BRIEF REPORT

Jockey Injuries in the United States

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HORSE RACING IS a competitive sport enjoyed around the world. As the largest spectator sport in the United States, its paid attendance exceeds that of all other major professional and collegiate sports. Unlike most major sports, which have adopted new safety practices and protective equipment, thoroughbred racing has changed little during the past century.

In thoroughbred racing, a jockey weighing approximately 50 kg rides a horse weighing approximately 500 kg around a dirt or grass track at more than 65 km/h. The primary protective equipment used by the jockey is a helmet and flak jacket to protect the head and chest. The positioning of the jockey on the horse approximately 3 m above the ground in a forward stance creates a situation of dynamic imbalance and ballistic opportunity, predisposing the jockey to a forward roll in response to any sudden change in the horse's direction or velocity.

The purpose of this article is to estimate rates of medically treated injuries among professional jockeys and to describe where and how these injuries occur during racing activity. By doing so, we hope to identify areas for further research and intervention efforts.

METHODS

All medically treated injuries occurring to licensed jockeys during official races were recorded on standardized injury report forms. These forms were initiated and compiled by the insurance broker that provides insurance for essentially all professional racing facilities in the United States (n = 114). According to the reporting protocol, 1 report was filed for each injury event occurring between January 1, 1993, and December 31, 1996. The injury report forms were completed by medical personnel who provided treatment at the track. Although many jockeys injured at insured tracks were transported to a hospital for treatment, injured jockeys were often treated by medical personnel at the track and not transported to a hospital (Irene Walton, written communication, October 1999). The injury data collected by the insurance broker thus include both injuries requiring transportation to a hospital and those treated at the track, capturing injuries to jockeys at all levels of severity. From these data, information was abstracted on the cause of injury, the location on the track where the injury occurred, and the body part injured.

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approximately 2700 and remained consistent during this period. Annual injury incidence rates were calculated per 1000 jockey-years. Patterns of injury type, cause, location on the track, and time trends were evaluated through frequency distributions produced by SAS Version 6.12 statistical software (SAS Institute Inc, Cary, NC).

**RESULTS**

A total of 6545 injury events occurred during official races between 1993 and 1996, for a rate of 606 injuries per 1000 jockey-years. Injury rates steadily decreased by a total of 33% from 1993 to 1996; however, the type and cause of injuries remained constant. During the study period, 3 jockeys were fatally injured on the race tracks from which data were available for this study.

Nearly 1 in 5 injuries (18.8%) was to the jockey’s head or neck (FIGURE 1). Other frequent sites of injury included the leg (15.5%), foot or ankle (10.7%), back (10.7%), arm or hand (11.0%), shoulder (9.6%), pelvis (4.1%), and chest (3.5%). An additional 16.0% of injuries involved multiple body sites.

The most frequent location where injury events occurred was entering, within, or leaving the starting gate (35.1%) (FIGURE 2). Of all injury events, 14.2% occurred in the turns and 15.9% occurred in the home stretch or at the finish line. The most frequently reported causes of injury were being thrown from the horse (44.4%), crushed (9.6%), and flipped and pinned (7.5%). Being struck by the horse’s head accounted for 5.3% of injuries, being jerked accounted for 3.7%, and falls accounted for 3.3%. The location of the injury event on the track and the cause of injury were not reported for 18.9% and 8.1% of the injuries, respectively.

Of all head injuries, 29.5% occurred entering, within, or leaving the starting gate. The remaining head injuries occurred proportionally around the track. Most head injuries resulted from either being thrown from the horse (41.8%) or struck by the horse’s head (23.2%). Of all head injuries, 11.3% resulted from the jockey being thrown from the horse in the home stretch or at the finish line.

Injuries to the upper and lower extremities most commonly occurred at the starting gate. Fifty-two percent of leg and foot injuries and 39.8% of arm and hand injuries occurred when entering, within, or leaving the gate. Of these leg and foot injuries, 36.6% resulted from the jockey being crushed and 27.2% resulted from the jockey being flipped and pinned by the horse. These 2 causes of injuries at the starting gate accounted for 33.1% of all leg and foot injuries. Being thrown from the horse, either in the starting gate or at various locations around the track, resulted in 31.9% of leg and foot injuries and 40.8% of arm and hand injuries.

Being thrown from the horse resulted in 55.1% of back and 49.6% of chest injuries. These injuries occurred proportionally at the gate, around the turns, and along the home stretch and finish line.

Being thrown from the horse most commonly resulted in multiple injuries (36.2%). The most common single sites of injury resulting from throws were legs and feet (18.8%), head (17.7%), and back (13.2%). Although only 5.3% of injury incidents resulted from being struck by the horse’s head, 82.4% of these injuries were to the jockey’s head. Being flipped and pinned (54.5%) or crushed (64.2%) primarily resulted in injury to the leg and foot.

**COMMENT**

The starting gate and the home stretch/finish line were the most common sites for injury events. Jockeys and horses are emotionally and physically charged at these locations. The starting gate contains an excitable horse and mounted jockey in a small, confined space, which presents great opportunity for the jockey to be crushed against a rigid surface by the horse.
the horse. Injuries incurred when entering or in the gate may be reduced by padding or altering the shape of the gate, or by exploring alternate techniques of leading the horse into the gate. Padding the rails around the track may also reduce some on-track injuries.

Although the final stretch and finish line are otherwise free of obstacles, the speed and close proximity of the horses and final risk-taking tactics of the jockeys increase the impact of throws and other undesired dismounts. Improved personal protective equipment may be the best option to decrease injuries around the track and at the finish line. The head was the most frequently injured body part in our data. Helmets are required head protection for jockeys; however, there have been discussions of improving the technology to create a lightweight helmet with greater coverage that may offer improved protection of the head. Chest injuries were not among the most common in this study; however, the expected severity of injury to the chest led to the introduction of a protective flak jacket in 1993. This form of chest protection was mandated for use by all jockeys in professional races in 1994. Although the proportion of chest injuries reported in this study did not decline from 1993 to 1996, it is possible that the severity of chest injuries was lessened.

This study reflects a conservative estimate of injury rates, since chronic injuries that were not apparent on race day and injuries occurring during training were not included. Information on injury recurrence within an individual, injury severity, and the clinical presentation of the injury were not available. While the addition of injury severity data would be useful, it should be recognized that trackside estimates of injury severity may be influenced by the desire of the injured jockey to continue racing on the day of injury, and objective measures of injury severity such as the Abbreviated Injury Scale are not routinely collected in these insurance data. There was also no available information on injured jockeys’ racing experience, frequency of racing, or other personal characteristics, or information from a comparison group of non-injured jockeys. The addition of this information would allow a more in-depth description of the occupational risks of jockeys. We suspect that the observed decline in injury rates from 1993 to 1996 is an artifact of underreporting to the insurance broker, since the type and cause of injuries remained constant, and no changes in safety practices or equipment were reported during this period.

Despite these limitations, this study provides the first large descriptive report of injury incidence and the locations on the track that are associated with injury among professional jockeys. All jockey injuries, irrespective of severity, were captured in these data. Since the information was obtained from essentially all professional thoroughbred racing tracks in the United States, these analyses should accurately reflect the injury experiences of the vast majority of professional jockeys in the United States.

Although recreational equestrian injuries have been described in recent literature, the injury experience of professional jockeys is largely unexplored. Head and neck injuries represented 19% of all injuries in this study. These results generally support the findings of Press et al, who reported 13% incidence of concussions from their 4-month survey of jockeys. This research also reiterates the call for national jockey injury surveillance, centrally compiled and annually analyzed, which would create an opportunity to better understand the injury profiles of jockeys and develop protocols for their protection.

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**REFERENCES**


