

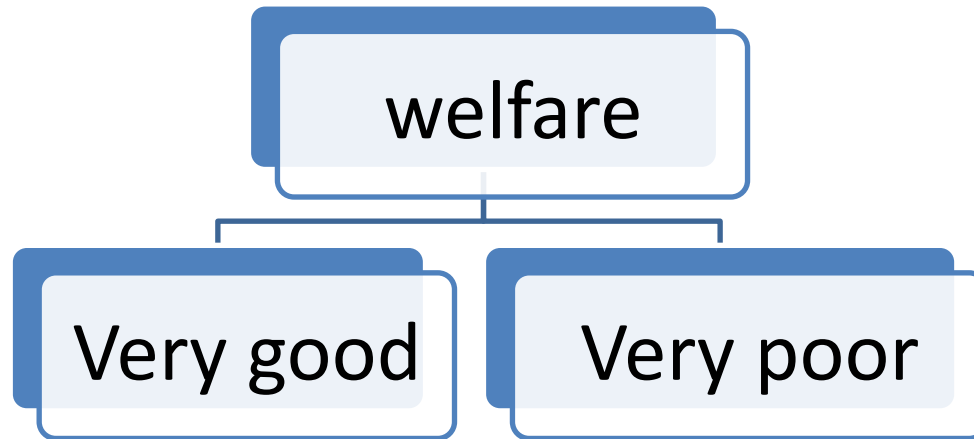
Welfare assessment

- The term 'welfare assessment' applies not only to monitoring animals for signs of pain, suffering and distress associated with procedures, but also to the routine assessment of all animals to check for any health or welfare problems. Recognizing signs of suffering is essential to taking early action and refining humane endpoints. It is also important to recognize and promote positive/good welfare; for example when evaluating the effects of refinement techniques such as environmental enrichment.

- appropriate indicators of suffering and wellbeing should be identified for each species, strain (if appropriate) and procedure, and practical protocols to recognize and record these indicators should be established.

Identifying welfare indicators

- The European Commission [Working document on a severity assessment framework](#) sets out guidance on selecting appropriate indicators of welfare, including a glossary of indicators that can be tailored to individual species. There are six 'high level' categories:
- **Appearance**, including body, coat and skin condition; for example unkempt coat, porphyrin staining
- **Body functions**, such as reduced food intake, changes in body temperature
- **Environment** within the enclosure; for example, nest quality, consistency of faeces
- **Behaviours**, including social interaction, posture, gait, and undesirable behaviours such as stereotypies
- **Procedure-specific indicators**, for example, tumour size in cancer studies
- **Free observations**, for observers to enter their own text should they see an indicator of suffering that was not predicted



Detected by various indicators

it is likely that we cannot recognize poor welfare in some animals because we have not yet learned what measurable changes occur when the animal is utilizing a particular system for trying to cope with adversity
an example of how we can be unaware of a coping system is that, until recently we did not know that animals might cope with difficult conditions by self-narcotization using naturally occurring opioid peptides.

- When animals are in conditions which they find difficult they may fail to cope with those conditions or they may succeed in coping.
- When they fail to cope, individual fitness is reduced and they are under stress.....poor
- The extent of decrease in reproductive potential due to reduced life expectancy or decrease efficiency can be measured.

- If adaptation occurs, the animal succeeding in coping, then the amount that the individual has to do in order to cope can also be measured.
- If coping is easy then there is little effect on welfare.

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graph TD; A[Assessment of welfare problems] --> B[Short term welfare problems]; A --> C[Long term welfare problems];
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Assessment
of welfare
problems

Short term
welfare
problems

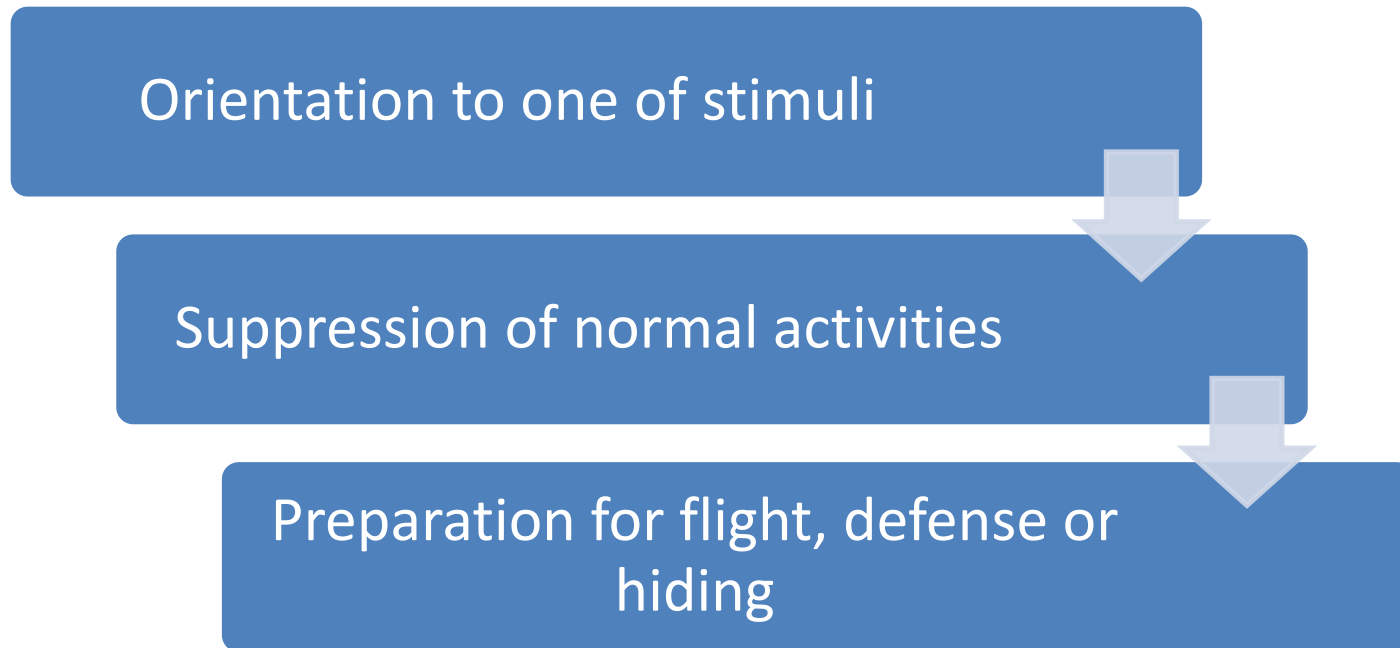
Long term
welfare
problems

Assessing short term welfare problems (handling and transport)

- When animals are handled, transported, exposed briefly to a predator or subjected to some operation, they show a range of behavioural and physiological changes which have the general effect of helping them to survive the treatment.
- Although the changes may be biologically adaptive in some situation, they don't always have beneficial effects.

1- Behavioural responses

- Behavioural responses are diverse and most are altered according to the stimuli received.



- If the situation continues and the physical conditions are outside the tolerable range



regulatory behaviour occur
(eg. huddling in cold condtion)

- Both suppression of activities such as feeding or grooming and increase in modifications of posture or signaling may continue throughout the period of difficult conditions.
- Alternatively all active behavioural responses may cease and the individual may relapse into quiescence.

2- Physiological response

Orientation

Regulatory responses

Suppression of function, such as that
of gut

Preparation for flight or defense

- Changes which can be measured include those in heart rate, ventilation rate, adrenal functioning and brain chemistry.
- Another kind of physiological indicator of welfare problems during transport and handling is the quality of the meat after slaughter.

Assessing long term welfare problems

- When difficult conditions are encountered for long periods the same responses as those described for short term problems occur at first. Some of these continue, but others cease to occur after a period of time and may be replaced by different responses.

- Increased mortality, delays in breeding and reduction in number of offspring are important indicators of poor welfare.
- Adrenal system functions..... The adrenal medulla responses are very brief and adrenal cortex responses although considerably more prolonged, decline after a few hours, this leads to problems in the use of measures of adrenal function as indicators of long term welfare problems.

- A method which can be carried out on live animal is ACTH challenge technique.
- If animal has used its adrenal cortex frequently then its cortical enzymes are likely to be more active than are those of an animal which uses its adrenal cortex less often.....method has been used on farm animals and has shown that cattle social mixing and calf confinement do result in higher levels of adrenocortical enzyme activity.

- Frequent adrenal activity has another effect on animals and that is to suppress the functioning of certain aspects of immune system. Hence it might be possible to use a measure of immune system functioning as an indicator of welfare.

- There are many behavioural measures which allow some assessment of the abnormality of behaviour (stereotypy, self mutilation, injure other animals).

Recognizing good welfare

- By positive evidence such as the existence of contentment and pleasure rather than by absence of poor welfare.

1- play and normal behaviour:

When they happy, many animals are more likely to play.

Since play occurs in situations when welfare is good, and is generally suppressed when welfare is poor, the measurement of play has been proposed as an indicator of good welfare.

- Many behavioural responses that involve a return to homeostasis are associated with pleasure: for example, if an animal has become cold and is able to be in a warm place. Similarly, food and water after deprivation may lead to pleasure.
- Exploration or seeking is listed as a positive feeling by some authors.
- Social or affiliative behaviour between parents and offspring, or between other individuals, has the effect of promoting bonding and is associated with positive feelings.

- Variety of behaviours in positive circumstances as movements (such as tail wagging) in dogs are often indicators of good welfare or pleasure.

- **2- Physiological measures:**

Oxytocin is produced in circumstances where there are positive feelings. Is not only associated with letdown of milk but leads to a feeling of pleasure as well.

3- Preference.

Choice test.....eg. Hens preferred a large cage to a battery cage.