

Head protection for horse riders: a cause for concern

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SUMMARY

We report the frequency with which horse riders with a significant head injury present to a large accident and emergency department. We have also recorded details about the use of headwear and conclude that horse-riding is associated with a serious risk of head injury and 'protective' headwear may not always protect.

INTRODUCTION

All significant head injuries occurring in Nottingham are first treated by the Accident and Emergency Department of the University Hospital. The area served includes a racecourse (Nottingham) but no large training stables. Most riders are therefore amateurs.

Patients who have head injuries and require admission to hospital are admitted under the care of the accident and emergency team in the first instance. If intervention is required, they are transferred to the Regional Neurosurgical Unit at Derbyshire Royal Infirmary.

METHOD

We retrospectively reviewed the records of all adult patients who were admitted under our care with head injuries following riding accidents between January 1983 and June 1984. In addition, a postal questionnaire was sent to all patients to determine the circumstances surrounding the accident and the head protection worn. Patients under the age of 12 years were not included because our criteria for the admission of children

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are different from those for adults (Weston, 1981). Admission is not mandatory for all adults who may have been unconscious and therefore implies either a prolonged period of unconsciousness or a neurological abnormality. The criteria for children are less rigid and unconsciousness is considered a reason for admission.

RESULTS

Between January 1983 and June 1984, there were 664 patients admitted to the accident and emergency department following a head injury. Of these 56 (8.4%) were sustained by participants in sport. Football produced the greatest number (21) but there were 17 head injuries to horse riders.

There was one professional jockey, who had been kicked by his horse as he fell. Only one patient had other significant injuries, which were facial fractures and a fractured fifth metacarpal.

One patient died. A 19-year-old girl fell from her horse, and lost her hat in the fall. She sustained extensive skull fractures. A CT scan demonstrated a subdural haematoma which was removed surgically. She was ventilated but died 4 days later.

Six patients had skull fractures, two basal and four of the vertex. One of the patients with a basal fracture also had a facial nerve palsy. Of the 11 patients without a skull fracture, one had VIII nerve damage and is deaf in her left ear 4 months later. Two sustained IV nerve damage which required surgical correction in one case and corrective spectacles in the other.

The results of the postal questionnaire are shown in Table 1. All riders were wearing the familiar domed hat except for patient 13, a professional jockey who wore a jockey's helmet.

Table 1

Case no.	Number of years riding	Hat strapped on?	Hat dislodged?	Skull fracture
1	13	Yes	Yes	No
2	15	Yes	No	No
3	8	Yes	No	No
4	26	Yes	Yes	Yes
5	12	Yes	No	No
6	10	Yes	Yes	No
7	10	Yes	No	No
8*	4	Yes	No	Yes
9	2 weeks	No	No	No
10	12	Yes	No	No
11	12	Yes	No	Yes
12	30	Yes	No	No
13*	18	Yes	No	Yes
14	12	Yes	Yes	No
15	2	Yes	Yes	Yes
16 (died)	Unsure but experienced	Yes	Yes	Yes
17	Unsure	Yes	No	No

*Kicked by the horse.

DISCUSSION

Horse-riding is a hazardous pastime. The range of injuries that may be sustained has been fully documented elsewhere (Barber, 1973; Gierup *et al.*, 1976). Insufficient attention has been focused on head injuries. This is unfortunate because it is one site of damage where increased protection may reduce morbidity.

The head injuries we encountered were not minor. One patient died and nine had either a skull fracture or a cranial nerve deficit.

Nearly half of our patients were teenage girls but it is a mistake to conclude that inexperience is a major factor in falls. Only one of the riders had less than 2 years' riding experience.

It is reassuring that all our patients wore some form of head protection and that all the hats, except one, were strapped on. However the fact that six hats were dislodged by the fall suggests that fixation is inadequate. Of the six patients with skull fractures, three had their hats displaced in the fall. Two of the patients with skull fractures (8 and 13) were kicked by the horse. The hat remained in position but clearly did not provide adequate protection.

In judging the efficacy of a protective hat, there are two aspects to be considered. Firstly, whether it stays in place and secondly, whether it can withstand the force applied to it. The force is greater if the rider is kicked by the horse than if he or she falls. It may be that it is not practicable to construct an acceptable hat which will withstand a well-aimed kick. If, however, the hat does not stay in place its strength is irrelevant. It is discouraging that the hats worn by competitors in the 1984 Olympic Games showjumping events that did not appear to be fastened at all.

Both the British Show Jumping Association and the British Horse Society are concerned for the safety of their members. This concern does not always appear to be shared by the members themselves. It is common to see riders with the straps unfastened and one type of hat has clips on the side to keep the straps up! This is a dangerous incentive for unsafe practice. A new British Standard Specification has recently been introduced (BS6473) but if the hat is not worn or is incorrectly fastened it will be useless.

Professional jockeys and hunters are recommended to wear hats which afford greater protection than those worn by other riders. We believe that all riders are at significant risk of head injuries and warrant the most effective head protection possible. All riders must be made aware of the risk of head injury, that their helmet will offer no protection if it is not adequately fastened, and with the present design may still not protect even when fastened.

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