

Welfare issues associated with the transport and handling of slaughter horses

by Jennifer Smith

Introduction

Animal welfare issues, such as the incidence of injury and stress, are often raised in association with the handling of horses for slaughter. Recent studies have been conducted in order to address some of the issues associated with the transportation of horses to slaughter plants. Many factors that contribute to injury rate during transport have been identified, including loading density, loading orientation and trailer design. The handling of horses prior and subsequent to transport have also been investigated.

Loading density during transport

One of the major concerns associated with the transport of stock is the effect of loading density on the animal's ability to balance and avoid injury. It has been suggested that increasing the stocking density allows animals to balance against each other, but recent studies in the transport of horses to slaughter have contradicted this (Collins et al. 2000, Whiting 1999). Collins et al. (2000) observed the effects of two stocking densities on the displacement, falls and injuries of fifty nine horses. The results suggested that at higher loading densities proportionally more horses were injured during transport, with a tendency for a higher number of injuries per horse. The number of falls, the time spent down, and the injuries sustained as a result of a fall, were also greater in the higher density group, which agrees with the observation that horses experienced at travelling prefer to maintain their balance independently of other horses or surfaces (Gibbs and Friend 1999). However, these findings contrast with those of Stull (1999), who found that although physiological markers of stress were higher in horses travelled at higher densities, the incidence of injury was lower. Most severe injuries that occur during transportation are a result of aggression from dominant horses (Grandin et al. 1999), and the inability of submissive horses to move away from bites and kicks seem to play a more significant role as loading density increases (Collins et al. 2000).

Loading orientation

There are many opinions within the horse industry as to the best orientation for travelling horses (Gibbs and Friend 1999). Many studies have suggested a preference for rearward-facing orientation (Cregier 1982, Roberts 1990, Clark et al., 1993, Smith et al., 1994 ab, Kusunose and Torikai 1996, Waran et al., 1996), however the level of statistical significance varies. Several reasons have been suggested for this tendency. Cregier (1982) proposed that horses preferentially protect the head and neck from injury, and tend to lift the head when forced to travel facing forwards, shifting weight onto the hind-quarters, resulting in decreased stability. Horses thus preferred to have the rump facing the most usual direction of harsh acceleration, as encountered in braking. This was supported by Roberts (1990) who reported that horses travelling in a rearward-facing position deal better with changing forces. Waran et al., (1996) found that heart rates were lower in horses facing backwards, compared to those facing forwards, and that the frequency of movement was also reduced in the backward-facing group.

Two recent studies (Gibbs and Friend 1999, Collins et al. 2000) did not observe significant differences in preference for forward and backward-facing travel in loose horses, but there was an apparent preference for travel at 45° to the direction of travel. Both authors noted that a number of external factors may have resulted in the lack of apparent preference, including previous travel and handling experience of individual horses, and location of ventilation slots or other horses within the trailer. Further studies could therefore attempt to reduce these uncontrolled variables in order to determine a natural preference for travel orientation.

Trailer design

In an effort to establish scientific, welfare-based guidelines for trailer design, comparisons based on physiological responses and injury rates have been made. The prevalence of injuries was found to be higher in double-deck semitrailers, when compared to single-deck semitrailers or gooseneck trailers (Stull 1998). Stull (1999) investigated the differences between straight-decked and two-tiered "pot-bellied" trailers, and found that although physiological markers for stress were higher in horses transported in straight-bodied trailers, the rate of injury was lower than for the pot-bellied design. Markers of fatigue and hydration status were unaffected by trailer design in this study. These results highlight the need for further investigation into the effects of trailer design on the welfare of transported horses.

Prevalence of severe welfare cases

A recent study of 1008 horses arriving at two slaughter plants found that around 8% of horses were severe welfare cases (Grandin et al., 1999). These included emaciated, severely injured, highly aggressive, non-ambulatory, moribund or dead horses, and most (77%) were identified as resulting from owner neglect or abuse before transport. This emphasises the need for education of owners and veterinarians in their responsibilities, as well as the enforcement of harsh penalties in cases of neglect and/or abuse. The remainder of the injuries were sustained during transport and subsequent to travel before slaughter. Severe injuries resulting from the penning of unfamiliar horses together highlighted the need for the rapid identification and segregation of aggressive horses, as well as inspection of slaughter facilities.

Conclusion

The transportation and handling of horses for slaughter may involve injury or undue stress. In order to minimise the occurrence and effects of these breaches of optimal welfare, it is important that their underlying causes are understood. The results of studies investigating the effects of loading density and orientation, trailer design and pre- and post-transport handling on injury rates, may be used to assist industry participants in minimising welfare issues. More importantly, however, they provide a platform for further research into optimum methods for handling and transport of slaughter horses.

References

- Collins MN, Friend TH, Jousan FD, Chen SC (2000) Effects of density on displacement, fall, injuries and orientation during horse transportation. *Appl. Anim. Behaviour. Sci.* 67 169-179
- Clark DK, Friend TH, Delmeier G (1993) The effect of orientation during trailer transport on heart rate, cortisol and balance in horses. *Appl. Anim. Behaviour. Sci.* 38 179-189
- Creiger SE (1982) Reducing equine hauling stress: a review. *Equine Vet Sci.* 2 186-189
- Gibbs AE, Friend TH (1999) Horse preference for orientation during transport and the effect on orientation on balancing ability. *Appl. Anim. Behaviour. Sci.* 63 1-9
- Grandin T, McGee K, Lanier JL (1999) Prevalence of severe welfare problems in horses that arrive at slaughter plants. *J. Am. Vet. Med. Assoc.* 214 1531-1533
- Kusunose R, Torikai K (1996) Behaviour of untethered horses during vehicle transport. *J. Equine Sci.* 7 21-26
- Roberts TDM (1990) Staying upright in a moving trailer. *Equine Athlete.* 3 1-8

Smith BL, Jones JH, Carlson GP, Pascoe JR (1994a) Effect of body direction on heart rate in trailered horses. *Am. J. Vet. Res.* 55 1007-1011

Smith BL, Jones JH, Carlson GP, Pascoe JR (1994b) Body position and direction preference in horses during road transport. *Equine. Vet. J.* 26 374-377

Stull CL (1998) Health and welfare of horses commercially transported to slaughter. *J. Anim. Sci.* 76 (Suppl. 1) 88

Stull CL (1999) Responses of horses to trailer design, duration and floor area during commercial transportation to slaughter. *J. Anim. Sci.* 77 2925-2933

Waran NK, Robertson V, Cuddenford D, Kokoszko A, Marlin DJ (1996) Effects of transporting horses facing either forwards or backwards on their behaviour and heart rate. *Vet. Rec.* 139 7-11

Whiting T (1999) Maximum loading density of loose horses. *Can. J. Anim. Sci.* 79 155-11