



Short communication

Improving the welfare of working equine animals in developing countries[☆]

William J. Swann^{*}

The Brooke Hospital for Animals, 21 Panton Street, London SW1Y 4DR, United Kingdom

Available online 6 May 2006

Abstract

Working equine animals are an essential source of power in agriculture and for urban and peri-urban transport in developing countries. Globally, working animals supply approximately 50% of agricultural power needs. The Brooke is a charity registered in the United Kingdom, which aims to improve the health and welfare of working equine animals in the developing world. To determine the animals' welfare needs, the Brooke, together with the University of Bristol Veterinary School, carried out a survey of the prevalence of welfare conditions, in a sample of 5000 animals, using a welfare assessment protocol based on direct animal observation. The prevalence of physical issues such as lameness, skin pathology and dehydration was recorded together with behavioural observations. Subsequently, apathetic and depressed animals, which were recognised during the assessment, were found to be suffering from dehydration, heat stress and chronic pain. The Brooke is using the results of the survey to direct the assessment of the risks contributing to poor welfare and to develop participatory interventions designed to improve animal welfare.

© 2006 Elsevier B.V. All rights reserved.

Keywords: Horses; Donkeys; Pain; Fear; Fatigue

1. Introduction

Working animals are the power providers of the developing world before urbanisation and economic development displaces them with internal combustion power. However, whereas working animal provide more than 50% of the world's agricultural energy for traction, the internal combustion engine provides less than 30%, with the remaining percentage provided by man or woman power (Wilson, 2003). Consequently, animal power is essential to alleviate

[☆] This paper is part of the special issue entitled *Sentience in Animals*, Guest Edited by Dr John Webster.

^{*} Tel.: +44 20 7930 0210; fax: +44 20 7930 2386.

E-mail address: bill@thebrooke.org.

human burden and increase tillage capacity. The Brooke, formally Brooke Hospital for Animals, was established as a British Charity in 1934 to prevent suffering in old war-horses left in Egypt by the British Army. Brooke's work concentrated historically on treating skin lesions, lameness and dehydration symptomatically. Veterinary teams were presented with recurring problems. An educational programme was developed, and aimed to promote sound harness and saddle design, good farriery and nutrition. However, it was evident that the prevalence of presenting conditions was not influenced by advice delivered at the point of treatment.

2. Improving animal welfare

To identify the causes of poor welfare and to determine the prevalence of significant welfare issues, the Brooke asked the University of Bristol Veterinary School to develop a welfare assessment protocol, which used animal observation to record physical and behavioural indicators of welfare (Pritchard et al., 2005). Amongst its findings, the survey showed that many of the animals assessed were non-responsive to external events in their environment, including human approach and interaction. Such animals were described as 'apathetic'. Correlation with physical issues suggests that apathy is associated with dehydration and chronic pain and leads to consequential injuries, such as broken knees caused by falls and road accidents. There was also a suggested correlation with skin wounds, traditionally attributed to the direct effects of ill-fitting harness. The assessment captured the picture, familiar to veterinarians working in developing countries, of the 'switched off' horse or donkey, with injuries, skin wounds and poor body condition. The results indicate that there is an underlying state of poor welfare, caused by chronic pain and dehydration. Heat stress is also thought to be significant. A critical anthropomorphic judgement (Morton et al., 1990) would conclude that many working equine animals suffer from chronic fatigue and depression as a result of poor welfare.

Brick making in India relies on animal power. Pack donkeys carry bricks from the clay pit to the kilns, in ambient temperatures that may exceed 40 °C. The work is seasonal. Observation of working pack donkeys at the start of the season shows the typical apathetic working animal. At the end of the working day, which is between 8 and 12 h, donkeys are released from work to forage. On release, donkeys are seen to gather together, nuzzle and interact. Rolling is observed at this time. Following social interaction, the animals will seek out water and drink as a communal group. This repeatable observation suggests that socialisation is the first priority for fatigued and dehydrated animals, followed by drinking. Animals will not usually drink alone, suggesting that drinking is also a social activity, even in dehydrated animals. As a prey species, isolation would present a high risk of predation; social drinking confers survival advantages in that predator identification is more likely. Following further social interaction, animals begin to forage over nearby land and the appearance of depression and apathy gradually disappears. As the season progresses over 5–6 months, some animals become permanently apathetic, failing to socialise. They lose body weight and are likely to exhibit extensive skin lesions at pack contact points. Some of these animals will die.

The relationship between deteriorating welfare and skin pathology at contact points is unknown. Loss of body condition and thus natural padding, dehydration and consequential changes in the skin and failure of the depressed animal to become aware of the developing lesions are all suggested factors. However, programmes which seek to prevent skin lesions by adjusting harness design and fit are likely to fail, particularly if general welfare issues are not also recognised and improved.

In Pakistan, horses are used to pull goods carts and the ubiquitous ‘tongas’ or people carriers. The prevalence survey showed that more than 90% of the horses are lame. Following the welfare assessment, welfare conditions were ranked using a matrix analysis setting prevalence against severity (Pritchard et al., 2005). Issues of greatest significance were selected for risk assessment, to determine the risks contributing to poor welfare. Lameness is thought to result from a combination of risks, including developmental issues, conformation and breed, nutrition, work-related concussion on dry hard roads, and resource issues such as farriery and foot care. Lameness risk assessment is ongoing, but it is evident that a consequence of the interaction of the significant risk factors is chronic arthritis and tendonitis, leading to chronic pain. The same animals also suffer from dehydration and heat stress. A similar picture develops to that described above: the apathetic, depressed and fatigued animal with poor body condition and skin lesions at the harness contact points.

From the treatment centres established by Brooke, it was evident that the prevalence of presenting conditions was not influenced by advice delivered at the point of treatment. Following the prevalence survey and ongoing research, the approach has been to prevent the causes of poor welfare. Animal owners are approached at treatment areas, or ‘contact sites’. Following contact, animal owning community groups are identified or organised to allow a participatory programme of awareness raising and behaviour change to develop, bringing peer pressure to bear (Catley et al., 2002). Groups are encouraged to groom their animals (enabling early skin lesion detection), provide adequate water at the correct times, clean and examine the feet and to adopt other management practices. Suggested changes to working practices are introduced only when risk assessment supports an intervention. Most working equine animal owners in Brooke areas of operation earn less than the equivalent of \$1 per person in the family per day, the international definition of poverty. Consequently, there is an economic dependency on working animals, and changes in practice must be backed by evidence from risk assessment that intervention will benefit the animal, particularly as intervention may require a contribution from the owner.

A highly significant aspect of poor welfare, identified by the behavioural assessment, which was part of the prevalence survey, was fear. Animals become frightened if they are beaten during work. Beating is widespread. When questioned, animal users, who may be children, respond by expressing shared adversity: “I beat my donkey if he is lazy because I have to work hard too”. Poor welfare, leading to apathy, depression and fatigue increases the chance of beating, because animals with poor welfare cannot meet the work expectations of the owner or user. The relationship between reduced productivity and beating was clearly illustrated by research carried out in an Egyptian brick kiln complex by O’Neill and Pearson (2003). Donkeys transport bricks on two-wheeled flat carts. The ergonomic study showed that the donkeys’ power rating was adequate to move the loads of bricks placed on flat carts. However, if more than 10 mm of loose sand or debris accumulated on the ground over which the carts were pulled, and if tyre pressures were also sub-optimal, the power required to move the loads doubled, exceeding the reasonable capacity of the donkeys. The resulting slow transit time of a load was attributed to laziness and resulted in excessive beating.

Fear, and a consequent deterioration in the human animal bond was observed in the Peten of northern Guatemala. Horses are released after work carrying packs of forest produce to forage around villages. Accidental damage to corn and other crops led to stone and machete attacks by villagers. Behavioural observation during an assessment showed fear and aggression on the approach of strangers. Despite the evident aversion to people, horses would nonetheless risk attack to forage in social groups. A community participative outcome was the construction by villagers of ‘corrales’ or compounds for animals, which also allowed for social interaction.

3. Conclusions

The conclusion of Brooke's approach to welfare improvement is that many of the presenting problems of working equines in the developing world cannot be prevented by symptomatic treatment and advice focussed on resource issues such as farriery and harness. The application of animal welfare science to determine animal priorities has outlined a clear programme of intervention, based on risk assessment and evaluation of major welfare issues. If the welfare of the animal can be protected, by preventing chronic pain, dehydration, heat stress, fatigue and depression, many presenting problems, such as skin lesions, road accidents, fall injuries and declining body condition should be managed and reduced. The approach also demonstrates clearly the importance of social interaction. Equine species are sociable and social activity is important to them. Dehydrated donkeys will engage in social activity before seeking out water; horses subject to physical assault will risk injury to engage in social foraging. Any welfare improvement programme must take account of behaviour and seek to avoid apathy and depression. The human animal relationship is also critical to animal care, and the apathetic animal is more likely to be beaten and to suffer from chronic fear. Owners do not recognise the causes of poor welfare and attribute behaviour change to anthropomorphic analogy, such as laziness. A participatory programme of interventions designed to improve welfare is thought to be more likely to succeed than advice given at the points of veterinary treatment. Owners become aware of risks to welfare and, by agreement, are more likely to change their behaviour and practices. Evaluation of the programme using behaviour change assessment and welfare outcome assessment will determine if the approach is correct.

Acknowledgement

The author and Brooke would like to express their considerable gratitude to Dr Helen (Becky) Whay and her team at the University of Bristol Veterinary School.

References

- Catley, A., Blakeway, S., Leyland, T., 2002. Community Based Animal Health Care. ITDG Publishing, pp. 54–58.
- Morton, D.B., Burghardt, G., Smith, J.A., 1990. Critical anthropomorphism, animal suffering and the ecological context. *Hastings's Center Report Spring Issue Animals, Science & Ethics*, vol. 20, No. 3, pp. 13–19.
- O'Neill, D.H., Pearson, R.A., 2003. An evaluation of donkey welfare in the brick factories at Helwan, near Cairo. Commissioned Report for Brooke Hospital for Animals, Silsoe Research Institute (Unpublished).
- Pritchard, J.C., Lindberg, A.C., Main, D.J.C., Whay, H.R., 2005. Assessment of the welfare of working horses, mules and donkeys, using health and behaviour parameters. *Prev. Vet. Med.* 69, 265–283.
- Wilson, R.T., 2003. The environmental ecology of oxen used for draught power. *Agr. Ecosyst. Environ.* 97, 21–37.