



Arizona Department of Gaming

Racing



2017-2018 Arizona
Fatality Breakthrough Project

INTRODUCTION

The Arizona Department of Gaming Racing Division (ADG-Racing) cares deeply about, and takes very seriously, the health and safety of all human and equine athletes at Arizona's racetracks. In response to an 83 percent increase of equine fatalities between the 2015-16 and 2016-17 race meets, ADG-Racing initiated a collaborative effort among Turf Paradise management, the Arizona Horsemen's Benevolent and Protection Association (AzHBPA), private on-track veterinarians, and the Midwestern University College of Veterinary Medicine (MWU-CVM) to proactively address this issue. The project had four primary objectives:

- Reduce the number of catastrophic injuries in 2017-18;
- Determine the nature of catastrophic breakdowns occurring in racehorses;
- Determine the reasons for these catastrophic injuries; and
- Develop strategies to prevent catastrophic injuries.

Prior to the 2017-18 meet, the partnership agreed to implement a series of countermeasures intended to reduce the number of catastrophic injuries at Arizona race tracks. Among those were:

- Conduct pre-race exams on up to 10 race horses daily based off a risk-based protocol;
- Perform necropsies on all equine fatalities at Arizona race tracks including race-related, morning workout and sickness-related deaths;
- Create an Equine Safety Review Committee to discuss necropsy findings;
- Require a blood test for therapeutic medications and prohibited substances from all horses to meet requirements for removal from the Arizona vet's list in order to return to racing;
- Ban the use of shock wave therapy on the backstretch at Turf Paradise;
- Receive anonymous reports about horses that appear lame.

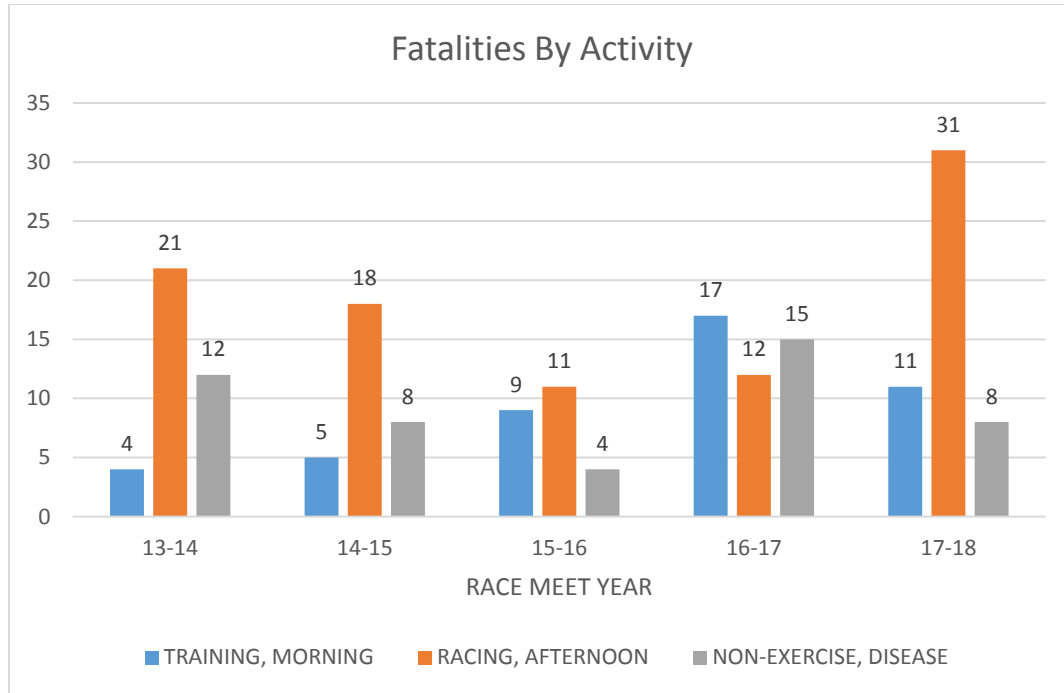
ADG-Racing provides regulatory oversight for horse racing in Arizona. Per Arizona Revised Statutes (A.R.S.) § 5-104 (A)(2), ADG-Racing "*will enforce rules that protect and promote the safety and welfare of the animals participating in racing meetings*".

In 2017-18, the following race tracks were monitored:

- Turf Paradise-132 days of live racing;
- Rillito Park-12 days of live racing;
- Sonoita County Fairgrounds-2 days of live racing.

OVERALL MORTALITY STATISTICS 2017-2018

Figure 1 represents the total number of fatalities at Arizona racetracks from the past five race meets, categorized by activity.



Equine fatalities during the 2017-18 racing season, totaled 50. The distribution of cases by activity showed that 2017-18 fatalities associated with training and illness (non-exercise) decreased from the 2016-17 meet and were more in line with the average for the previous four years. However, the number of afternoon racing fatalities increased which resulted in the highest number of incidences recorded in the past five years.

Table 1 shows the number of fatalities by activity at each Arizona track for the 2017-18 season.

Track (Racing Days)	Turf Paradise (132)	Rillito (12)	Sonoita (2)
Afternoon Racing	27	3	1
Training (morning)	10	1	0
Non-Exercise (sickness/disease)	8	0	0
Total	45	4	1

The proportion of fatalities to the number of racing days was similar for each track.

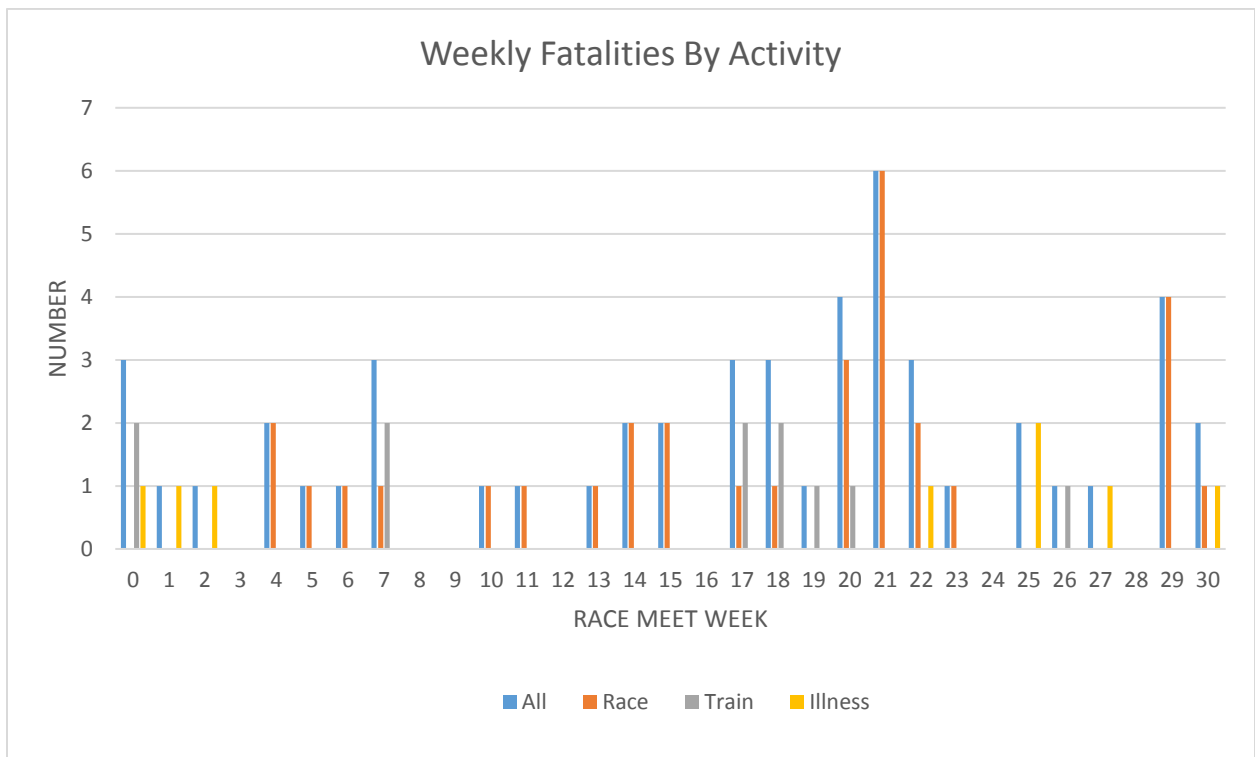
Of the 50 fatalities, 42 were thoroughbreds and eight were Quarter Horses. The gender distribution was 27 geldings, 19 fillies/mares and four colts/stallions. A total of 43 different trainers were connected to these horses.

Table 2 shows the number of fatalities by activity for each horse breed.

Breed	Thoroughbred	Quarter Horse
Racing	26	5
Training	9	2
Non-Exercise	7	1
Total	42	8

The number of fatalities by breed correlates with the population distribution.

Figure 2 represents the number of fatalities reported at Arizona race tracks by type of activity over time (weeks).



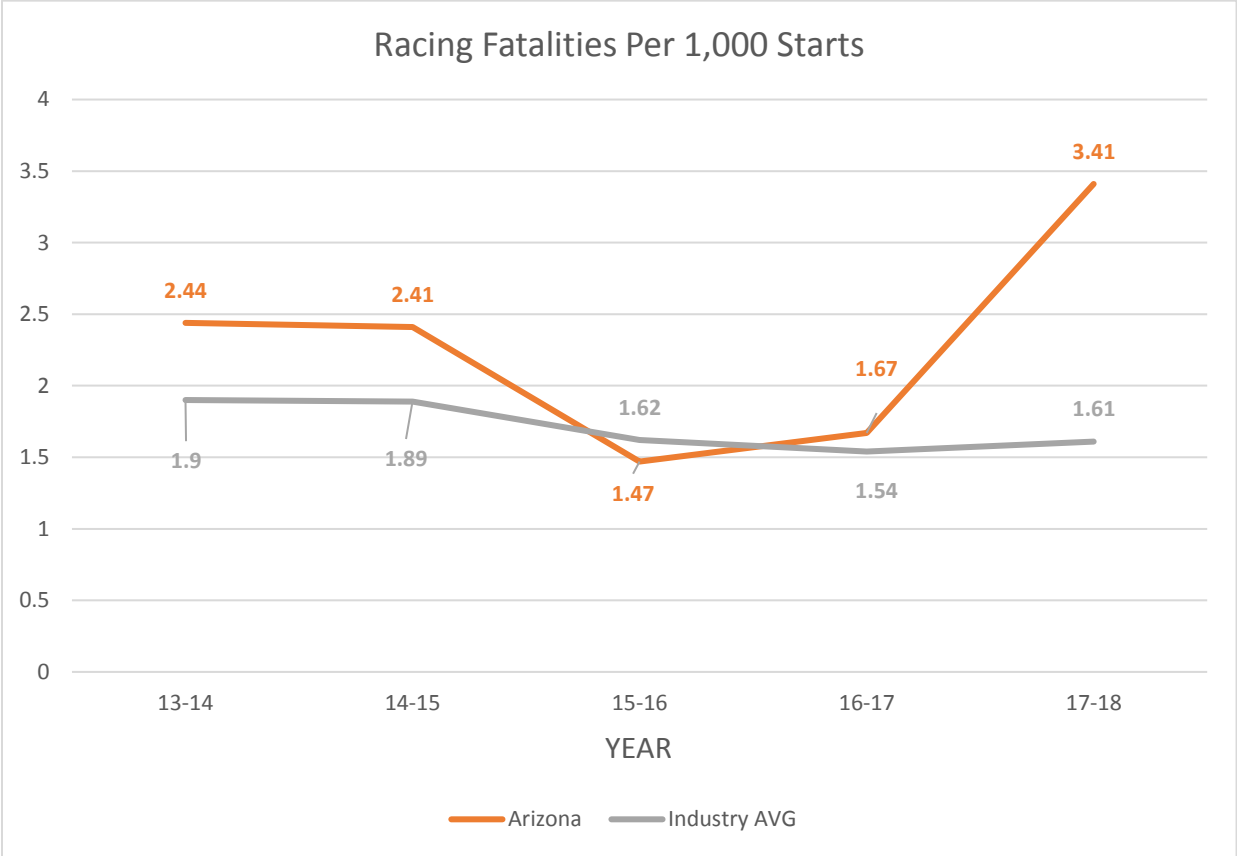
This chart shows two periods of higher than expected racing fatalities; the last week of February through the second week of March (weeks 20-22) and the last week of April (week 29). Training fatalities occurred most often in February (weeks 17-20) while those from illness were most common at the beginning and end of the meet.

National Mortality Rate vs. Arizona Mortality Rate.

Annually, The Jockey Club releases its statistics for equine catastrophic injuries for North American racing. Participating tracks self-report fatalities that occur within 72 hours of the date of the race. During 2018, tracks holding nearly 97 percent of all flat-racing days will report their incidents to this organization.

Since first reporting in 2009, The Jockey Club has seen the national average for catastrophic breakdowns during races decline by nearly 20 percent. Earlier this year, The Jockey Club released its 2017 figure at 1.61 incidents per 1000 starts (a “starting horse” means a horse that leaves the paddock for the post). In 2017-18, the Arizona number of racing-related fatalities came in at 3.41 per 1000 starts, more than double the national average. There were 31 afternoon race-related injuries from 9081 total starts.

Figure 3 shows the Arizona rate compared to the national average over the past five years.



CATEGORIZED MORTALITY STATISTICS 2017-2018

Musculoskeletal injuries were the most common cause of race horse fatalities at Arizona tracks during 2017-18. These were more common during the afternoon races as compared to morning training.

Injury Type – All race tracks including Turf Paradise, Rillito Park and Sonoita County Fair.

Table 3 represents the anatomical location of specific fractures or other injuries to horses at all Arizona race tracks during racing or training.

Body Part	Ankle/ Fetlock	Foot/ Pastern	Shin/ Knee	Shoulder	Spine/ Pelvis	Tendon/ Ligament	Other	TOTALS
RF leg	9	1	4	5				19
LF leg	7		4			2		13
Both F legs	1		1					2
RR leg								0
LR leg		1						1
Spine					3			3
Head							1	1
Lungs							3	3
TOTALS	17	2	9	5	3	2	4	42

(RF = Right front, LF = Left front, RR = Right rear, and LR = Left rear)

The front legs were the most common fracture site with the right leg affected more often than the left. Front leg injuries accounted for 27 out of 31 racing cases and 7 out of 11 total training associated cases at all Arizona tracks. Non-fracture exercise associated fatalities were due to Exercise Induced Pulmonary Hemorrhage. Fatalities due to illness were caused by the following: Colic (3), Pneumonia (3), Spinal neuritis (1), and no definitive cause was found for one sudden death case. Injury types at Rillito Park included one right shoulder fracture, one ligament tear in the LF fetlock, one fracture in the LF fetlock and one knee fracture. The horse at Sonoita County Fair had a suspected pelvis injury.

Race Type and Purse Value

Table 4 represents the distribution of racing fatalities at all Arizona race tracks by purse value and race type.

PURSE \ RACE	\$7000	\$8000	\$9000	\$10000	\$14000	\$15000	\$20000	TOTAL
Claim/Maiden	13	1	2	1			1	18
Allowance/OC	1	1			2	2		4
Stakes	1						1	2
QH Trial	2							2
QH Stakes				1			2	3
TOTAL	17	2	2	2	2	2	4	31

Eighteen of the 31 race-related deaths (58 percent) occurred in claiming races. Claiming races represent 57 percent of all races. The purse values in these races were between \$6,300 to \$30,000 for Thoroughbreds at Turf Paradise, \$2,400 to \$4,200 at Rillito Park and \$2,200 at Sonoita. Purse values ranged from \$3,000 to \$55,000 for Quarter Horses at Turf Paradise only.

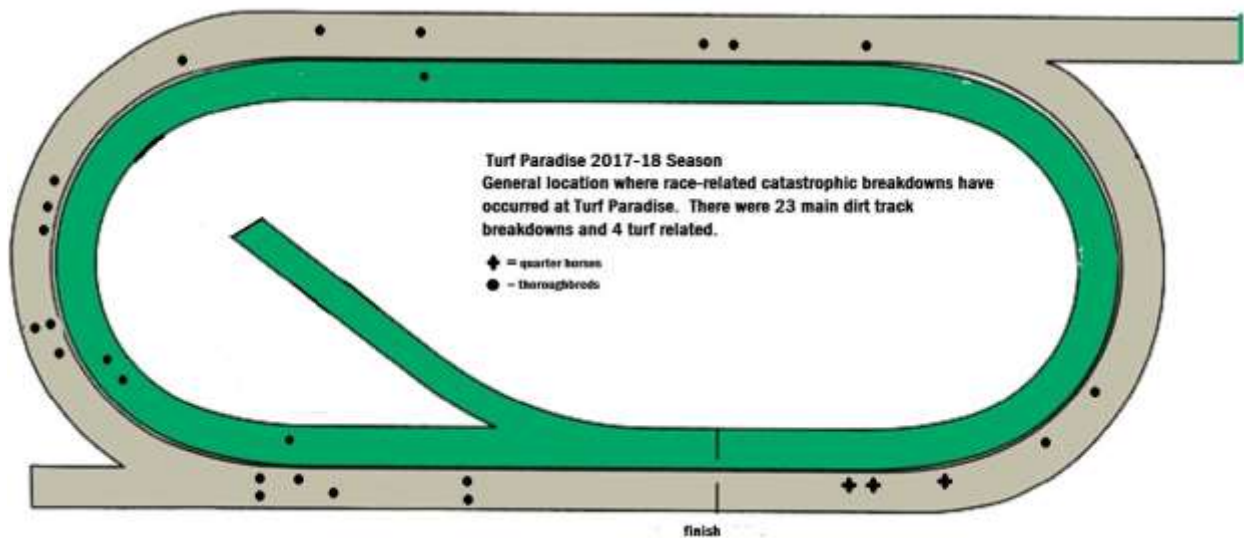
Race Distance

Table 5 represents the number of fatalities by race distance and track surface:

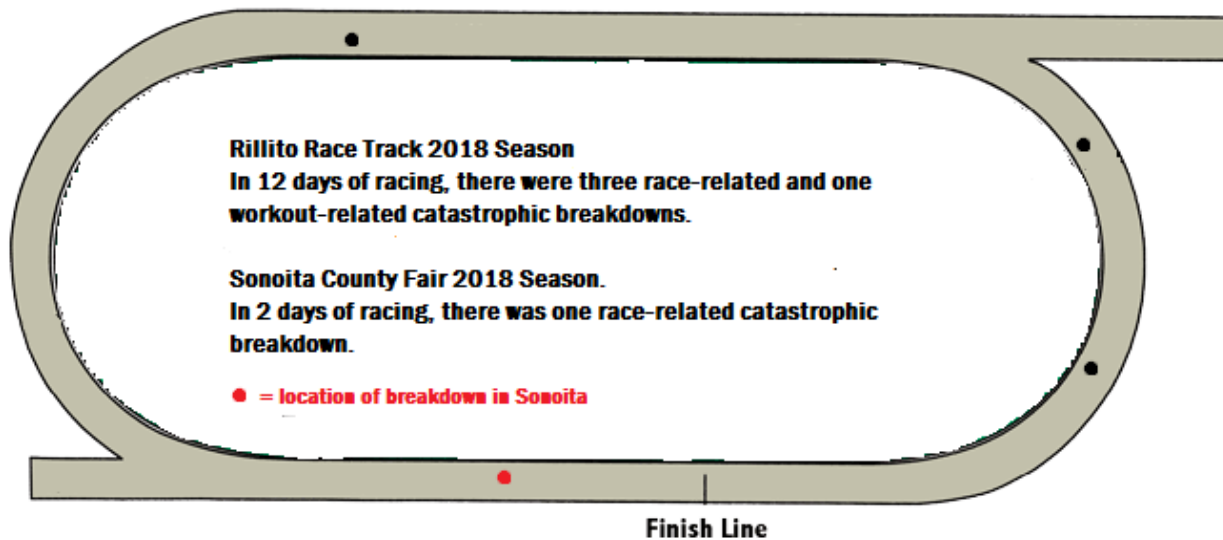
Distance (furlongs)	Dirt	Turf
< 5.0	6	0
5.5 – 6.0	12	0
6.5 – 7.0	7	0
7.5 – 8.0	2	4
> 8.0	0	0
Total	27	4

Most fatalities on the dirt track occurred in sprint races up to six furlongs. All fatalities on the turf occurred in 7.5 – 8.0 furlong races. Zero fatalities occurred during distance races of more than one mile on either surface.

Track-related



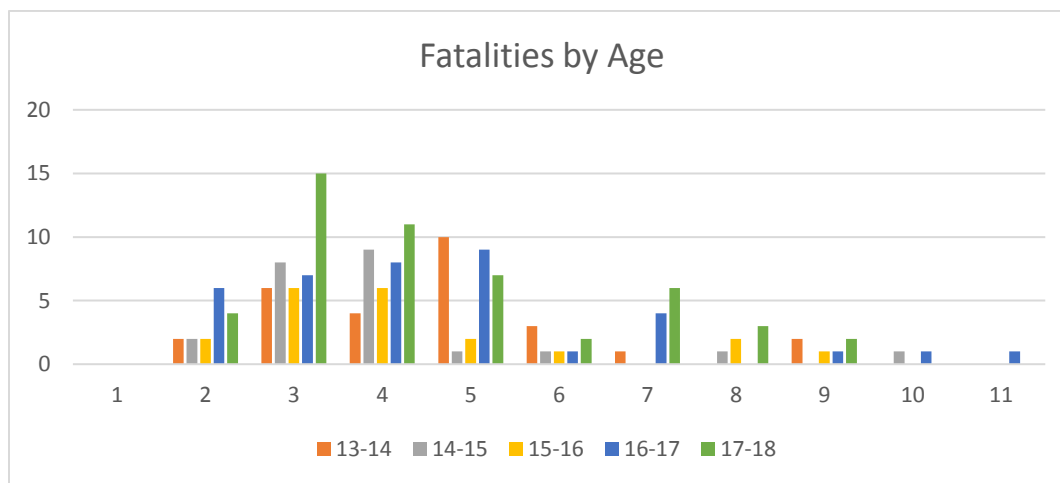
At Turf Paradise, there were 33 catastrophic breakdowns that occurred on the dirt track (23 race related and 10 during morning workouts.) during its 132-day race meet. The turf course accounted for four additional catastrophic breakdowns, which was higher than the four year average. There were no morning workout catastrophic breakdowns on turf since the track is not available for training.



At Rillito, there were a total of four catastrophic breakdowns (3 race-related, 1 workout) during their 12-day 2018 race meet. At the Sonoita County Fair Grounds, one breakdown occurred during two days of live racing. Of particular note is that during the period from February 24 through March 11, 2018 there were 11 racing fatalities at Turf Paradise and Rillito Park, which accounts for 35 percent of all racing fatalities. This increase coincided with rainy weather which may have affected the condition of the racing surface.

Age

Figure 4 represents the number of fatalities by age of the horse from 2013 through 2018.



Most active race horses are between two and five years of age. This correlates with the higher number of fatalities in that age range. However, when comparing fatalities between younger (2-3 years old) and older (4 or more years old) horses, there is a distinct difference in activity type. Catastrophic injuries during races accounted for 74 percent of all fatalities in older horses but only 42 percent in younger horses.

LESSONS LEARNED

Pre-Race Examinations

For the first time this year, pre-race veterinary examinations were performed at Turf Paradise and Rillito Park. These exams consisted of an overall assessment of the horse, palpation of limbs and evaluation of the horse's gait while jogging. The purpose of pre-race examinations is to identify and withdraw horses that are unsound, unfit to race or have an unacceptable risk of injury. Each race day five to 13 horses were selected based on pre-determined risk factors that could increase the risk of injury. During the 2017-18 season, 1527 pre-race exams were conducted at Turf Paradise and Rillito Park. Each day more horses were identified as being at risk each day than could be examined. Horses were also observed for any signs of lameness while in the paddock, during the post-parade and as they approached the gate. Notice was given to the track veterinarian to pay special attention to all at-risk horses during the pre-race period. As a result of these efforts, forty-four horses were deemed unfit to race and scratched.

Of the 31 horse fatalities, four were examined pre-race.

ADG-Racing selected horses for pre-race examinations based on the following risk factors:

1. 45 to 60 days gap in training
2. More than one year since last start
3. Thoroughbred over 10 years old
4. First start after coming off vet's list for lameness
5. First start after scratch at post
6. Fourth start within 60 days
7. Any horse eased, vanned off or beaten by 35 lengths in the last start
8. Same meet medication violation
9. All ship in horses from out-of-state racing jurisdictions.
10. First time off a claim.
11. Anonymously tipped

Of the risk factors listed above, no catastrophic breakdowns occurred for horses that:

- Were over 10 years old
- Had more than one year pass since last start

Additional risk factors to consider going forward may include:

- Vet's list for lameness at any time
- Fewer than 24 days since last start – the shortest gap between starts was nine days

Necropsies

During the 2017-2018 racing season, euthanized horses and those that died from illness at Turf Paradise and Rillito Park were submitted to the MWU-CVM Diagnostic Pathology Center for post-mortem examinations. Although other jurisdictions have done post-mortem examinations on horse fatalities for many years, this was a first for Arizona.

A.R.S. § 5-105(A)(4) provides the mechanism for the ADG-Racing to request the necropsies. It states in a part “*ADG-Racing Division may in accordance with such procedures as the commission by regulation prescribes: perform tests on horses that die while on the property under the jurisdiction of the department*”. Students and pathologists performed the post-mortem examinations with funding provided by Turf Paradise. A total of 47 horses were submitted. As a result of this program, causes of these equine deaths could be more accurately determined.

Equine Safety Review Committee Meetings

Dr. Scot Waterman, ADG-Racing Equine Medical Advisor, conducted regular safety meetings that reviewed the individual cases. Attendees included ADG-Racing personnel and state veterinarians, Turf Paradise management, AzHBPA representatives and trainers of the deceased horses. Participants discussed information from the necropsy reports, along with the horse’s racing history, and input from track personnel and the horse’s trainer in an effort to uncover factors that may have led to the fatality.

Equine Safety Review Committee Meetings were conducted in a “no pressure” manner designed to learn as much information as possible. A set of standardized questions helped identify factors that might predispose a horse to suffer a catastrophic injury. For all parties, the goal was to openly and honestly communicate about issues that may have led to the incident. This approach was a first in Arizona and participation by all of those who attended was excellent, honest and illuminating. Information gathered for several cases changed the perception of the injury and the status of the animal leading up to the incident.

For example, during the course of a review meeting for a horse that suffered a fracture of the pelvis and a vertebral body during a morning workout, it was revealed the horse had general anesthesia the month prior to correct a breathing issue. The trainer noticed the horse “looked” differently in the hind end ever since returning from the surgery, though there were no other overt clinical symptoms. Combining information from the review committee with the necropsy results allowed us to assign a probable cause of a pre-existing injury that likely occurred as the horse was recovering from anesthesia. This type of information is critical to understanding causation and identifying potential risk factors and would not be available without the review committee.

Blood Test Results For Removal From Vet’s List

By rule, removing a horse from the veterinarian’s list requires the track veterinarian to determine that the horse had returned to racing soundness. Prior to the 2017-18 meet, the horse had to work a set distance under a specified time limit and pass a veterinarian examination. Added this year, blood samples were collected and tested after the workout and if found to contain any prohibited

substances or therapeutic medication concentrations higher than the regulatory threshold, the horse remained on the vet's list. During the 2017-18 race meet, 98 horses attempted to meet these requirements to show they were fit to return to racing and of the 98, eight failed the blood test. Five of these failed due to elevated levels of Phenybutazone, an anti-inflammatory medication, which could have masked signs of lameness, and result in the horse appearing fit to race. All horses that failed the blood test were required to repeat the workout, exam and blood test.

Shock Wave Therapy Ban

Extracorporeal Shock Wave Therapy (EWST) is a non-invasive, technology that can be used to treat musculoskeletal injuries in horses. A pressure wave pulse is directed at injured tissue to stimulate healing and reduce pain in the treated area. Per Arizona Administrative Code (A.A.C.) R-19-2-120 (B)(3)(d) any horse treated with EWST must not race for at least 10 days. However, no test or method exists to detect the use of EWST. Due to concern over the potential abuse of EWST, the horsemen at Turf Paradise elected to ban its use on the backside. This may prevent some horses from suffering catastrophic injuries because they are desensitized to a source of pain.

Anonymous Reporting of Lameness

Anyone who observed a lame horse was able to make an anonymous report to ADG-Racing. This resulted in follow-up examinations and assignment to the vet's list as indicated.

RECOMMENDATIONS

These are recommendations only and may or may not be implemented depending on rules or budget concerns.

Track

Require all tracks to participate in The Jockey Club's Equine Injury Database. Not every Arizona track participates in this program on an annual basis. Each track should commit to providing this information freely to this national database in their efforts to accurately record and document each catastrophic breakdown.

Hire outside track surface experts to evaluate track surfaces and make recommendations for improvements. Arizona’s warm climate creates unique challenges in creating the safest racing surface possible. The lack of rain in March, April and May, combined with occasional winter showers, provide challenges to track superintendents in making decisions regarding track consistency and daily maintenance. Each track in Arizona faces different challenges with their surfaces. For instance, Turf Paradise hosts motorcycle races in the off-season, Rillito has a limited time frame to prepare the track surface, and Arizona Downs is reopening in 2019 on a surface that has not been maintained or used for eight years. At a minimum, ADG-Racing recommends that each track hire an outside resource to provide guidance on each track’s individual challenges.

Adjust the racing schedule. Turf Paradise has one of the longest meets in the nation from early October through the first week of May. Rillito runs its meet concurrently with Turf Paradise’s in February and March. In 2019, Arizona Downs will run its inaugural meet in the summer. As the industry returns to a year-round racing schedule, the AzHBPA, track management and the Arizona Racing Commission should consider a revised racing schedule that allows for short breaks in racing thus promoting more rest periods for the equine athletes.

Require daily reporting of track surface and equipment maintenance. During Equine Safety Review Committee meetings, several participants expressed concern with the track surface and track equipment. ADG-Racing recommends all permittees provide daily maintenance and inspection reports, including dates of repairs to or replacement of equipment.

Horses

Pre-race examinations on all horses. In 2017-18 a limited number of horses were selected each race day for pre-race exams based on certain risk factors. However, A.A.C. R-19-2-120 (P)(1) states, “*A horse entered in a race at a location under the Department’s jurisdiction is subject to inspection by a veterinarian before the race.*” The track veterinarian hired by the permittee is required by rules to conduct the pre-race exam. On race day, one veterinarian can reasonably examine 35-40 horses.

Requiring a pre-race exam for each horse entered eliminates the dart-board approach used last season. On any given race day, 60-80 horses enter to race. Regulatory staff would review the past performances and often find more than 10 horses with multiple risk factors. They then would be forced to pick which horses received that day’s pre-race exams to reduce the number of exams to a manageable level.

In addition to lessening the risk of missing an exam on a horse with more than one risk-factor, pre-race exams for every entered horse allows veterinary staff to determine changes in soundness or detect new problems in horses entered to race over several weeks or months.

Increase follow-up examinations for any horse eased or distanced during a race. ADG-Racing recommends that poor performing horses be examined after races or on off days to detect problems that could lead to catastrophic injuries.

Collect hair samples from deceased horses when blood is not obtainable. It's not always possible to collect an acceptable blood sample from deceased horses. ADG-Racing recommends that hair samples be collected and tested in these cases.

Trainer

Propose a Continuing Education Model for licensed trainers and assistant trainers. Two jurisdictions now require continuing education programs for trainers licensed in their states: Colorado and New York. Many others offer voluntary education or are considering this requirement including the state of California, which recently gave public notice of a proposed rule mandating a continue education requirement. Many of these courses are offered online and at no cost to the licensee. Although this would require a rules modification in Arizona, ADG-Racing should consider this proposal as part of its ongoing licensing requirements.

Equine Safety Review Committee

ADG-Racing recommends the continuation of the Equine Safety Review Committee meetings with the following improvements:

- Prior to the meetings, obtain veterinary records for affected horses including joint treatments.
- Include MWU-CVM staff and students in committee meetings to discuss more specific necropsy findings.

Regulatory

Greater regulatory effort is necessary to make racing safer for both equine and human athletes. Therefore, ADG-Racing provides the following recommendations to meet these demands (subject to budget availability).

Hire an additional ADG-Racing veterinarian. The current staffing level for ADG-Racing's test barn includes one state veterinarian and a vet assistant who is a seasonal independent contractor. ADG-Racing recommends the addition of another licensed veterinarian experienced in equine medicine; to provide the necessary staff to assist in pre-race examinations, pre- and post-race testing and other injury prevention activities. The Association of Racing Commissioner International's model rule regarding test barn best practices states, "*The agency or the association employing the examining veterinarian(s) should provide a staffing level of not less than 2 veterinarians*".

Hire a full-time Safety Steward. Many best-in-class state regulatory jurisdictions have Safety Stewards as part of their toolbox to aid in the prevention of catastrophic injuries and rules enforcement. This "boots-on-the-ground" position is a liaison between the horsemen, track management and the regulatory body, and provides input on safety issues including race track surface condition and management, every day equine care, lameness identification, emergency procedures, and therapeutic race-day medication thresholds.

CONCLUSION

This first year of the ADG-Racing fatality breakthrough project has brought forth valuable information about the types of catastrophic injuries sustained during racing in 2017-18 and factors that could increase the risk of serious injury. This initial information will be used to evaluate and improve the injury prevention program in an effort to reduce racehorse fatalities in Arizona.

While this first step is part of an ongoing process to protect the health and welfare of racehorses and their riders, the ultimate goal of the project is to align Arizona with the national average for catastrophic breakdowns and use best practices that other racing jurisdictions have implemented to make horse racing safer for not only the human athlete but the equine athlete as well.

PROJECT CONTRIBUTORS

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