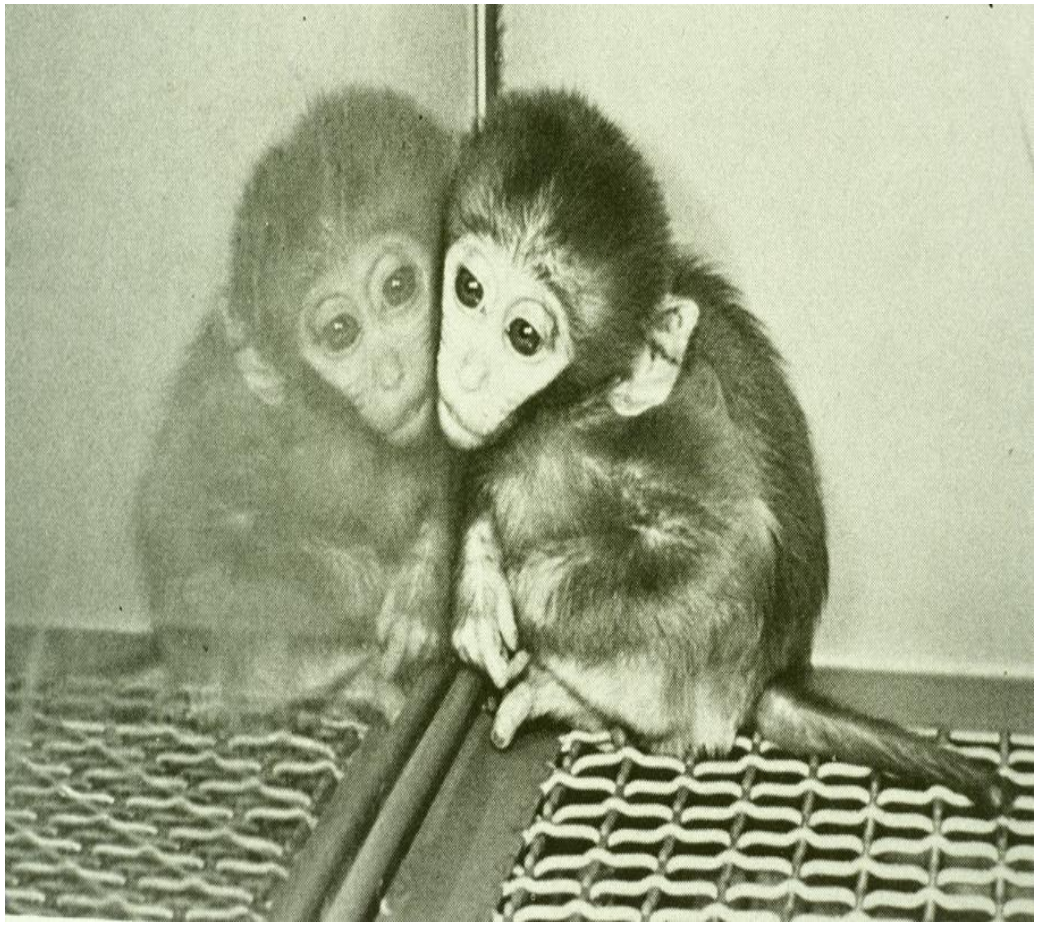
Depression

Physical signs:

Inactive
Partial eye closure
Neck position
Body posture
Unresponsive



Depression



When discussing Animal Depression, be clear about whether you are talking about

Physical Depression

Or

Mental Depression

Breathlessness - e.g. bronchopneumonia

Causes of the sense of breathlessness:-

- increased CO_2 in blood
- inability to perform the physical actions of breathing

Nausea

Signs:-

Physical depression

Salivation + swallowing saliva

+/- Pica - depraved feeding behaviour

+/- Vomiting

Examples in animals:-

Nausea behaviour in Pigeons

Internal vomiting in cattle

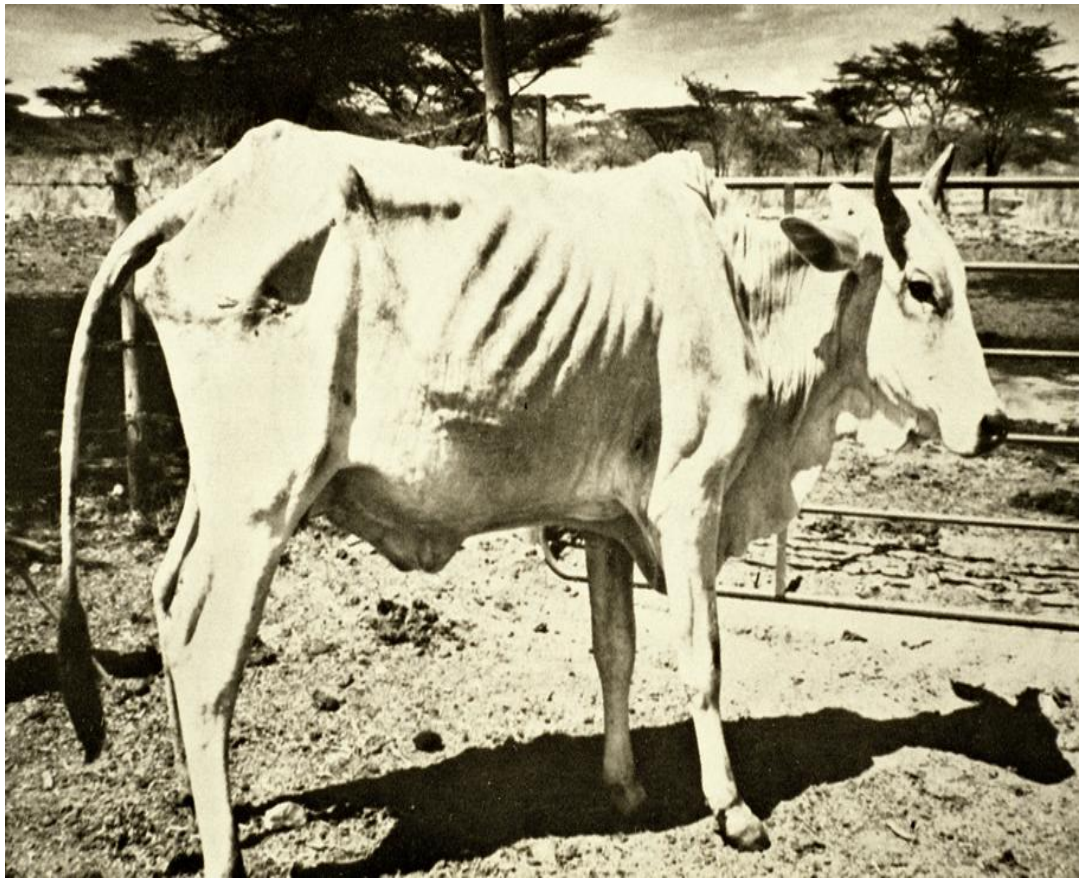
Malaise - sense of illness

Based on this picture, would you say that this animal

1. is probably suffering

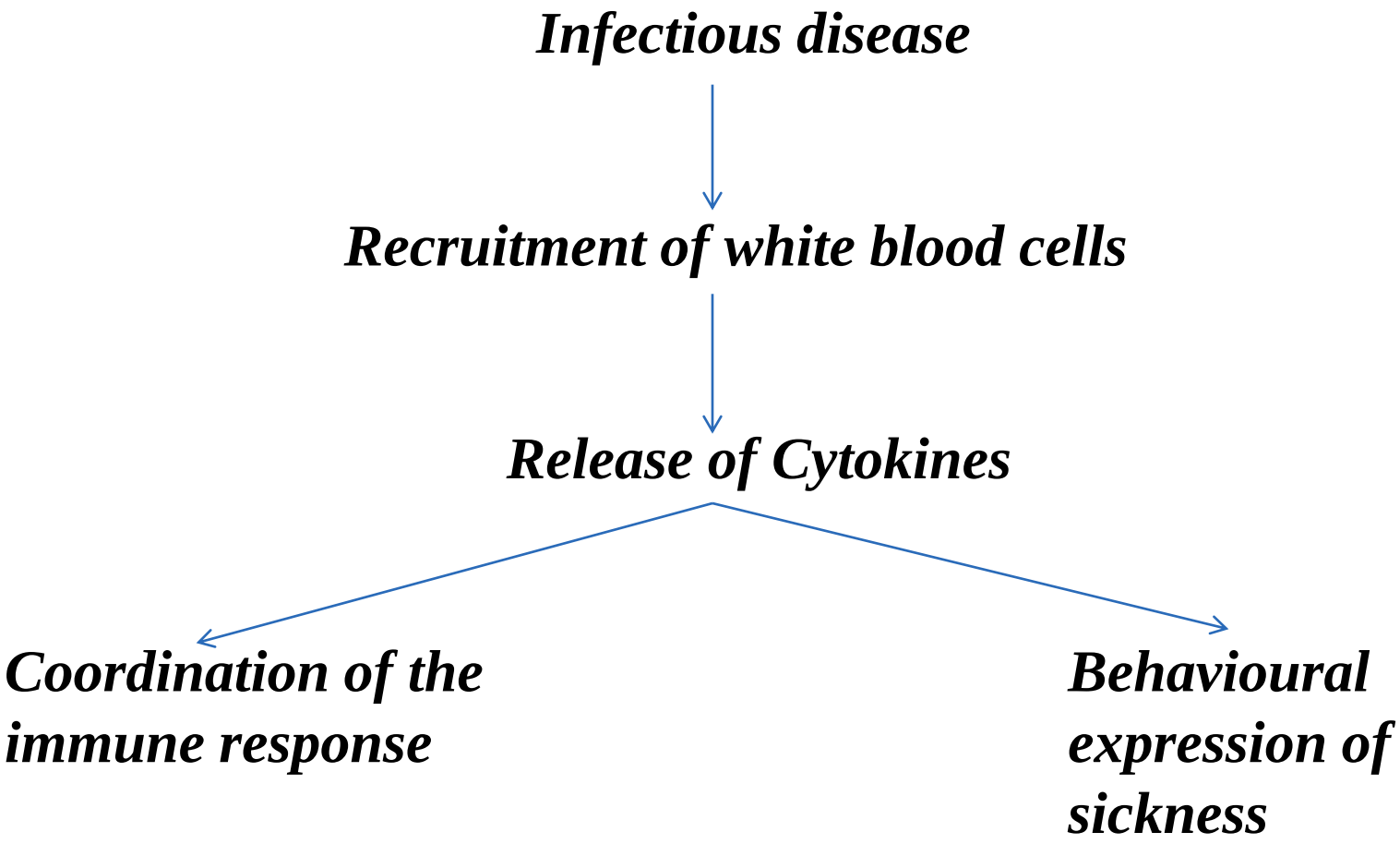
2. is not suffering

3. don't know



Malaise and Suffering during sickness and disease are often recognised from absence of normal behaviours, instead of the presence of abnormal behaviours

- ***less active***
- ***recumbent***
- ***sleeping***


Infectious disease
Recruitment of white blood cells
Release of Cytokines
Coordination of the immune response
Behavioural expression of sickness

Cytokine-mediated features of sickness

- ***Fever***
- ***Inappetance***
- ***Sleep***
- ***Social isolation***

Trying to reduce these behaviours pharmacologically may interfere with the immune response – depending on the mechanism which is being targeted.

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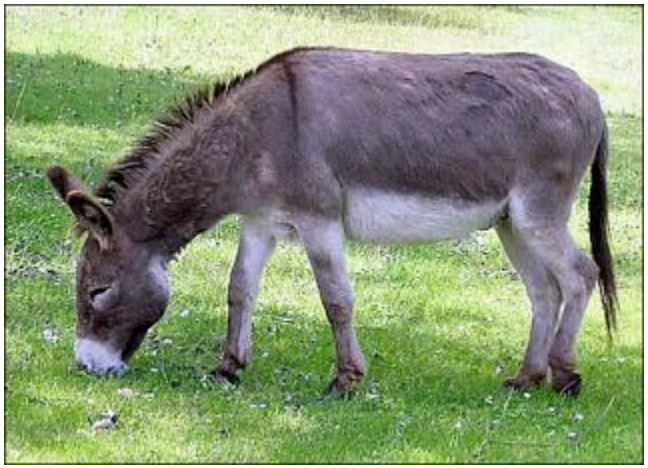
Anhedonia

Total loss of feeling of pleasure in acts that normally give pleasure

Loss of interest in

- food rewards
- play
- social interactions
- sexual interactions



Biscoito de gengibre

You are presented with a group of six cattle. You are told by the owner that they are less active than usual (depressed).

What might you consider as possible tests for Anhedonia

Fatigue

Mental fatigue is common during the late stages of chronic cancer.
It is a major cause of suffering in human cancer patients.
It is very difficult to treat effectively (*methylphenidate*).
It is not treated in veterinary practice.

Debilitation

Debilitation can lead to reduced ability to
- forage
- feed
- compete with other animals
- find shelter

Some forms of debility are painful, and some are not.

Restlessness

Restlessness has many causes.

It is sometimes seen in cases of poisoning or acute malaise in metabolic disorders. It can give the impression of discomfort, especially gastric discomfort in certain forms of poisoning.

Osmotic stress

Osmotic stress can be a very severe stress in aquatic species. Examples of when it occurs:-

- slaughtering marine crayfish in fresh water
- some vaccination methods in fish farms
- transferring salmon from freshwater to seawater too early in life
- stress-induced inhibition of osmoregulation in marine fish

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What behvioural signs of sickness would you look for in a sheep which is suspected of having a bad infestation of gastrointestinal worms ?

How would you decide whether this condition was painful for the animal and from this determine the risk of suffering during transport ?

Physiology and Behaviour of Animal Suffering

Neville Gregory

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