AAEP Forum on Thoroughbred Safety & Injury Prevention

REPORT

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American Association of Equine Practitioners
4033 Iron Works Parkway
Lexington, KY 40511
aaep.org

Overview

The American Association of Equine Practitioners (AAEP) hosted a special meeting of veterinary experts on Sept. 29 – 30, 2023, to explore additional measures to reduce racehorse injuries in U.S. Thoroughbred racing. The inaugural Forum on Thoroughbred Safety & Injury Prevention was held at AAEP headquarters in Lexington, Ky., and invited participants included private racetrack practitioners, regulatory veterinarians, surgeons, and radiologists.

The Forum focused on two key areas: examination of injury data trends from U.S. and international racing jurisdictions; and exploration of new technologies and their potential use for identifying horses at risk for injury. These technologies included lameness detection devices, biomarker research, wearable sensors, and advanced diagnostic imaging.

With the regulation of horse racing in the U.S. more stringent than any other time in the sport's history, additional measures for injury prevention point to technology and innovation to help further identify the at-risk or sub-clinically injured horse.

To better understand the specific applicability of each individual technology tool in risk identification, the group developed the following rating system to denote the appropriate phase of usage for identifying the sub-clinically injured horse:

Level 1: Passive detection of abnormality. This includes gait abnormality identified by wearable biometric sensors and potentially biochemical abnormality with promising biomarkers currently being investigated.

Level 2: Clinical evaluation is conducted by veterinary teams (both attending and regulatory), including lameness examination with diagnostic analgesia, if indicated, to identify potential injury.

Level 3: Based on Level 2 evaluation, radiology and/or ultrasound may be employed. If needed, more advanced diagnostic imaging such as PET/CT/MRI/scintigraphy would be recommended.

A chart is included at the end of this report to help guide the processes by which we approach choosing the appropriate diagnostic imaging modality.

Forum participants developed the following safety recommendations with the goal of complementing the current risk assessment processes already in place in U.S. racing.

As equine veterinarians, we are committed to collaborating with the Thoroughbred racing industry to implement all available procedures and protocols that will further protect the health and welfare of the horse.

I: Identification of the Horse at Increased Risk of Injury

- **Recommendation 1: Issue a request for proposal (RFP) for a cost-effective wearable biometric sensor from qualified manufacturers.**

  Wearable biometric sensors function as a Level 1 detector of gait changes in a racehorse and serve as an indicator that the horse requires evaluation by its veterinary team. Optimally these sensors will be used on every racehorse for every high-speed exercise event, including all breezes and races. This allows the horse's unique motion to be well established, with a deviation from the horse's normal motion indicative of a potential increased risk of injury. The sensor selected should be economically feasible, practical in use, and scalable for the entire industry.

  The AAEP will develop and issue an RFP, as well as review and evaluate proposals via a newly formed task force. Additionally, the AAEP's charitable arm, The Foundation for the Horse, will contribute funding to the chosen project. However, to ensure successful implementation, this project will require industry-wide funding. The AAEP will contact potential funding entities to ascertain interest levels.

- **Recommendation 2: Employ post-entry screening by regulatory veterinarians to help identify horses at increased risk based on training and racing records.**

  This extra layer of scrutiny has been shown to be helpful in preventing catastrophic injury in at-risk horses. The screening of records can be a laborious task, taking hours for each race card, but employing AI solutions may make this process quicker. In addition, an entry day approximately six days before the anticipated race day will help the regulatory team complete this analysis in a timely manner.

- **Recommendation 3: Pre-entry screening exams to be performed by the trainer's private attending veterinarian in all U.S. racing jurisdictions.**

  An examination by a racehorse's private attending veterinarian to determine fitness for racing prior to the horse being entered for a race serves as an additional layer of risk detection. At racetracks where there is a shortage of veterinarians, either attending or regulatory, AI solutions such as a lameness detection app can help bridge the gap in risk evaluation.

II: Improved Access to Higher Level Diagnostic Technology

- **Recommendation 1: Create regional PET scan centers at centrally located racetracks throughout the United States.**

  Tremendous progress has been made in advanced imaging in the last 5-10 years, in particular for fetlock imaging, where CT and PET scanners allow imaging of the horse standing with sedation. CT excels at identification of structural changes most pertinent for diagnostic purposes, treatment planning and long-term prognosis. PET provides functional information leading to identification of

early changes, immediate risk assessment and monitoring of healing or recurrence. Research studies have demonstrated the ability of these modalities to identify abnormalities associated with an increased risk of injury.

- **Recommendation 2: Explore sustainable funding options for subsidization of advanced imaging tools to increase accessibility for all classes of racehorses.**

  Industry collaboration is needed to identify sources of funding to increase availability of advanced imaging scanners at an affordable fee for all racehorses. An example of a funding option is allocating a percentage of purse money to purchasing and maintaining advanced imaging tools for the local racing community.

III: Other Recommendations

- **Recommendation 1: Adoption of improved trainer data and injury reporting systems in U.S. racing.**

  The Hong Kong Jockey Club serves as a world leader in injury classification, which allows data to be dissected and analyzed more precisely, increasing the likelihood of injury prediction. In addition, the Hong Kong Jockey Club and the British Racing Authority present comparison injury data rates to all trainers to increase understanding of their injury percentage within the industry. We believe this to be an excellent tool for trainer education so that trainers can be better informed about best practices and make modifications in their training regimens if warranted.

- **Recommendation 2: Create continuing education for trainers, racetrack management and veterinarians about injury prevention.**

  Analysis of injury data has found that certain training patterns are associated with an increased risk of injury. The AAEP will form a subcommittee to create education modules focused on best practices in injury prevention.

- **Recommendation 3: Update racetrack maintenance equipment and protocols to measure the moisture content of racetracks more precisely and to identify best practices to ensure consistency of the racing surface.**

  With increasing evidence that extreme inclement weather conditions which cause variability in racetrack moisture content may be a contributing factor to clusters of exercise-associated equine fatalities, the use of modern technology now in use for precision agriculture practices should be investigated for use at Thoroughbred racetracks.

  At most racetracks, moisture content is currently measured by hand, once or twice a day, in limited locations around the racetrack. Modern technology with sensors placed on the harrows could potentially provide real-time measurements of moisture that could be used to better identify areas of the racetrack with significant moisture variation. This information will help to refine

current best practices for managing moisture of the racetrack in the short term and facilitate the development of "smart" watering trucks that can apply moisture to some areas that need it, while sparing others that do not. We know that an inconsistent racetrack can increase the risk of injury. The use of improved protocols and technology to better manage moisture content of the racetrack will improve the consistency of the racing surface and reduce the risk for injury.

- **Recommendation 4: Encourage racetrack management groups to update Wi-Fi and camera surveillance capabilities in the barn area and on racetrack.**

  Improvements using innovative technologies require modernized infrastructure in order for systems to operate to their fullest potential. This investment in infrastructure can be started immediately.

Conclusion

As an industry, U.S. Thoroughbred racing has made great strides in lowering the national racehorse fatality rate, but more is required. We can do this by embracing innovative technologies and improved risk-assessment processes, ultimately ensuring that the health and safety of the racehorse is the priority for the racing industry.

AAEP Forum on Thoroughbred Safety & Injury Prevention Participants:

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Chart 1:

Imaging Modalities and Their Roles in Bone Assessment

PROCESS	MODALITY: Radiographs	Scintigraphy Proximal Limb	Scintigraphy Distal Limb	MRI (under general anesthesia)	MRI (standing)	CT Scan	PET Scan
Diagnostic	★★	★★★	★★	★★★★★	★★★	★★★★	★★★
Monitoring	★★	★★★	★★★	★	★★★	★★★	★★★★★
Screening/ Clearance to Race	★	★★★★	★	★	★★	★★★	★★★★★

Source: Dr. Mathieu Spriet

The star (★) rating scale indicates effectiveness for intended use.