



RSPCA AUSTRALIA

# Animal welfare science update

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This is the fifth Animal welfare science update provided by the RSPCA Australia office. The aim of the update is to keep you informed of developments in animal welfare science that relate to the work of the RSPCA. The update provides summaries of some of the recently published scientific papers that have been received by the RSPCA Australia office in the past few months.

## Companion animals

### 1 Attitudes towards pain in horses

Veterinary practice is deeply concerned with pain in animals caused by injury or disease. Although pain treatment methods are rapidly and continually improving, the attitudes of veterinary surgeons and their practice in pain management has not been well studied and assessed. Pain management in veterinary practice can be very subjective and greatly influenced by the personal experience and training of the practitioner. This study gives the results of a preliminary survey conducted in the UK to investigate the attitudes and practice of pain management of vets working with horses. A random selection of vets were asked about their use of analgesic drugs with respect to horses, and how they assessed the level of pain associated with a selection of conditions. The response indicated that there was considerable variation in pain management practices for horses. There was no trend for drug types or techniques used. Although this was only a pilot study, the results obtained indicated that there is a need to find and teach the best methods of pain management in horse care.

**Reference:** Price J, Marques JM, Welsh EM, Waran NK (2002) Pilot epidemiological study of attitude towards pain in horses. *Veterinary Record* 151:570-575.

### 2 Crib-biting and gastric inflammation in young horses

Nobody is certain what causes oral stereotypic behaviours in horses. This study investigates whether the stereotypical behaviour of crib-biting (horses biting a fixed object and pulling back with their neck muscles) is caused by, or associated with, gastric ulcers, and may be alleviated by an antacid diet. Nineteen crib-biting and 16 normal foals less than 12 months old were used in this study. An endoscopy was performed on each foal before, during and after the trial to determine whether the foals suffered from any intestinal inflammation and the effect, if any, that a change in diet had in reducing any problems. The behaviour of each foal was regularly observed and the frequency and duration of the crib-biting behaviour was recorded.

The endoscopy revealed that there was a significantly higher incidence of gastric inflammation and ulceration in crib-biting foals. There was a reduction in the crib-biting activity during the 14 week trial regardless of the diet, but more so with the antacid diet. The foals fed on an antacid diet also had a decrease in the severity of ulceration by the end of the trial. This was a very small scale trial, but it does point towards a correlation with the stomach conditions of foals and the development of crib-biting behaviours. Whether ulcers cause the behaviour or are a result of it is still uncertain.

**Reference:** Nicol, C.J. Davidson, H.P.D. Harris, P.A. Waters, A.J. Wilson, A.D. (2002) Study of crib-biting and gastric inflammation and ulceration in young horses. *Veterinary Record* 151:658-662.

## Farm animals

### 3 Social facilitation and dustbathing in laying hens

When one hen starts to dustbathe soon more usually join her. This behaviour may have its origins in decreasing predation, as an individual hen is more vulnerable than a group of hens but may have negative effects on hens produced in furnished cages. Furnished cages seldom have enough space in the dustbath for more than one hen, and this could lead to frustration and detrimental behaviour from the other hens.

This study looked at whether the mere sight of a hen dustbathing motivates other hens to want to dustbathe. Pairs of hens housed without access to a dustbath were exposed to (a) the sight of other hens dustbathing, (b) the sight of a dustbath with other hens not dustbathing, and (c) a dustbath with no hens. The hens were subsequently given access to the dustbath. Dustbathing behaviour of the test hens was not affected by seeing other hens dustbathing, but the hens did display increased walking and displacement preening. The results suggest that there may be a change in the motivation of hens observing other dustbathing hens.

**Reference:** Olsson IAS, Duncan IJH, Keeling LJ, Widowski TM (2002) How important is social facilitation for dustbathing hens? *Applied Animal Behaviour Science* **79**:285-297.

#### **4 Behavioural and welfare considerations for individually housed pigs**

Rooting and grazing are natural behaviours for pigs. This study looked at whether giving indoor-housed pigs the opportunity to search for food in a substrate on the floor improves their welfare by reducing stereotypical behaviour and stress levels. Pigs were tested in pens either with a covering of wood shaving or bare ground and given food either scattered on the ground or presented in troughs. Their behaviour was videoed and urine and saliva collected for biochemical analysis. The study revealed no statistical difference between the behaviour and stress physiology of animals that foraged for food compared to those given food in a trough, but it did show a difference between the behaviour and stress level of animals living on bare ground compared to those given substrate.

**Reference:** de Leeuw JA, Ekkel ED, Jongbloed AW, Vestegen AWA (2002) Effects of floor-feeding and the presence of a foraging substrate on the behaviour and stress physiological response of individually housed gilts. *Applied Animal Behaviour Science* **80**:297-310

#### **5 Nose ringing and exploratory behaviour in gilts**

Outdoor pigs spend up to half their time exploring, and the most common exploratory behaviour is rooting. Nose rings are sometimes used to prevent pigs from destroying pastures due to their rooting behaviour, but this may decrease their welfare and induce frustration. This study compares the behaviour of ringed with unringed pigs, and de-ringed pigs, to explore whether ringing decrease the welfare of pigs with respect to exploratory behaviours. The exploratory behaviour of pigs was observed and statistically analysed. They found that ringed pigs did not root, but spent more time chewing and moving/touching objects than unringed pigs. When the rings were removed and it was found that the pigs resumed rooting behaviour similar to unringed pigs. The total time expressing exploratory behaviours did not differ between ringed and unringed pigs. This indicates that rooting is the preferred method for exploring pigs' environment, but if prevented from rooting the pigs substitute other behaviours without apparent detrimental effects.

**Reference:** Studnitz, M. Hjelholt Jensen, K. Jorgensen, E. Kjaer Jensen, K. (2003) The effect of nose ringing on exploratory behaviour in gilts. *Animal Welfare* **12**:109-118.

#### **6 The forces involved with dragging sheep**

Sheep shearing involves considerable physical work inflicting significant strain on both the sheep and the Shearer. This study examined the forces exerted between the back of a sheep as it is being dragged over the shearing shed floor and the biomechanical postures of the Shearer. Experiments were performed with different materials (wood, plastic and metal mesh), different positioning of materials (in line with drag or 90° to drag) and different angles (horizontal to 10° slope). The kinetic forces were measured as the sheep was dragged over a sensor and the postural position of the Shearer was video taped and analysed. The study revealed that the lowest forces occurred when the sheep was pulled over a 1:10 gradient floor made from wooden slats in the same orientation as the pull. Computer analysis of the posture of the Shearers calculated the typical posture adopted while dragging the sheep, and that the forces exerted on the Shearers joints were within acceptable OHS standards. Although this is not an animal welfare related study, it is interesting to read about the research work involved with the biomechanical, physiological and physical factors of working with animals.

**Reference:** Harvey JT, Culvenor J, Payne W, Cowley S, Lawrance M, Stuart D, Williams R (2002) An analysis of the forces required to drag sheep over various surfaces. *Applied Ergonomics* **33**:523-531.

## 7 Assessment of mass-produced farm animal housing equipment

This German report comments on some of the minimum standards required for mass-produced farm animal housing equipment with respect to the welfare of the animals. There are no legal requirements for these standards and are assessed voluntarily in Germany. The study discusses what should be the minimum welfare requirement for housing concerning the animal's behaviour, pathological, physical and hygienic requirements.

**Reference:** Knierim U, Hesse D, von Borell E, Herrmann H-J, Muller C, Rauch H-W, Sachser N, Zerbe F. Voluntary animal welfare assessment of mass-produced farm animal housing equipment using a standardised procedure. *Animal Welfare* 12:75-84.

## Animal welfare and the environment

### 8 The humaneness of rodent pest control

Rodents such as mice and rats cause problems for humans in reducing our food supply by up to one-third, spreading disease, damaging buildings and competing with native animals for food and shelter, therefore these animals must be controlled.

This thorough and comprehensive review summarised various methods of current pest control including ingested and fumigant poisons, traps and deterrence. It examines what each method involves and the humaneness of each with respect to the pain incurred, time it takes to die and possible effects on non-target species. A number of methods are reported as relatively humane: cyanide, alpha-chloralose, electrocution traps and well-designed snap-traps. Preventative methods such as rodent-proofing are under-utilised and provide a humane alternative to killing. The most commonly used methods such as anticoagulant poisons, zinc phosphide and calciferol are all regarded as inhumane.

**Reference:** Mason G & Littin KE (2003) The humaneness of rodent pest control. *Animal Welfare* 12:1-37

### 9 Maintaining behavioural diversity in captivity

Most zoos and wildlife centres acknowledge the benefits of environmental enrichment in the welfare of their animals. Research has shown that activities such as playing with man-made toys can decrease stereotypical behaviours and boredom, but these are not natural behaviours. This review advocates implementation of 'natural behaviour management' for animals where the aim is to release them back into the wild. This technique encouraging captive animals to express behaviours which their wild counterparts are able to do, such as hunting, courting, parental care and avoiding predation.

The review focuses on the argument that although actively allowing predators to hunt in a captive environment may be seen as increasing the concerns for welfare of the prey (increased fear, pain and suffering) or the hunter (increased chance of injury), if the ultimate aim is to release the animal back into the wild, it is more important for the welfare of the animal to be taught to hunt and avoid predation before it is released than to expose the animal to the dangers of the wild without the ability to cope.

**Reference:** Rabin LA (2003) Maintaining behavioural diversity in captivity for conservation: natural behaviour management. *Animal Welfare* 12:85-94

## Transportation of animals

### 10 Hens and transport stressors

This study is looking at ways to assess the causes of stress ('stressors') associated the live transport of domestic fowls and the behavioural changes expressed when the animals are exposed to these stressors in an experimental environment.

During transport animals are exposed to unnatural vibration and increased heat. Specially designed chambers were constructed which gave the hens the choice to spend time in a compartment with vibration, thermal, both or no stressors (4 compartments separated by a central zone). Two experiments were reported. The first investigated how long the hens took to leave a stressor chamber when initially placed there, and the second examined where the hen chose to spend its time during the experiment. Results showed that there was no significant difference between the time taken for the hens to leave the different stressor chambers. There was a significantly lower time spent in, and less number of visits to a hotter

chamber compared with ambient temperature, but there was no difference in these factors between a vibrating chamber and a stationary one.

The study concludes that if given a choice a hen will leave a stressful environment, but will tend to cope better in a vibrating chamber as opposed to a hot one. They do point out that the experiments do not necessarily reflect the experiences encountered during transport as the animals are free to leave the stressful situation if desired, they were well fed during the experiments and well trained before the experiment to reduce the fear and stress induced by unfamiliar situations.

**Reference:** MacCaluim JM, Abeyesinghe SM, White RP, Wathes CM (2003) A continuous-choice assessment of the domestic fowl's aversion to concurrent transport stressors. *Animal Welfare* **12**:95-107.

## **Other articles received by RSPCA Australia**

- Fatjo J, Stub C, Manteca X (2002) Four cases of aggression and hypothyroidism in dogs. *The Veterinary Record* **151**: 547-548.
- Cooper JJ, Appleby MC (2003) The value of environmental resources to domestic hens: a comparison of the work-rate for food and for nests as a function of time. *Animal Welfare* **12**:39-52.
- Krohn TC, Hansen AK, Dragsted N (2003) Telemetry as a method for measuring the impact of housing conditions of rats' welfare. *Animal Welfare* **12**:53-62.
- Knierim U, Gocke A (2003) Effect of catching broilers by hand or machine on rates of injuries and dead-on-arrivals. *Animal Welfare* **12**:63-73.