

Injury, stress and dehydration - research and regulation in the commercial transport of slaughter horses

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Introduction

For a number of years, horsemeat has been regarded as a suitable red meat for human consumption. Recent increases in demand for horsemeat has come from countries in Europe, South America and Japan. Prior to the 1970's, horses were shipped live for slaughter in those countries. Poor conditions and high mortality rates though, spelt the end of this practice.

Discussion

Slaughter plants in countries such as the United States (U.S.), Canada and Australia (plants in Adelaide and Brisbane) enable the export of chilled horsemeat to consuming nations. However, horses have to be transported to these centres, and since the 1980's concerns were raised relating to various issues, such as long transit distances and times, water deprivation, exhaustion, injuries and fitness to travel. Slaughter horses are vulnerable to neglect, as they lack the individual owner care reserved for pleasure and performance horses.

In the late 1990's researchers began to provide a scientific basis and clarification for the creation of new transport criteria and legislation. While the U.S. currently finalises this, Australia already has in place a model code of practice. Controlled by the CSIRO, it is reviewed every five years to remain up to date with current data.

In 1993-1994, the Rural Industries Research and Development Corporation (RIRDC; Greer 1994) funded Queensland research, to assess injuries and physiological changes linked to road transport of slaughter horses. Injuries were related to social behaviour and horse interactions rather than the length of journey or how many decks horses travelled on. It was also noted that head injuries could be reduced by provision of padded ceilings. Access to food and water after transport was important for rehydration and restoration of electrolytes. The need to segregate aggressive horses to minimise injuries was highlighted. Grandin, McGee and Lanier (1999) confirmed this, as 7.7% of horses had a serious welfare problem upon arrival at abattoirs, including injuries received in transit due to fighting.

Recently an intensive effort in North America has been made to find ways of improving slaughter horse transport. Whiting and Sauder (2000), examined headroom requirements for horses transported in double-deck trailers. Previously, it had been reported that horses in double-deck trailers were at greater risk of sustaining injuries than their counterparts conveyed in single-deck trailers (Stull, 1999). Canadian regulations state that each animal should be able to stand in its natural position without contacting the roof. Its "natural position" is said to be when a horse has full, unobstructed range of head and neck motion (Whiting and Sauder, 2000). The aim of the Whiting and Sauder project was to test a range of conformations, and clarify whether the standard application of the 125% withers height guideline was adequate in providing sufficient headroom for the majority of horses.

Images of horses standing in natural positions were selected, as viewed laterally. The front feet, poll and withers had to be clearly visible in each of the photos used. After 200% enlargement, the photos were transferred to 1mm grid paper, so that poll height to withers height ratio could be calculated.

Horses had been classified on type into one of three categories; sport (saddle or racehorses), light-draft, or mixed. Analysis revealed that all draft horses fell below the 1.25:1 poll height to withers height ratio. However this was not necessarily the case for the other groups because draught horses held their heads lower than other horse types (Whiting and Sauder, 2000).

Photographic examination has certain limitations in studying physical measures. The study should therefore be repeated with actual physical measurement. Sporting type horses are trained to hold their heads at or near the upper limit of their range of motion, and so naturally hold their heads lower than in photos used. The study showed that Canadian headroom guidelines of one inch per hand of wither height may not provide enough room allowing full range of motion of the head and neck. If the 125% rule is applied, no horse over 14 hands should be allowed on standard commercial trailers with a height of 178cm. Thus transport structures need to be changed to enable humane transport of horses to slaughter.

Friend (2000) examined dehydration, stress responses and water consumption patterns of horses transported long distances in hot weather and recovery after 30 hours transport, simulating the commercial situation. Thirty adult mares and geldings were deprived access to feed and water for six hours before being assigned to one of four treatments:

Penned, offered water (n=5)
Penned, no water (n=5)
Transported, offered water (2*n=5)
Transported, no water (2*n=5)

No horse was allowed access to feed whilst on treatment. A commercial open top, 15.8m long, single-deck trailer divided into four compartments to house each of the transported groups was used. Floor areas of 1.77m² was given to each horse. At 8, 17, 22, 27, 30 and 33h after commencing transport, the truck stopped for 1 hour to enable sampling and provision of water in buckets. Dehydration and fatigue at 30 hours terminated the non-watered horses' participation in the trial.

Mean weight loss was greater in non-watered horses (10.3-12.8%) compared to watered horses (3.5- 4.0%). In non-watered horses, respiration, heart rate, sodium, chloride, total protein and osmolarity were elevated beyond normal reference ranges, indicating severe dehydration. Plasma cortisol (a stress indicator), rose in all horses with time. That increase was much more marked in non-watered horses.

Friend (2000) suggested that drivers measure respiration rates, by observing flank movements to serve as a dehydration indicator. (50+ per minute.) Dehydrated horses should not be allowed unlimited access to water upon arrival since colic may result. This may be avoided by providing water on trucks. However, floors could become slippery, increasing the likelihood of injury. At the time of publication, trials were being conducted to examine collapsible troughs on horse trucks.

At an American Veterinary conference on equine welfare, Reece, Friend, Stull, Grandin and Cordes (2000) reported that certain practices should be adopted to improve the transport of slaughter horses. These included:

- Accountability.
- Inspections.
- Phase out of double-deck trailers.
- Segregation of stallions and aggressive horses.
- Preventing transport of mares close to foaling.
- Defining horses that are unfit to travel.
- Allowing 6 hours food, water and rest before travel.
- Avoid travelling horses longer than 28h.
- Educate owners, vets, shippers and plant staff.
- Prohibit electric prods.

Conclusions

In conclusion, each year in Australia more than 40,000 horses are transported distances up to 3,000 km to slaughter. Today, more than ever, the public expects animal welfare to be upheld. As a result, government bodies around the world have sought to establish guidelines

ensuring the humane transport of slaughter horses. Limited scientific data has seen numerous studies designed to provide a backbone for the drafting of science-based guidelines. In Australia, the Model Code of Practice for the Welfare of Animals Land Transport of Horses, is based on current knowledge, and will be reviewed every 5 years to remain up to date with advances in animal understanding. It concludes by saying, "Horses should not be transported unnecessarily, and any transport should be carried out in a way that minimises stress, pain, and suffering."

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