Thoroughbred Horse Racing Safety Regulations

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Introduction

Horse racing faces many challenges in modern-day society and the once famous “sport of kings” is in danger of becoming a thing of the past. In the United States alone, the horse industry contributes more than $122 billion to the economy annually (Bull, 2023). Horse racing contributes over $30 billion and is one of the largest entertainment and sporting industries (Bull, 2023). However, the sport is facing major challenges with concerns for the safety of its equine and human participants. Horse racing's future depends on the safety of horses and jockeys, the implementation of new technology to improve the industry, and an evaluation of the impact of both new and existing regulations on the sport.

Horse Safety

Safety concerns have plagued the industry for several years due to the injury rate of horses and jockeys. During the 2023 summer meet at Saratoga Race Course, located in Saratoga Spring, New York, a string of eleven fatal breakdowns brought national attention (Hegarty, 2023). Breakdowns are defined as injuries that are or could be career-ending (Saratoga Race Course, 2024). Instances of horses failing to finish a race are relatively infrequent, occurring at a rate of 2.88 times per 1000 races, which includes falls, injury, and poor performance (Tanner et al., 2016). Age has no significant impact on the incidence of failure to finish a race, including younger horses at three years of age and older horses over six years of age (Tanner et al., 2016). However, older horses are more prone to failing to finish due to injury (Rosanowski et al., 2018). Furthermore, performance data indicates that 80% of horses’ performance peaks before the age of six, with the average age for reaching peak performance falling between 4.25 and 4.50 years (Gramm and Marksteiner, 2010). Horses typically experience greater performance improvement between the ages of 2 and 4.5 years than beyond 4.5 years (Gramm and Marksteiner, 2010). While age and performance related data does provide some insight into the rate of injuries and breakdowns, it is evident that there are other underlying factors that contribute to the recent surge in breakdowns and injuries at Saratoga.

Horse races vary in length, ranging from short, sprinter-type races to longer, distance-type races, spanning from 5 furlongs to 36 furlongs (Dooley, 2024). A furlong is equivalent to one-eighth of a mile or roughly 201 meters (Dooley, 2024). Juvenile horses will begin racing at 5 furlongs as early as January of

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I'm from the tiny town of Port Hudson, Missouri. I grew up showing quarter horses around the country in western pleasure and hunt seat. Later I transitioned to showing pigeons, dogs, and goats. I have experience in almost all livestock species and many companion animal species.

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their two-year-old year and progress to 6 or 7 furlongs by the summer of that year (Dooley, 2024). Following their juvenile year, horses may specialize in different race distances, such as sprinters for races between 5 and 7 furlongs, milers between 7 and 9 furlongs, middle distance or classical runners between 9 and 14 furlongs, and stayers for races spanning 12 to 20 furlongs (Dooley, 2024). Horses that train over National Hunt jumps for hurdles and steeplechases will run even long distances ranging from 16 to 36 furlongs (Dooley, 2024). Races greater than 1671 meters or 8 furlongs have a higher rate of horses failing to finish compared to races under 1200 meters or 6 furlongs in length (Tanner et al., 2016). The correlation between increased race length and failing to finish, it is crucial to tailor the training and veterinary care to mitigate injuries and improve peak performance.

The standard starting gate in the United States allows for 14 horses to start in a race, while some older starting gate models only accommodate 12 starters (Frakes, 2019). Auxiliary gates can further increase the number of starters to 20 as seen in the Kentucky Derby (Frakes, 2019). Races with larger field sizes tend to have a higher rate of failure to finish compared to those with smaller field sizes (Tanner, et al., 2016). While many criticize the use of the 20-horse starting gate, Darren Rogers, a senior director of communications and media services at Churchill Downs stated, “Every element of a race — from the start to the finish — is a safety concern, but we just don’t believe reducing the size of the Derby field to any specific number will eliminate the inherent risk that comes with competition” (Frakes, 2019). There was no correlation between gate position and an increased risk of failing to finish a race (Tanner et al., 2016). Racing poses inherent risks for injuries and breakdowns, but larger field sizes may lead to increased negative outcomes compared to smaller fields.

Track composition and condition affect the rate of failure to finish due to injury, with horses racing on turf tracks being at a lower risk for breakdowns compared to those on dirt tracks (Mohammed et al., 1991). Muddy or sloppy dirt tracks do not result in an increase in breakdowns compared to normal or good dirt tracks (Mohammed et al., 1991). Firmer turf tracks increase the likelihood of breakdowns (Rosanowski et al., 2018). In jump racing, increased firmness of the track is associated with a higher rate of tendon injury (Reardon et al., 2012). Weather and season also impact track conditions and the rate of injury and breakdown, with horses being more likely to break down during the summer months compared to the spring and winter (Mohammed et al., 1991). On synthetic tracks, sustained high temperatures can cause the wax coating to begin to melt, resulting in poorer performance and potentially a higher risk of injury (Peterson et al., 2010). During summer and fall months, turf and synthetic all-weather tracks have the highest risk of fatalities (Rosanowski et al., 2018). Jumps racing showed similar results with horses racing during the summer season being more likely to develop tendon injuries compared to all other seasons (Reardon et al., 2012). The influence of track conditions and weather highlight the need for track maintenance and monitoring to reduce the potential for breakdowns.

The average starts per horse in 2017 was 6.15, a 38.5% decrease from 1976 (Mitchell and Angst, 2018). Horses in higher class levels experienced a greater decrease in starts per year, averaging 5.5 starts in 2017, compared to 8.5 starts in the lowest class levels (Mitchell and Angst, 2018). However, horses that start in more races per year are less likely to experience breakdowns (Mohammed et al., 1991). Horses racing between seven and twelve times per year have a lower rate of breakdowns than those that make six or fewer starts (Mohammed et al., 1991). Additionally, horses are less likely to experience breakdowns after their first racing season; horses racing past their fifth season are 100 times less likely to break down compared to horses in their first season (Mohammed et al., 1991). With so many contributing factors to breakdowns and failure to finish races, it is no wonder that the issue does not have a clear-cut solution.

Human Safety

While horse safety is at the forefront of the general public’s minds, human safety is often overlooked until a tragic accident occurs. On February 1, exercise rider Arturo Mares died from injuries he sustained after falling from his mount while working at Santa Anita Park in Arcadia, California (BloodHorse, 2024). An average of two jockeys each

year suffer the same fate as Mares (Ross, 2019). Injuries resulting from kicks and bites, poor working conditions, alcohol and drug abuse, and nutrient deficiencies are also major issues within the sport (Stallones et al., 2023). The most common reasons for injury to jockeys are becoming unseated from their mount during a race and horses falling (Press et al., 1995). Jump racing has a higher rate of falls, but flat racing has a higher incidence of injury (O'Connor et al., 2017). There was a significant increase in jockey injuries between 2006 and 2015 (O'Connor et al., 2017). Soft tissue injuries and fractures are the primary injuries reported by jockeys, with upper limb injuries being more common in jump racing and lower limb injuries being more common in flat racing (O'Connor et al., 2017). Inexperienced riders are more likely to fall during a race (Tanner et al., 2016). Falls decrease with experience, though amateur jockeys still average 134.77 falls per 1000 rides with 67.4 injuries per 1000 falls (O'Connor et al., 2018).

Jockeys are required to meet a weight standard to be allowed to race and must often undergo rapid weight loss to meet such requirements (McGuane et al., 2019). In Ireland, jockeys must be between 52.7 to 64 kilograms, or 116 to 141 pounds, including the weight of their tack to race, which is well below most people's normal weight range (Cullen et al., 2015). Despite the devastating effects on mental health, jockeys use food restriction, dehydration, and occasionally drug abuse to manage their weight (McGuane, 2019). The more weight jockeys lose, the more negative their mood and disordered their eating becomes (Cullen et al., 2015). Common mental health disorders, including anxiety, depression, and alcoholism, are very common among jockeys with 79% reporting symptoms of one or more disorders (King et al., 2021a). Mental and physical health resources are vital to assist jockeys in developing healthy strategies to maintain their riding weight and protect their mental health.

Jockeys are not the only ones at risk of mental health disorders, trainers and stable staff are also at risk. Trainers often face financial stress, long working hours, and social isolation, which leads to 45% of trainers meeting the diagnostic criteria for one or more mental health disorders (King et al., 2021b). Stable staff also suffer from mental health disorders, especially after suffering an injury, due to concern over their employment and injury (Davies et al., 2023). Staff who experienced anxiety and depression after an injury were more likely to not report future injuries and take time off (Davies et al., 2023). Increased accessibility to health resources would benefit trainers and stable staff to mitigate critical mental health issues and aid in coping with injuries sustained while working with horses.

Safety Devices

New technology is always being developed to mitigate and avoid incidents on the track. StrideSafe is a sensor system designed to detect potential injuries based on abnormalities in the horse's gait that are attached to the saddle cloth of a racehorse (Voss, 2023). During a trial period in New York, the system demonstrated a 90% accuracy rate in predicting fatal injuries (Voss, 2023). The system has also been implemented at Churchill Downs in Louisville, Kentucky, where horses with abnormalities detected underwent a PET scan that often found bony changes that indicated a condylar fracture may be imminent (Voss, 2023). Condylar fractures are a fracture that occurs above the fetlock in the cannon bone, which is similar to the bones in the back of a human's hand, due to repetitive strain (Palm Beach Equine Clinic, 2018). The implementation has allowed tracks to predict injuries before they occur, which can be used to prevent future breakdowns and better focus veterinary care to treat current injuries.

Turf analysis and management are utilized to predict and mitigate possible injuries by assessing the condition of a racing surface (Schmitt et al., 2024). Various devices measure the surface's ability to allow a horse's hooves to penetrate and gain traction while also resisting divot formation (Schmitt et al., 2024). The Orono Biomechanical Surface Tester (OBST) is the international standard for surface testing, despite its limitations due to the complexity of its operation (Schmitt et al., 2024). Other simpler options for testing the racing surface include moisture probes, the Clegg Impact Hammer (CIH), Longchamp Penetrometer (LP), Turf Shear Tester (TST), and the GoingStick® (GS) (Schmitt et al., 2024). The LP has the best ability to predict horse performance and injury, followed by the CIH, and then the moisture probe (Schmitt et al., 2024). The TST and GS are not recommended as their data does not represent the OBST data well (Schmitt et al., 2024). Data gathered by these devices are used to determine if a track is suitable for

racing (Schmitt et al., 2024). Turf analysis tools can be used to indicate if the track is unsafe for racing to prevent injuries influenced by weather and track conditions.

Online reporting systems have also been used to track and reduce injuries, with vast improvements in reporting accuracy and efficiency compared to the previous paper-based system (Gibson et al., 2022). Since the implementation of the online reporting system, there has been an increase in the rate of non-incident examinations being performed, while clinical findings, the rate of injuries, have remained constant (Gibson et al., 2022). These non-incident examinations are a useful tool for monitoring risk factors associated with injuries (Gibson et al., 2022). The reporting system has found that most reported fatalities are attributed to irreparable fractures with horses racing more than 1600 meters have a 1.7 times higher risk of such fractures compared to those racing less than 1600 meters (Gibson et al., 2023). Reporting also found that the risk of fractures is higher in male horses and in horses racing on firmer track surfaces (Gibson et al., 2023). Additionally, horses older than five were found to be twice as likely to experience cardiac failure (Gibson et al., 2023). Reporting system provide a centralized way to track risk factors that can be used to target veterinary intervention and track maintenance.

Current Regulations

Regulations in horse racing often receive both criticism and praise as they strive to satisfy trainers and fans alike. Reporting of injuries and fatalities associated with racing must be submitted within 72 hours by a veterinary official to the Jockey Club's Equine Injury Database (EID); however, not all tracks choose to make their statistics available to the general public (The Jockey Club, 2023). Since the implementation of the EID in 2008, there has been a decrease in the rate of fatalities from 2.00 to 1.32 equine fatalities per 1000 starts (The Jockey Club, 2024). The use of reporting systems has allowed racing professional to decrease the rate of fatalities by targeting intervention methods to improve the safety of horses and jockeys.

The Horse Racing and Integrity Authority (HISA), another national authority created to regulate horse racing safety, was approved by the Federal Trade Commission in July 2022 (HISA, 2023). HISA requires its affiliated tracks to establish a Racetrack Safety and Welfare Committee tasked with investigating every injury, fatality, and safety concern related to the track (HISA, 2023). In each jurisdiction, HISA has appointed a medical director who oversees all human injuries and a lead veterinarian who inspects and treats horses (HISA, 2023). The lead veterinarian is also responsible for anti-doping testing and emergency medical care in the event of an injury (HISA, 2023). Investigations into injuries and fatalities by trained professionals can ensure that proper safety measures are enacted to prevent similar occurrences from happening in the future.

Racetracks can also enact their own rules, as Churchill Downs did after a string of injuries that resulted in twelve equine fatalities during their summer meet in 2023 (Finley, 2023). Churchill Downs removed the purse pay-outs to horses finishing out of the top five, restricted the number of starts a horse can make in a rolling eight-week period, and enacted ineligibility standards for poor performance (Finley, 2023). Despite Churchill Downs' claim that these rules were implemented to reduce breakdowns, they would have only applied to one of the twelve horses that died during the meet (Finley, 2023). Although regulations are designed with the safety of horses and jockeys in mind, they are not always well-received when put in practice.

Public Opinion

Horsemen are split on the current regulations imposed on the sport, with some claiming that they are some of the worst rules they have ever seen while others believe that they are in the best interests of the horse (Louis and Bartelli, 2024). Due to Churchill Downs' ineligibility standards for poor performance, horsemen worry that it will incentivize jockeys to push tired horses to prevent them from becoming ineligible to race (Louis and Bartelli, 2024). However, others support restricting starts and having ineligibility standards in place because it protects the horse from racing when it is injured or not able to compete at the level of competition it is entered (Lous and Bartelli, 2024).

HISA regulations also come under fire from horsemen, with some believing that they are too restrictive and are a form of the government overstepping their boundaries (Louis and Bartelli, 2024). While anti-doping regulations are supported by the public, many feel that HISA regulations are overly restrictive regarding the medications permitted for racehorses and harshly punish those with minimal violations that could be caused by contamination (Louis and Bartelli, 2024). Many believe that HISA would be better accepted among horsemen if it were run by individuals with experience in the horse racing industry rather than government officials (Louis and Bartelli, 2024). While regulations based on scientific data can help reduce injuries and increase support from the general public, they may conflict with the opinions and traditions of seasoned horsemen.

Recommendation

Horse racing regulations need to balance the longstanding traditions of the industry with science-based data surrounding injuries, fatalities, and the well-being of horses and people. Incidents of injuries and fatalities associated with tracks should be reported, and investigations should be conducted afterward to determine their causes. The use of technology to detect potential hazards and subtle changes that may lead to injury could significantly improve the prediction and prevention of injuries on the track. If a detection device identifies a horse as at risk for injury, it should undergo an examination by a veterinarian to determine its soundness for racing. Additional factors that should be monitored include the horse's age, racing experience, and past performance.

Restricting the starts a horse can make within a period of time conflicts with studies that observe a decrease in injuries with an increase in the number of starts a horse makes. Additionally, such restrictions reduce opportunities for apprentice jockeys to gain experience, thereby increasing their likelihood of sustaining injuries due to a lack of experience. However, if a horse consistently performs poorly, it should be closely monitored for potential injuries. Poor performance restrictions are supported by evidence that poor performance can be indicative of injury.

There should be resources made available for jockeys, trainers, and stable staff to receive mental health care and medical attention in the event of a crisis. Considering the high rate of injuries in the sport, it is important for medical staff to thoroughly assess a jockey's fitness to race prior to starting in a race. Mental health services should be available to reduce the incidence of anxiety, depression, distress, and drug abuse. To alleviate financial stress and improve the mental health of jockeys, trainers, and stable staff associated with horses outside the top five, purse payouts should not be restricted to the top finishers.

Regulations must take into account the opinions of experienced horsemen and utilize modern technology to create a safe environment for horses and people. There should be a uniform standard across the country with the ability to further restrict the usage of medications, training techniques, and performance standards at the state and track level to account for local opinion and traditions.

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