Observations Related to Catastrophic Injuries in Racing Quarter Horses From 2005 to 2008

Mark J. Martinelli, DVM, MS, PhD, Diplomate ACVS; L. Ricky Overly, DVM; and C. Wayne McIlwraith, BVSc, PhD, DSc, FRCVS, Diplomate ACVS

To improve the safety of Quarter Horse racing, catastrophic injuries were studied. Most of the injuries were in 3-yr-old horses and those in claiming races. Quarter Horses tended to manifest the injury after the wire without falling, emphasizing some of the differences between Quarter Horse and Thoroughbred racehorses. Authors’ addresses: California Equine Orthopedics, San Marcos, California 92069 (Martinelli); Equine Sports Medicine, Cypress, California 90630 (Overly); and Gail Holmes Equine Orthopaedic Research Center, Colorado State University, Fort Collins, Colorado 80523 (McIlwraith); e-mail: mjmartinelli@cox.net. © 2009 AAEP.

1. Introduction
Catastrophic injuries in racing have drawn significant media attention over the years. Efforts at reducing the number of fatalities in racing have increased because of this attention. Factors causing these injuries have been studied extensively in Thoroughbreds over the years to determine the cause of catastrophic racing injuries and thereby reduce the incidence. Catastrophic injuries in Quarter Horses have not been studied to the same extent as in the Thoroughbred industry. To increase the safety of both the horse and jockey involved in Quarter Horse racing, it is important to gather information about the horses that are catastrophically injured. The aim of this paper is to present the information gathered from examining the race videos of catastrophically injured Quarter Horses at one track over a 4-yr period.

2. Materials and Methods
The descriptive information from all Quarter Horses suffering a catastrophic injury while racing at a track hosting multiple breeds from 2005 to 2008 was collected. This included age, race type, race on the card, post position, trainer, and jockey. Videos from each race when a catastrophic injury occurred were reviewed. The footage included the routine race coverage as viewed from the side as well as a supplemental head-on view. Information recorded included any observed incidents such as bumping or stumbling, time when the injury was sustained, if the horse fell, and if the jockey came off.

3. Results
There were 117 catastrophic injuries studied between 2005 and 2008. Thirty-nine percent were 3-yr-old and 32% were 2-yr-old horses. Fifty-five percent of the races in which an injury occurred were run at 300 yards. Sixty percent of the races were claiming (36%) or maiden claiming (24%) races. Seventeen percent were in the ninth race on the card and 23% started from post position 4. Twenty-five percent finished win/place/show, whereas 34% did not finish the race. Seventy-eight
percent of the injured horses did not fall, although the jockey came off in 14% percent of these horses. In 28% of the races, there was no identifiable incident that may have led to the injury. The worst injuries to observe were those involving the back or metacarpus.

4. Discussion

There have been numerous reports on catastrophic injuries sustained by Thoroughbred racehorses over the years.\(^1\)\(^-\)\(^4\) Many of these reports have been from the United States, although reports have come from other racing jurisdictions such as the United Kingdom\(^7\)\(^,\)\(^8\) and Australia.\(^9\) Most have focused on flat racing, whereas reports from the United Kingdom have studied jump racing as well.\(^7\)\(^,\)\(^8\) Although all of the aforementioned reports dealt with the Thoroughbred breed, there have been some different results reported in these papers that were explained by variations in venue or racing style (i.e., flat versus jump racing).

There are many differences between Thoroughbred and Quarter Horse racing. Racing fans, especially those standing at the starting gate, can easily recognize the substantial difference between the Thoroughbred and Quarter Horse breeds. The classic sprinting speed of the Quarter Horse is how the breed name evolved. Racing Quarter Horses have been clocked at almost 50 mph as they cross the finish line. The distance of the races is shorter in Quarter Horse racing, and most of the races are run at 440 yards or less. In addition, Quarter Horses racing at distances of up to 350 yards have been shown to gain speed in each segment of the race, whereas Thoroughbreds tend to gain speed in the middle of the race and then fatigue near the finish.\(^10\) In Quarter Horse racing, there is no turn in the race of distances up to 440 yards, although the horses must come to a stop while negotiating a turn in most cases. Because of the sprint nature of the race, Quarter Horses tend to race abreast of each other in a straight line, never leaving their “starting lane” all the way through the wire. This is in contrast to Thoroughbreds and Standardbreds that will normally bunch up along the rail to “save ground.”

There have been few reports on Quarter Horse racing in the American literature. In a paper by Cohen et al.\(^5\) from 1999, musculoskeletal injuries and risk factors associated with these injuries were studied in Quarter Horses racing in Texas and New Mexico. They found that the incidence of catastrophic injury was lower in the Quarter Horses in that population than in similar reports from the Thoroughbred industry. They also found that a pre-race inspection could help decrease catastrophic injury and that 2-yr-old horses were not at any more risk to sustain an injury than were older horses. In the current study, there were more 3-yr-old horses affected (39%), although 32% of the catastrophically injured horses were 2-yr-olds. In another report involving racing Quarter Horses, Balch et al.\(^6\) found that under-run heels were a significant risk factor for catastrophic injury, whereas the length of the toe grabs was not.

In the current study, the worst injuries to observe were those involving the back or metacarpus. This was because the injury occurred suddenly and usually resulted in a horrific fall, seemingly leaving the jockey totally unprepared. Fortunately, those injuries were less common in this population of horses, and only 22% of the horses suffered a fall. Those involving the metacarpophalangeal joint became more serious if the incident occurred during the race and the horse could not be pulled up. With these injuries, there was usually a visible misstep, but the horse did not appear very distressed and did not fall. If the injury occurred during the race when the horse was at full speed, then it seemed almost impossible for the jockey to pull the horse up; therefore, a more serious injury often resulted in visible instability of the metacarpophalangeal joint. At that point, it appeared to be difficult for the jockey to remain on the horse, either falling or jumping off even though the horse did not fall down. Most of the catastrophic injuries involving the carpus did not result in a fall. The jockey seemed to detect the injury quickly and was able to ease the horse to a stop. Further observation of these injury patterns may lead to more effective prevention.

Another finding from the current study was that 60% of the catastrophically injured horses were entered in a claiming or maiden claiming race. A recent publication from the American Association of Equine Practitioners suggested changes to the structure of claiming races in Thoroughbred racing “in order to protect the welfare and safety of claiming-level horses.” Specifically, “horses that do not finish the race or those that sustain a catastrophic injury during the race remain the property of the original owner.” Such a rule change would address the practice of “dropping” an unsound horse into a cheap claiming race. The results of this study seem to support a similar change in Quarter Horse racing.

Probably the biggest differences between Thoroughbred and Quarter Horse racing highlighted by this study were that 66% of the injuries occurred after the wire in the Quarter Horse races and that 78% of the catastrophically injured Quarter Horses did not fall. Although, to the authors’ knowledge, no official reports on these numbers were available at the time of this report, anecdotal reports from Thoroughbred regulatory veterinarians suggest that Thoroughbreds tend to sustain more injuries during the race and that Thoroughbreds fall more often as a result of the injury. It has been suggested that fatigue in the Thoroughbred racehorse may play a role in this observation.

Finally, the fact that there was no identifiable event observed in only 28% of the videos where a catastrophic injury occurred indicates that something out of the ordinary was observed in the majority of races. The two most common events noted
were bumping between horses (21%) and stumbling (21%). Other occurrences were veering suddenly, being cut off by another horse, and incidents involving bad behavior in the gate. Although all of these events would be under the jurisdiction of the racing stewards, some of these activities have been accepted over the years as a part of Quarter Horse racing. In the study by Cohen et al., stumbling was significantly associated with racing injury in general but not with catastrophic injury.

The safety aspects of racing, for both the horse and jockey, should be of great importance to the veterinary profession. To propose any policy changes in the racing industry, the factors influencing safety must be determined. Although there are numerous studies focusing on Thoroughbred racing, few have addressed the Quarter Horse racing industry. The results of this study document some of the issues associated with catastrophic injury in racing Quarter Horses. These results also highlight some of the differences between Quarter Horses and Thoroughbreds that may aid industry officials at racetracks hosting both breeds.

References and Footnote