

# WASHINGTON HORSE RACING COMMISSION

## EQUINE HEALTH AND SAFETY REPORT 2023

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# **Horseracing Integrity and Safety Act (HISA). Horseracing Integrity and Welfare Unit (HIWU)**

Partial implementation of the federal legislation Horseracing Integrity and Safety Authority (HISA) began on July 1, 2022. On May 27, 2023 the Horseracing Integrity and Welfare Unit (HIWU) began to administer the rules and enforcement operations of HISA's Anti doping and Medication Control (ADMC) program. The Washington Horse Racing Commission (WHRC) was not a signee of HISA's medication agreement resulting in Emerald Downs Inc. conducting all medication and substance testing functions under HIWU administration.

## **WHRC Racing Statistics**

### **Racing and Training Days**

Washington had one 52 day race meet in 2023 at Emerald Downs (EMD) from May 6 to September 17, 2023. The 52 day meet was unchanged from 2022. Although unchanged from 2022, it was a 25% decrease from the 67 days in 2018 and 2019. (**figure 1**) There were one hundred eighty five (185) training days in 2023; unchanged from 2022 and 2021, but the fewest since 2012. Sun Downs (SUD) did not conduct a race meet in 2023.

**Figure 1: Number of: Race Days, Training Days, Races, Starters 2012-2023**

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
<b>Racing Days</b>	81	75	73	70	70	72	67	67	38	49	52	<b>52</b>
<b>Races</b>	690	665	641	647	599	604	558	547	391	417	425	<b>435</b>
<b>Races per day</b>						8.38	8.61	8.16	10.3	8.1	8.17	<b>8.36</b>
<b>Total Starters</b>	4390	4427	4022	4438	4450	4224	3927	3737	2905	2707	2725	<b>2847</b>
<b>Starters per race</b>						6.99	7.04	6.83	7.43	6.48	6.41	<b>6.54</b>
<b>Training Days</b>	187	218	215	215	202	210	210	200	230	185	185	<b>185</b>

### **Total: Races, races per day, starters, and average starters per race**

- **Races:** In 2023 there were four hundred thirty five (435) races, virtually unchanged with a 2% increase from the four hundred twenty five (425) of 2022, which was also 2% higher than 2021. The number of races in 2023 was 20% lower than pre pandemic with five hundred forty seven (547) in 2019.
- **Races Per Day:** There was an average of 8.36 in 2023, a 2% increase from 2022, and virtually the same as 2017.
- **Total Starters:** There were 2847 total starts at EMD in 2023, an increase of 4.5% from 2022. This reverses the decline of total starts of previous years.
- **Average Starters Per Race:** There was an average of 6.54 starters per race in 2023, a 2% increase from 2022 and continuing a trend of increased total starters of the last 2 years.

These numbers are the result of a slight increase in racehorse population at Emerald Downs in 2023. In 2017 there were nine hundred sixty nine (969) racehorses on the grounds. In 2022 they had decreased to seven hundred eighty nine (789), a 19% reduction. In 2023 there were eight hundred twelve (812) racehorses (maximum on 6-14-23). This was a 2.9% increase from 2022, but still a 16% decrease from 2017.

The total number of races increased slightly from 2022, continuing the increasing trend following the pandemic. The races per day, total starters, and average starters per race increased incrementally from that of 2021 and 2022.

### **Sample Collection and Analysis**

As the WHRC was not a signatory of the HISA medication program, it only conducted sample collection for 6 race days from May 6 - May 21, 2023 as well as on 10 Quarter Horses (QH not being under the jurisdiction of HISA or HIWU) on July 30 and Aug 20, 2023. During these 6 race days, post race samples were collected from fifty four (54) horses (includes QH) without any medication violations.

Beginning May 27, 2023 Emerald Downs conducted all sample collections under the rules of HISA's Horseracing Welfare and Integrity Unit (HIWU) which was administered by Drug Free Sport Inc., the provider of drug testing to the NCAA, NFL, MLB, NBA, PGA, and NASCAR.

The following numbers for post race samples, out of competition testing (OOCT), and pre race total carbon dioxide (TCO<sub>2</sub>) samples in this report are an approximation as HIWU would not share their numbers with the WHRC or Emerald Downs Inc.

Post-race samples were collected from six hundred forty four (644) horses. WHRC personnel collected fifty four (54) of these samples, and HIWU trained personnel collected samples from five hundred ninety (590) horses. The total number of horses tested was a 28% increase from the five hundred two (502) horses tested in 2022, continuing an increasing trend from 2020 and the most since 2018.

Samples were collected from all first place finishers, as well as other horses selected by HIWU and the Board of Stewards for testing. Horses in Stakes races finishing first, second, and sometimes third were selected and tested. Samples were analyzed by Industrial Laboratories Inc. of Denver, Colorado. *(figure 2)*

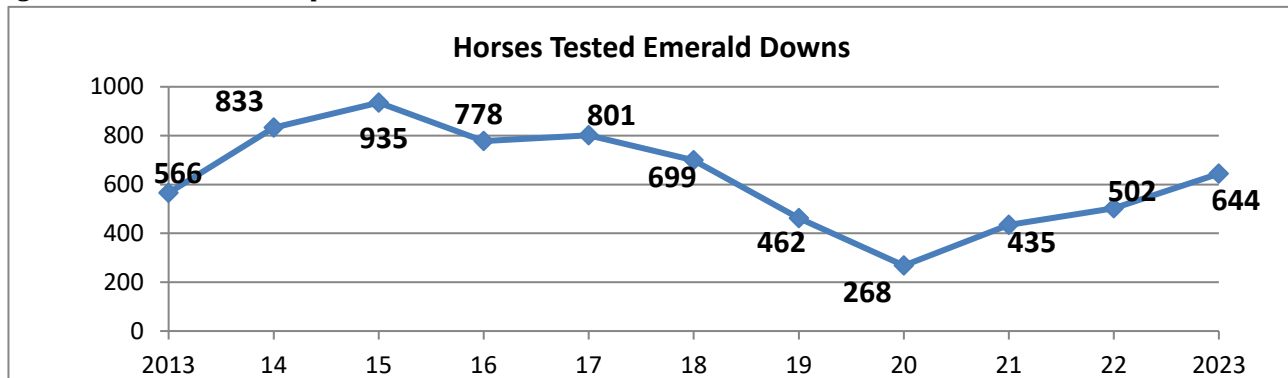
### Total Carbon Dioxide samples (TCO<sub>2</sub>)

Fifty (50) pre race samples were collected for total carbon dioxide (TCO<sub>2</sub>) testing, a 47 % decrease from the ninety four (94) samples from 2022. No violations were reported.

### Out of Competition Testing (OOCT)

OOCT samples were collected from thirty six (36) horses, some from horses racing in a few days and occasionally within 1 hour of racing. No violations were reported.

**Figure 2: Horse Blood Samples Submitted EMD 2013-23**



### Medication Violations

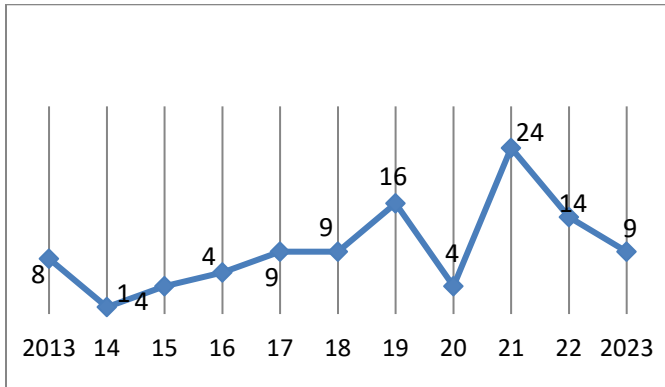
Beginning with the implementation of HISA/HIWU rules, overages (termed as adverse results by HISA) of allowable medications included testing of horses working off the veterinarians list (VL). In previous years in Washington if a horse had an overage of a permitted medication when working off the VL the horse would remain on the VL, without any penalty. Under the new rules a penalty would also be associated on adverse medication test results from horses working off the VL.

Nine (9) racing medication violations were reported in 2023. This was a 36% reduction from the fourteen (14) violations in 2022, and a 63% reduction from the 24 violations in 2021.

One (1) violation of phenylbutazone was reported in a horse attempting to work off the VL. One (1) violation was altrenogest (Regumate®), a banned substance in geldings as it is only FDA approved for mares and fillies. This violation could potentially subject the trainer to a 2 year suspension. Other violations reported were: three (3) for the corticosteroid dexamethasone, three (3) for the non steroidal (NSAIDs) phenylbutazone and flunixin meglumine, two (2) for muscle relaxant methocarbamol, and one (1) for omeprazole, an ulcer medication. **(figures 3,4)**

Oral administration of medications continues to be a concern as all of the violations were with medications available in oral preparation, and only one (dexamethasone) had a veterinarian treatment report submitted. It has been suggested that contamination of stalls was the cause of all of these cases, however it would be incongruous for this mode to be so common as to cause this many violations, while there is scant scientific literature to support this method of contamination. Regardless, on days leading up to a race, or a work to get off the VL, caution is recommended on the use of oral medications, as well as the importance proper maintenance of horse stalls.

**Figure 3: Number of Violations 2012-23**



**figure 4: Emerald Downs Threshold Violations 2021-22**

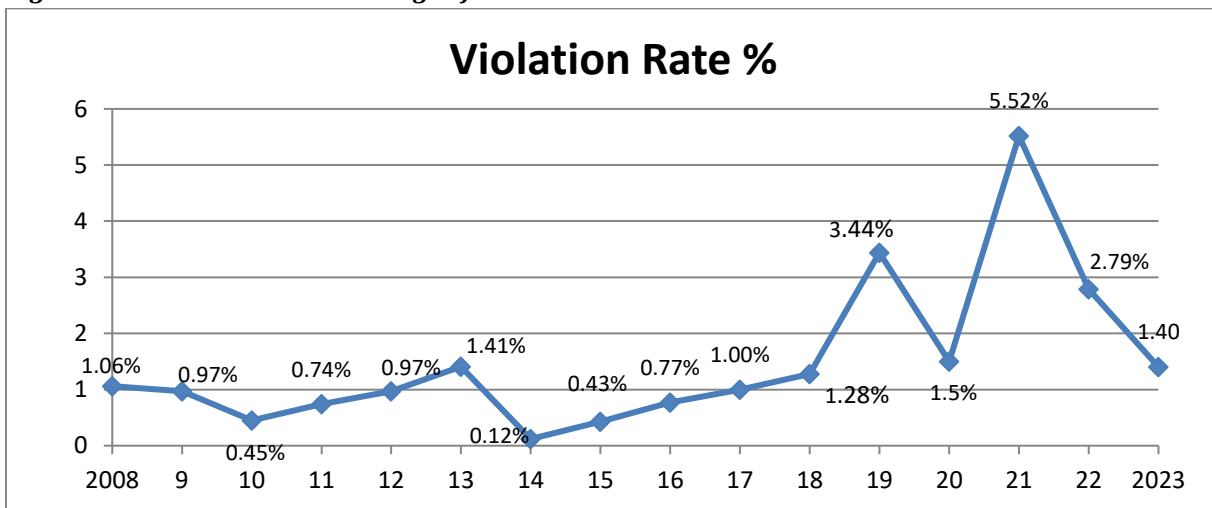
Medication	Family	2022	2023
Altrenogest	Estrus suppression	0	1
Dexamethasone	Corticosteroid	1	3
Phenylbutazone	NSAID horse work>>	7	1 1
Flunixin meglumine	NSAID	1	1
Methocarbamol	Muscle relaxant	2	2
Omeprazole	Ulcer medication	0	1
Xylazine	Sedative	1	0
Fentanyl	Opioid	1	0

**Violation percentage of submissions**

With nine (9) racing violations measured as a percentage of the six hundred forty four (644) horses tested, 2023 had a 1.40% violation rate, a significant decrease from 2022 with 2.79%, and 2021 with 5.52%. **(figure 5)**

Many stakeholders had expressed concern that under HIWU a dramatic increase in violations would occur. Fortunately this has not been the result; twenty eight percent (28%) more samples were submitted, and thirty six percent (36%) fewer violations were reported.

**Figure 5: Violations as a Percentage of Submissions 2008-23**



### Violations by RCI Class

As RCI Penalty Class increases, the potential for altering a horse's performance decreases and as such, penalties decrease. Therefore RCI Class 4 violations are less severe than RCI Class 3. All nine (9) violations were Class 4. This continues a trend from 2018 with Class 4 being the predominant violation. By comparison, in 2017 most of the violations were Class 3 medications. *(figure 6)*

**Figure 6: Violation by RCI Class 2017-23**

Medication	Family	RCI Class	2017	2018	2019	2020	2021	2022	2023
Omeprazole	Ulcer medication	Class 5							<b>1</b>
Altrenogest	Estrus suppression	Class 4							<b>1</b>
Betamethasone	Corticosteroid	Class 4		2			3		
Dexamethasone	Corticosteroid	Class 4			1		14	1	<b>3</b>
Triamcinolone	Corticosteroid	Class 4					1	1	
Phenylbutazone	NSAID	Class 4			7	1	2	7	<b>1</b>
Flunixin	NSAID	Class 4	1	1				1	<b>1</b>
'Stacking' NSAIDS	NSAID	Class 4		3	1	2			
Methocarbamol	Muscle relaxant	Class 4			4		3	2	<b>2</b>
Dantrolene	Muscle relaxant	Class 4					1		
Furosemide	Diuretic	Class 4		1					
Trichlormethiazide	Diuretic	Class 4			4				
Acetanilide	NSAID (unapproved)	Class 4				1			
Xylazine	Sedative	Class 3	0	2				1	
Clenbuterol	Bronchodilator	Class 3	6						
Stanozolol	Anabolic steroid	Class 3	2						
Cannabidiol	Anti-epileptic, analgesic	Class 2			1				
Fentanyl	Opioid	Class 1						1	
Methamphetamine	Stimulant	Class 1			1				

### Violations by HISA penalty matrix

HISA/HIWU has a different penalty structure. Substances in category S0 through S6 are banned, with penalties varying depending on substance. Substances in S7 are controlled medication substances, and penalties Class C, B, and A increase in severity and are dependent on substance. Similarly, to discussion of RCI class, all medication violations in 2023, with the exception of altrenogest in a gelding are controlled medication substances (S7 Class C). It is noteworthy to mention that at the time of writing this report, HIWU submitted a reclassification request to the Federal Trade Commission to amend the penalty for altrenogest in geldings from S6 banned, to S7 Class A, which may still pose a significant penalty, but not a several year suspension.

# Health and Safety Statistics

## Fatalities

All fatalities were sent to Washington Animal Disease Diagnostic Laboratory (WADDL) Necropsy and Pathology section for comprehensive post mortem examination. In 2023 there were three (3) fatalities associated with racing. **(figures 7,8)**. In total there were thirteen (13) fatalities at Emerald Downs in 2023. One (1) fatality was associated with training, and nine (9) fatalities were from conditions unrelated to racing or training.

### Racing associated fatalities

Three (3) fatalities occurred as a result of musculoskeletal injuries sustained during a race in 2023, a decrease from 2022 with five (5) racing associated fatalities. **(figures 7,8,9)**

Racing associated fatalities from musculoskeletal failures consisted of:

- One (1) with right front biaxial proximal sesamoid bone fractures.
- One (1) with fractures of right radiocarpal and 3<sup>rd</sup> carpal bones.
- One (1) with left 3<sup>rd</sup> metacarpal bone fracture.

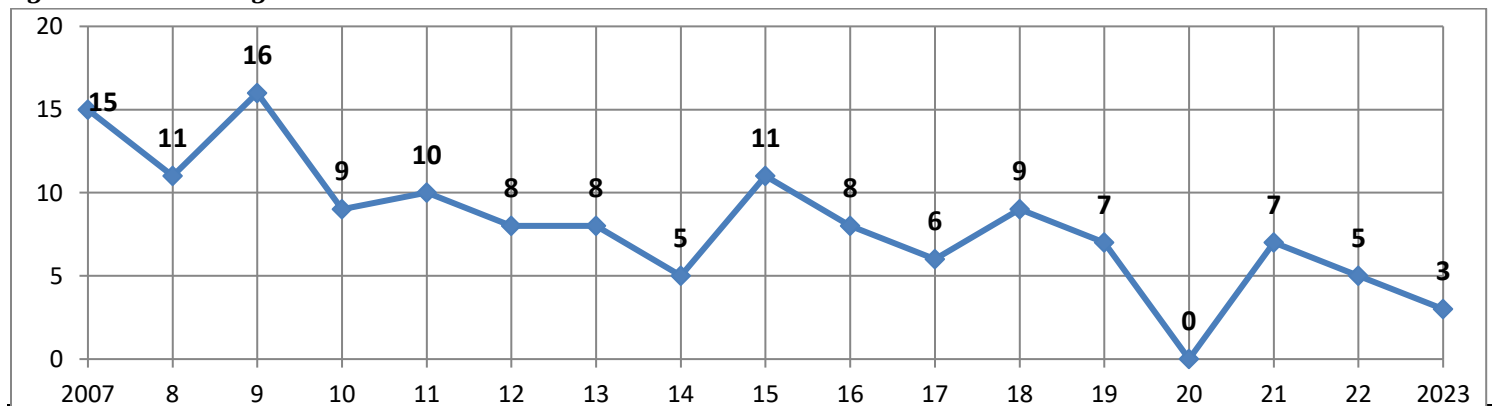
All three (3) racing associated musculoskeletal fatalities had findings consistent with chronic mechanical overloading and preexisting injuries contributing to the musculoskeletal failure.

With two thousand eight hundred forty seven (2,847) total starts there were 1.05 fatalities per 1000 starts. The total number of racing associated fatalities in 2023 was the second lowest number of fatalities in WHRC history, with 2020 having zero (0) racing fatalities **(figures 7,8,9)**

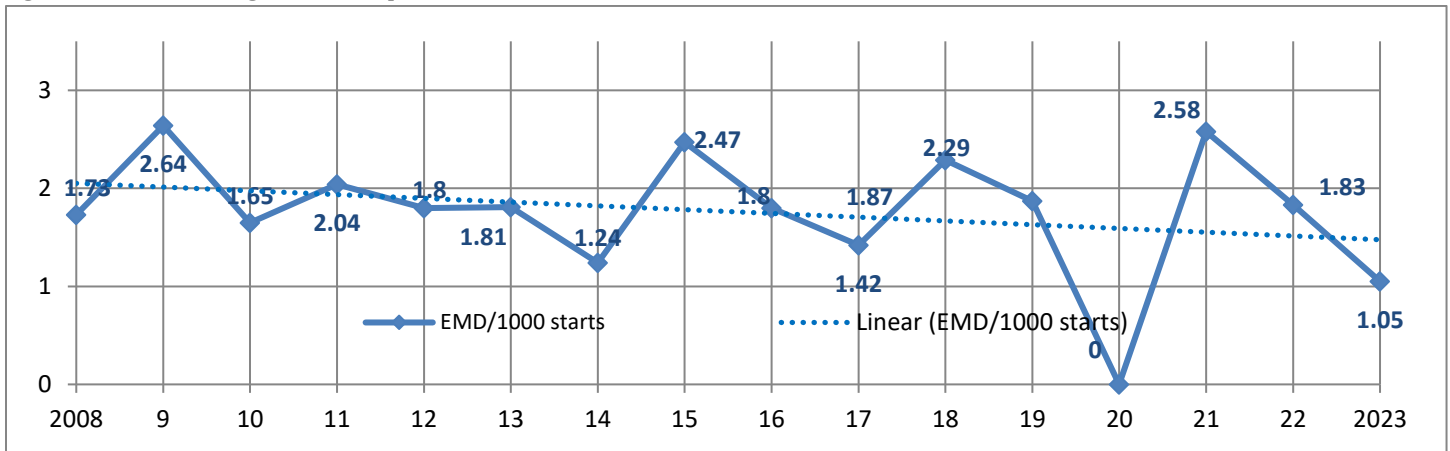
**Figure 7: Fatalities: Total, Per 1000 Starts 2010-23**

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Racing Days	90	82	81	75	73	70	70	72	67	67	38	49	52	<b>52</b>
Starters	5429	4898	4390	4427	4022	4438	4450	4223	3927	3737	2905	2707	2725	<b>2847</b>
Racing fatalities	9	10	8	8	5	11	8	6	9	7	0	7	5	<b>3</b>
Fatalities/1000 starts	1.65	2.04	1.80	1.81	1.24	2.47	1.80	1.42	2.29	1.87	0	2.58	1.83	<b>1.05</b>
Training fatalities	12	5	4	4	8	4	4	4	2	3	7	5	1	<b>1</b>
Non racing fatalities	10	9	8	4	4	5	3	8	7	6	6	2	1	<b>9</b>
<b>TOTAL FATALITIES</b>	<b>31</b>	<b>24</b>	<b>20</b>	<b>16</b>	<b>17</b>	<b>20</b>	<b>15</b>	<b>18</b>	<b>18</b>	<b>16</b>	<b>13</b>	<b>14</b>	<b>7</b>	<b>13</b>

**Figure 8: EMD Racing Fatalities 2007-23**

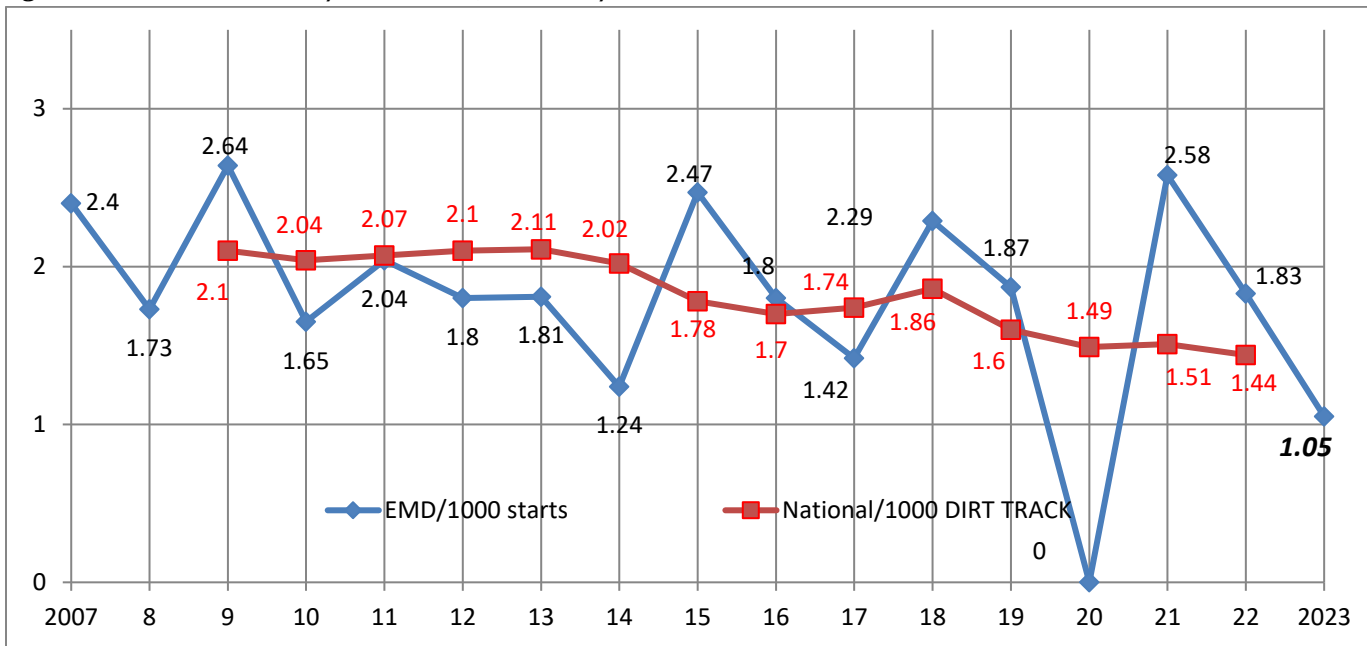


**Figure 9: EMD Racing Fatalities per 1000 Starts 2008-23**



The 2023 EMD fatality per 1000 starts of 1.05 is significantly lower than the national rate for dirt tracks of 1.44 in 2022 (the last available year).<sup>1</sup> It is also below the average for EMD from the years 2007–2023 of 1.80, as well as the national rate on dirt tracks of 1.86 during those years. (figure 10) It is readily apparent that in the 8 years between 2015-22 the national rate for dirt tracks, were 65 of those years were lower than the WHRC's. It is noteworthy to point out that at the time of writing this report preliminary results indicate that Washington's rate was one of the lowest in the United States.

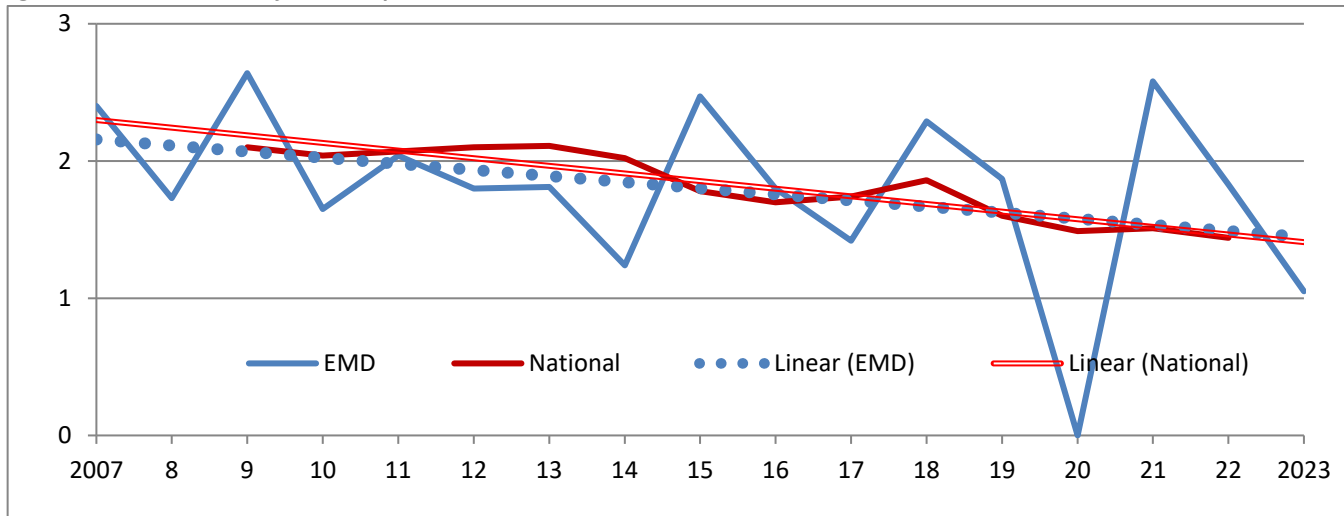
**Figure 10: Fatalities: EMD/1000 starts; National/1000 starts on dirt tracks 2007-23**



The trend in Washington of Fatalities per 1000 Starts since 2007 has been a **decreasing** linear slope (depicted by blue dotted line). (figures 9, 11). During the years 2009-2022 (years available nationally) the slope at which this rate has been decreasing has been steeper nationally (depicted by red line) than at EMD, but from 2017- 2023 are virtually identical (figure 11)

<sup>1</sup> [http://jockeyclub.com/pdfs/eid\\_14\\_year\\_tables.pdf](http://jockeyclub.com/pdfs/eid_14_year_tables.pdf)

**Fig 11: EMD & National fatalities/1000 starts dirt tracks & linear trends 2007-23**



### Training fatalities

One (1) musculoskeletal failure fatality was associated with training in 2023, the same number as in 2022. The musculoskeletal failure fatality had evidence of a preexisting injury common with chronic mechanical overloading. The microscopic injury progressed and contributed to the fracture of the right humerus. An additional two (2) fatalities from injuries sustained during training occurred, but they were lost to follow-up as they were referred for surgical treatment and euthanized more than 72 hours after occurrence. The number of training associated fatalities in 2023 is below those occurring in 2021 with five (5), and among the lowest in the last 14 years. **(figure 7)**

### Preexisting injuries and fatalities

Correlation and causation via direct links between racing fatalities and factors potentially contributing to the fatalities are frequently difficult to make. However there is a very strong statistical correlation between catastrophic injuries and pre-existing injury. Although the presence of a pre-existing injury does not necessarily indicate that it contributed to a fatal injury, they often do. In 2023 and 2022, all of the racing associated musculoskeletal fatalities had findings consistent with chronic mechanical overloading contributing to preexisting injuries which in turn contributed to the fatal musculoskeletal injury.

### Risk factors for racing fatal musculoskeletal injury (FMSI)

Factors known to increase the risk of fatal musculoskeletal injuries (FMSI) from racing have been extensively investigated and published. Some are well known and include previous history on veterinarian's list (VL); others are not as well known, e.g. the accumulation of excessive high speed furlongs (race or timed works). Specifically, a horse with 35 high speed furlongs during the previous 2 months have a 3.9 fold risk of fatal injury compared to a horse accumulating 25 furlongs. Additionally, a horse accumulating 0.6F/day of high speed furlongs during last 2 months has a 1.8 greater risk than a horse with 0.5 F/day.<sup>2</sup> Although excessive high speed furlongs are statistically linked to racing FMSI, these risks have not been statistically linked to FMSI during training. It would be intuitive that such a connection exists, as high speed furlongs both from racing and timed works are included in the above statistics. This is discussed further in the section below: *Anti inflammatory Medications, Cyclic Loading, and Musculoskeletal Injury* under the Veterinarian's List section.

<sup>2</sup> *High-speed exercise history and catastrophic racing fracture of Thoroughbreds. Estberg L, et al. Am J Vet Res 1996;57(11)1549-55*  
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Prior to their occurrence, of the three (3) racing FMSI, two (2) horses had 3 and 4 factors raising their risk for FMSI, and one (1) horse had 1 risk factor. The one (1) horse with a FMSI during training had no risk factors. **(figure 12)**

**Fig 12: Risk factors for fatal musculoskeletal injury (FMSI)**

	<b>RACING FATALITES</b>			<b>  TRAINING</b>
	1	2	3	A
<b>Excess Accumulation of high speed work</b>		X		
<b>New Trainer</b>	X	X		
<b>Layoff &gt; 60 days</b>		X		
<b>Quick turnaround (10 days)</b>				
<b>Drop in Class</b>	X			
<b>Drop in Class after claim</b>				
<b>Previous VL history</b>				
<b>Less than 2 works/races in 30 days</b>	X			
<b>No works since last race &gt; 14 days</b>	X		X	

### **Non racing Fatalities**

Nine (9) fatalities were unassociated with racing. All were unresponsive to treatment and were either euthanized or died from the condition. Two (2) fatalities were due to skull fractures, one (1) each from the following conditions: pleuritis, pneumonia, colic, colitis, hemothorax, laminitis, and joint infection.

## **Veterinarian’s List (VL)**

### **Horseracing Integrity and Safety Authority (HISA) regulations on the VL**

In addition to previous reasons for placement on VL for unsoundness, injury, and illness, HISA has added the following:

- Horses with medical compromise, infirmity, heat exhaustion, positive test or overage, administration of a medication invoking a mandatory stand down time.

As well as the following as they raise the risk of fatal musculoskeletal injury:

- Horses not started in 365 days
- Horses not making a start prior to January 1 of their 4 year old year.
- Claimed horses if the claim is voided and placed on the VL.

HISA regulations on the duration a horse is to remain on the VL:

- Illness shall remain on the list for 7 days. (Prior to HISA was 14 days)
- Epistaxis or unsoundness will remain on the list for 14 days.
  - Epistaxis multiple times within the previous 365 days shall remain on
    - 30 days for the second time
    - 180 days for third time
    - Barred from further racing after the fourth time.
- Unsoundness, lameness multiple times within the previous 365 days shall remain
  - 45 days for the second time
  - 75 days for the third time
  - Barred from further racing after the fourth time.
- Horses treated with Shock Wave Therapy shall be placed on the VL for 30 days. (Prior to HISA was 10 days)
- If before, during, or after the workout for removal from the VL, the horse is deemed to be unsound or have epistaxis, the stay on the VL shall be extended 14 days.

## **Inclusion on the VL**

Placement on the VL for any lameness or unsoundness is recognition of a sports injury. Because sports injuries commonly contribute to a fatal musculoskeletal injury and are a significant cause for the delay, or end of an athletic career, **only horses placed on the VL for lameness or unsoundness will be discussed here**. The VL numbers reported here do not include, with the few exceptions noted below, illness, heat stroke, exercise induced pulmonary hemorrhage (EIPH), injuries unrelated to exercise or repetitive cyclic loading injury, or medication stand-down. They also do not include trainer scratches, which are put on the VL but usually not required to work off, or starting gate scratches, which are not usually placed on the VL or required to work off.

In 2023 ninety one (91) horses were placed on the VL at EMD for lameness or unsoundness, a 47% increase from the sixty two (62) horses in 2022, and 128% increase from the forty (40) in 2021.

As will be discussed in greater detail below; of the ninety one (91) VL horses, forty seven (47) were placed on the VL during morning exams and post parade. Twenty five (25) of these horses subsequently did not work off the VL **or** have a timed work. If previous year's numbers are indicative of outcome, these horses have been retired from racing, with a small number coming back after extended layup.

Having 53% of the horses placed on the VL when they were thought to be fit for racing, then subsequently retired from racing indicates that although the severity of their lameness was either undetected or thought to be of minor concern, the lameness' of these horses were in fact serious enough to contribute to the end of their racing careers.

### **VL –Association with career ending injury, fatalities**

Statistically, a significant percentage of FMSI have preexisting pathology contributing to the fatality. In 2023 all three (3) horses with FMSI had preexisting pathology contributing to the fatal injury. Although racing FMSI are relatively rare events with 1.44 FMSI per 1000 starts nationally (2022- last available), and 1.05 FMSI per 1000 starts at EMD in 2023, preventing them is a primary and fundamental concern of all stakeholders, and the basic premise for the origin of HISA. Due to their low incidence, while there is statistical evidence regarding factors which increase the risk of FMSI and or contribute to the FMSI, it is difficult to find direct predictive “cause and effect” factors which contribute to their occurrence.

The VL does however provide a strong association between the incidence of racing related injuries and their impact on the racing career of a horse. Numerous studies have reported that inclusion on the VL for unsoundness increases the risk of fatal injury, as well as non fatal injury, leading to interruptions in, or the end of a racing career of a horse. Horses with a history of being on the VL have: significantly longer intervals to their next race, a greater probability of not racing in 6 to 12 months, and a 2-3 times greater interval to their next race compared to horses not placed on the VL.

### **VL – Importance of closely monitoring injuries**

Because the incidence of horses placed on the VL occurs in far greater numbers than fatalities, examining the circumstances and condition of horses placed on the VL may provide information on factors responsible for, or contributing to any injury. These factors may progress into injuries which contribute to a future FMSI, or far more commonly, non fatal injuries that add to the attrition of race horses in the EMD horse population. Consequently, injured horses regardless if placed on the VL or not, warrant close scrutiny which will be discussed further in the *Anti Inflammatory Medications, Cyclic Loading, and Musculoskeletal Injury* discussion below. Before HISA implementation, the WHRC led the industry with rules formulated for private veterinarians, trainers, and official veterinarians regarding

the sharing of information impacting horse health and safety. Unfortunately these rules have been met with almost complete obstruction, with stakeholders questioning the need for the WHRC to have this information.

## **Claim Voids and VL**

Per HISA regulations all claimed horses were sent to the test barn and examined by a regulatory veterinarian. Any horse placed on the VL had its claim voided. Claims were to be voided if the horse is vanned off the track or has a medication violation in a post race sample, neither occurring in 2023. Claiming trainers had the option to waive the void and retain the horse for any reason, other than euthanasia. Ten trainers selected the option to waive, but none were voided.

In 2023 two hundred twenty three (223) horses were claimed and examined with twenty five (25) claims voided, an 11% voided claim rate similar to national rates. Twenty two (22) were due to lameness or unsoundness, a 9.9% voided claim rate for lameness. Other reasons for voided claims were one (1) each for medical compromise, injury, and exercise induced pulmonary hemorrhage (EIPH).

As there have been complaints regarding claim exams and voids, usually from the party required to retain the horse, it is noted that of the two hundred twenty three (223) claims, trainers submitted void claim waivers for ten (10) horses, none of which had been voided. Voided claims continue to be the one of the largest sources of VL horses, and if patterns remain the same, a significant source of VL horses not working off the VL and retiring.

### **VL – Multiple listings on VL in 365 days**

Nineteen (19) horses had been placed on the VL multiple times in their careers, a significant increase from 2022 when only six (6) horses were in this grouping. Seventeen (17) of these had been on the VL twice during the previous 365 days and per HISA regulations had their VL listing extended 45 days. This is a significant increase from 2022 when only two (2) horses had their listing time extended for multiple listing on VL in 365 days. One (1) horse had been placed on the VL three times during the previous 365 days and per HISA regulations had its listing on the VL extended 75 days. A second horse, if entered a week earlier and scratched, would have had its 3<sup>rd</sup> listing in 365 days. Three (3) horses had been placed on the VL previously, but not within 365 days. Seven (7) of these multiple VL listings were the result of a claim exam.

## **Timing for Placing on VL: morning exam, post parade, after race, claim exam**

As mentioned, ninety one (91) horses were placed on the VL for lameness or unsoundness in 2023. Three thousand forty four (3,044) horses were examined during morning exams, two hundred ten (210) more than 2022, which was two hundred twenty six (226) more than 2021. The previous two year's difficulty in securing official veterinarians did not occur and all horses that raced were examined, an improvement from 2022 when 1.97% of horses were not examined and from 2021 where 6.6% of horses were not examined. *(figure 13)*

- **Morning exam:** *Largest source of VL horses, more placed on VL compared to 2022, and 2021*  
**Thirty six (36)** horses were placed on the VL during morning inspection, a 28% increase from the twenty nine (29) horses placed on VL from morning inspection in 2022. As a percentage of the ninety one (91) total horses placed on the VL, 40% were from morning exam, a decrease from 2022 when 47% of the 62 total were from morning inspection. As the total number of VL horses increases, and the proportion arising from morning exams decreases, the increasing numbers of VL horses arise from observations of lameness at the finish line or horses undergoing claim exams. *(figure 14)*

- Post Parade (receiving barn to starting gate):** *Increased from 2022*  
**Eleven (11)** horses were placed on the VL during the post parade, a 57% increase from the seven (7) horses in 2022. As a percentage of the ninety one (91) total horses placed on the VL, 12% were from post parade, a slight decrease from 2022 when 11.3% (of total 62) were placed on the VL during the post parade.
- After Race:** *Greatest percentage of VL horses retired (84%), increased from 2022*  
**Nineteen (19)** horses were placed on the VL after the race, a 90% increase from the ten (10) placed on VL after the race in 2022. These numbers do not include claim voids, listed below. As a percentage of the ninety one (91) horses placed on the VL, 21% were placed on the VL after the race in 2023; an increase compared to 16% (of total 62) in 2022. One (1) of these horses was taken off the track by ambulance.
- Claim Voids:** *Since July 2022 a new source of VL horses, by numbers second to morning exams*  
**Twenty two (22)** were placed on the VL for lameness following claim exams, a 38% increase from the sixteen (16) horses in 2022. This was 24% of the ninety one (91) total number of VL for lameness, a decrease from the 26% of the sixty two (62) in 2022.
- Works:** *Smallest source of VL horses*  
**Three (3)** horses were placed on the VL for lameness following a morning work.

In summary, during 2023:

Before the race forty seven (47) horses were placed on the VL:

- Thirty six (36) from morning exam
- Eleven (11) from post parade

Of these forty seven (47) horses, twenty two (22) or 47% worked off the VL

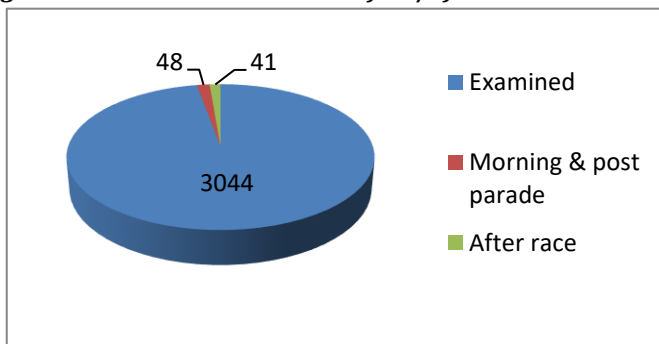
Unfortunately, 2023 continues an increasing trend observed in 2022 of horses scratched in morning exam or post parade retiring from racing. In previous years, the majority of horses placed on the VL during morning exam and post parade worked off the VL successfully.

After they raced, forty one (41) horses were placed on the VL

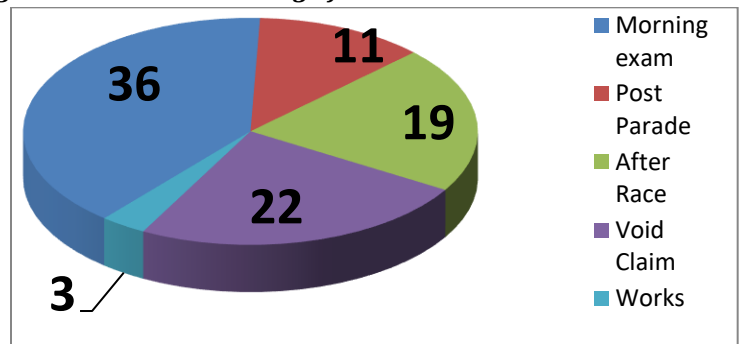
- Nineteen (19) during unsaddling
- Twenty two (22) during claim exams

Of these forty one (41) horses, nine (9) or 22% worked off the VL.

**Figure 13: Veterinarian's List before/after race**



**Figure 14: Vet's List- Timing of inclusion on List**



## Working off the VL

Horses placed on the VL for lameness, 'soreness', unsoundness, and on very rare occasion injuries, are required to work off the list and may do so seven days after being placed on the list. The work must be a minimum distance determined by an official veterinarian in a time comparable for the track condition that day. The horses undergo an exam by the official veterinarian after the work and occasionally before the work. Blood is tested and may not exceed HISA medication racing thresholds. Of the ninety one (91) horses placed on the VL for lameness in 2023, fifty nine (59) or 65% have not worked off. These results are unchanged from 2022 when forty (40) of the sixty two (62) or 65% of horses did not work off. The high percentage of horses not working off the VL has been consistent since 2020 and will be discussed further in the **Attrition of Racehorse Population** section below. (*figure 17*)

The time in which the horse is scratched (morning, post parade, after race, claim exam) may foretell the severity of the injury when viewed by how quickly they can work off. This premise is validated when looking at the number of horses that retire or have extended delay of their racing careers and the time at which they were placed on the VL

### **Time of placement on list: morning exam, post parade, after the race, claim void**

- **Morning exam:** Thirty six (36) scratched, placed on VL.
  - Eighteen (18) 50% worked off
  - Average time on VL **31 days**
  - Range on VL: 7- 133 days
  - **Eighteen (18) or 50% retired/extended rest**
- **Post parade:** Eleven (11) scratched, placed on VL.
  - Four (4) or 36% worked off
  - Average time on VL **25 days**
  - Range on VL: 7-54 days
  - **Seven(7) or 64% retired /extended rest**
- **After race:** Nineteen (19) placed on VL.
  - Three (3) or 16% worked off
  - Average time on VL **43 days**
  - Range on VL: 21-61 days
  - **Sixteen (16) or 84% retired /extended rest**
- **Claim exam:** Twenty two (22) placed on VL
  - Six (6) or 27% worked off
  - Average time on VL **18 days**
  - Range on VL: 7-27 days
  - **Sixteen (16) or 73% retired /extended rest**

## VL and Delay or End of Racing Career:

In 2023, as in previous years, horses placed on the VL *after a race*, (including those with a voided claim) sustained injuries which resulted in greater delays, or an end to their race careers, than did horses placed on the VL before the race (morning exams, post parade).

Namely, in 2023 of the forty one (41) horses placed on the VL following their race (*after race + claim exam*), only nine (9) or **22%** were able to work off the VL. By comparison, in 2023 horses placed on the VL before they raced (*viz. morning exam + post parade*), were able to work off at more than double the rate: forty seven (47) horses were placed on the VL

before their race, twenty two (22) or **47%** successfully worked off. These rates are repeatable: in 2022, **23%** of horses placed on VL after they raced successfully worked off, compared to **42%** placed on the VL before their race.

Additionally as mentioned above, twenty two (22) horses placed on the VL from a voided claim, with six (6) working off. At the time of writing this report, of those six (6) horses working off, four (4) have subsequently discontinued racing and official works. In total only two (2) of sixteen (16) horse with voided claims have continued racing.

Viewed from the perspective of decreasing racehorse attrition due to injury, despite the criticisms received for morning and post parade scratches, the numbers show that it would be twice as beneficial for the career of the horse if at risk horses were detected and scratched prior to their race.

### **Horses working off still had delay in racing**

Of the ninety one (91) horses placed on the VL in 2023, only thirty two (32) or 35% worked off successfully. Of these thirty two (32) horses, their inclusion on the VL ranged from seven (7) to one hundred thirty three (133) days, with an average of twenty nine (29) days.

Conversely, the ease with which a horse works off the VL may be viewed as an indication of the severity of the problem contributing to its placement on the list. As such, horses able to work off at the earliest opportunity have a less impactful injury, compared to a horse either requiring multiple works, or having a layoff extending into months, or resulting in retirement.

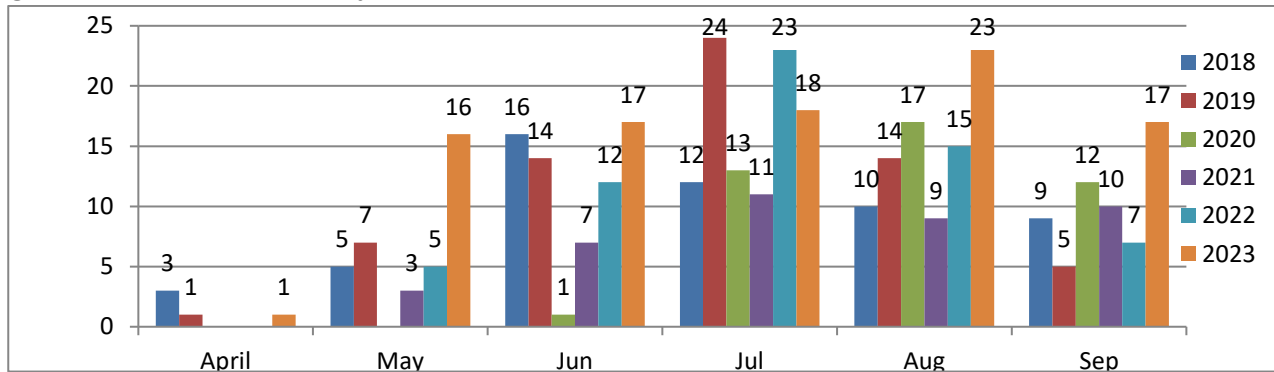
Vigorous objection is occasionally made to scratches from morning exam or post parade. Working horses off the VL quickly may add validity to those objections. However, if entry into a race is an indication that a horse is sound for racing, then horses put on the VL during morning exams and the post parade, had injuries that trainers either did not detect, or believed to be minor.

### **VL By Month**

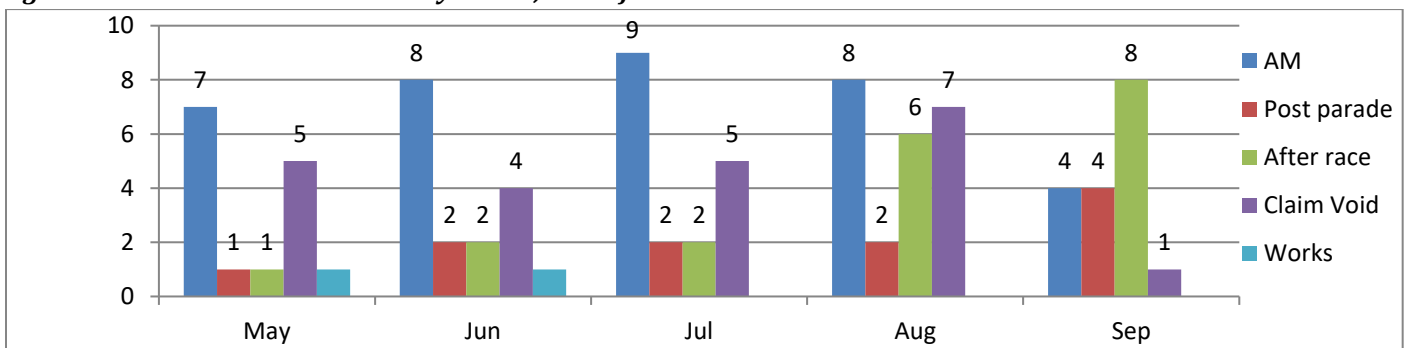
Historically the placement of a horse on the VL usually occurs in a similar pattern both monthly, as well as the numbers of horses placed during morning exam, post parade, and after the race. **(figures 15,16)**

- May – Sixteen (16): Seven (7) **morning exam (AM)**. One (1) **Post parade (PP)**. One (1) **After the race (AFTER)**. Five (5) **Claim Void (VOID)**. Two (2) **during works (WORK)**.
- June- Seventeen (17): Eight (8) AM. Two (2) PP. Two (2) AFTER. Four (4) VOID. One (1) WORK
- July - Eighteen (18): Nine (9) AM. Two (2) PP. Two (2) AFTER. Five (5) VOID.
- August- Twenty three (18): Eight (8) AM. Two (2) PP. Six (6) AFTER. Seven (7) VOID.
- September- Seventeen (17): Four (4) AM. Four (4) PP. Eight (8) AFTER. One (1) VOID

**Figure 15: Veterinarian's List by Month 2018-2023**



**Figure 16: 2023 Veterinarians List by Month, time of inclusion**



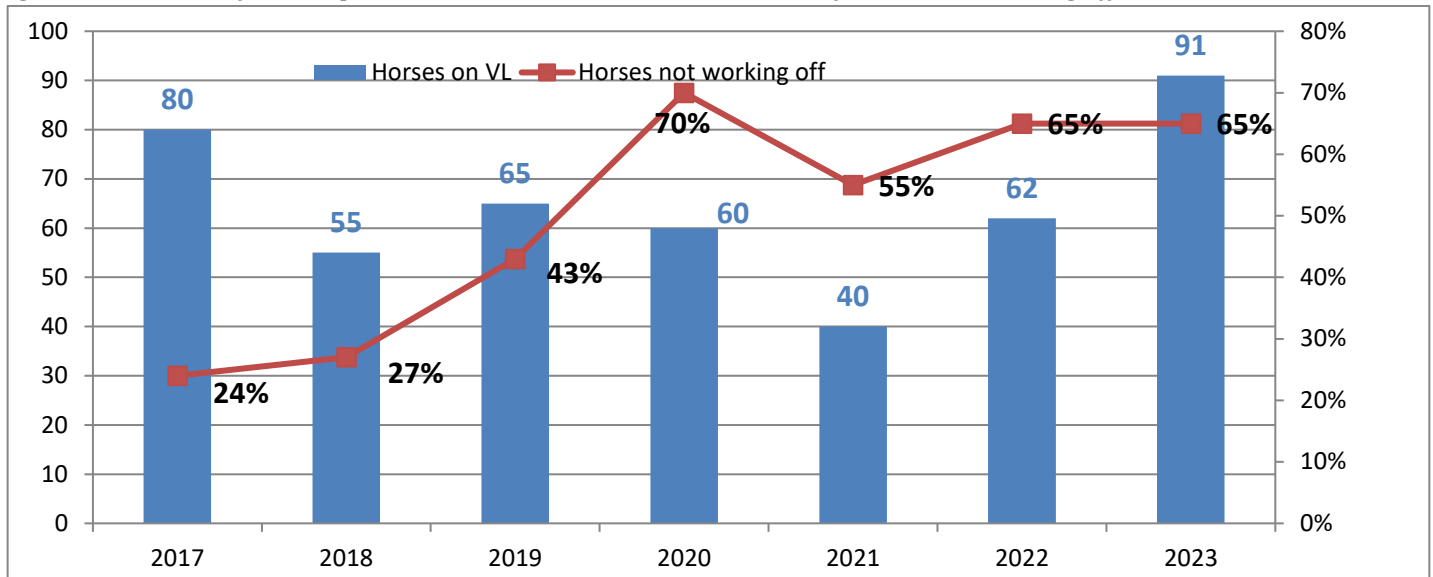
These graphs illustrate that as the meet progresses morning scratches increase until August when they decrease and scratches after the race and from voided claims increase with the exception of September's voided claims.

### **Attrition of Racehorse Population; Horses Unable to Work Off the VL**

As mentioned above, of the ninety one (91) horses placed on the VL in 2023, fifty nine or 65% remain on the VL, the same percent as in 2022. If the historical patterns from 2022 continue, most of these horses are either retired or on extended delay in their careers as they have not recorded timed works since placement on the VL and the writing of this report.

Other considerations aside from injury may factor into the decision regarding layoff or retirement, however if we were able to analyze those horses that were retired due to injury we might find ways to lessen the impact. As it is, this trend continues to be a significant, and an increasing-(~3x compared to 2017) contribution to racehorse attrition. Viewed in conjunction with the decreased racehorse numbers, it should raise concern and incentive to manage training practices as well as sports injuries differently. Understanding the details of these injury based retirements is the cornerstone to address it. *(figure 17)*

**Figure 17: Number of horses placed on Veterinarian's List and Percent of horses not working off**



All the above horses have been removed from racing, the majority permanently. Other horses have also been retired due to injury, but as they were unobserved by an Official Veterinarian, were not placed on the VL. Claim exams have revealed significant information regarding the retirement of horses due to sports injury.

Previous reports estimate US racehorse attrition rates of 3% monthly, with an estimated cost of nearly \$82 million every month.<sup>3</sup> The loss to owners in Washington due to racehorse injury is unknown as the number of horses that were retired but not on the VL is unknown. However, with a maximum racehorse population of eight hundred twelve (812) horses on June 24, and fifty nine (59) horses on the VL not working off, the 2023 attrition rate of horses that were on the VL is 7.3%, an increase from 2022 when it was 5.3%

If the number of horses retiring due to unsoundness and placed on the VL is any indication, and given that most horses are not subject to official exam after racing, it is likely that the numbers of horses retiring due to sports injury unknown to the WHRC are significantly more than what is known. Despite WHRC rules requiring trainers to report seriously injured horses, compliance is uniformly ignored and these numbers cannot be accurately assessed. Rules found under WAC regulations, which are not stipulated or covered under HISA, are enforceable by the WHRC.

### **Anti Inflammatory Medications, Cyclic Loading, and Musculoskeletal Injury**

Dr. Susan Stover in her presentation at the 2021 Global Symposium on Racing as well as other publications has reported that some form of pre-existing condition was detected in almost 90% of racing related fatalities. Other factors increasing risk included corticosteroid injections, recent lameness and abnormalities in pre race exams.<sup>3</sup>

To be clear, Intra articular corticosteroid (IACS) and non steroidal anti inflammatory drugs (NSAID) do not cause musculoskeletal injury or fatalities. However, the NSAID phenylbutazone has been shown to increase **risk** for fatal musculoskeletal injury.<sup>4</sup> Also, horses injected with IACS have been shown to be at increased risk of additional injury for

<sup>3</sup> <https://www.paulickreport.com/news/ray-s-paddock/takeaways-from-tucson-hisa-talk-dominates-global-symposium-on-racing/>

<sup>4</sup> *Association between the administration of phenylbutazone prior to racing and musculoskeletal and fatal injuries in Thoroughbred racehorses in Argentina. Zambruno et.al. JAVMA 2020;257(6): 642-647*



49 days following injection.<sup>5</sup> These increased risks, although being a factor for jurisdictions and HISA imposing a pre race stand downs for intra articular injections and NSAID's, do not explain the mechanism of action in which anti inflammatories are linked to injury. Additionally, horses receiving intra articular corticosteroid injections as 2 and 3 year olds are at greater risk.

Horses racing and training at high speed produce large loads on their musculoskeletal system of bones, cartilage, joints, tendons, and ligaments. Both fatal and non fatal musculoskeletal injuries in the racehorse are mostly due to repetitive loading (also known as cyclic loading, repetitive loading, or chronic mechanical overloading) from high speed exercise and resultant tissue fatigue degradation.<sup>6 7 8 9</sup> Fatigue of any material, component, or structure be it musculoskeletal or aircraft component, are a result of repeated high energy loading and the inevitable microscopic degradation of the material by the repetitive cyclic loading. The referenced **YouTube** video shows the actual progression of material fatigue, crack formation, and catastrophic failure of steel.<sup>10</sup>

One example of the result of cyclic loading is bone fatigue, and is a well documented cause of racing fatalities. The damage caused is by repetitive high speed or cyclic loading resulting in bone edema, micro fractures and weakening of bone.<sup>11</sup> A more recent publication from Dr. Stover's laboratory showed that proximal sesamoid bone fracture, the most common fatal racing musculoskeletal injury, is the acute result of chronic cyclic loading injury resulting in bone loss and failure of the sesamoid.<sup>12</sup> The damage to bone is slow in onset and the final injury not associated with a 'bad step'.

As sesamoid/fetlock injuries are the most common racehorse musculoskeletal fatality, and IACS promotes cyclic loading without appropriate time to heal, in 2021 the California Horse Racing Board prohibited any intra articular injections within 14 days of racing and extended that to 30 days for injections in the fetlock joint. This rule was extended to horses in training, prohibiting training within 10 days of fetlock injections. Preliminary results suggest that these practices may have significantly contributed to their dramatic reduction in racing and training fatalities.

In 2023 HISA's ADMC adopted rules which prohibit intraarticular injections of any kind within 14 days of racing or official works for removal from the VL as well as within 7 days of a timed and reported workout applying significant penalty for infraction.

In 2023 all three (3) musculoskeletal fatalities from racing and the one (1) from training had evidence of a preexisting injury contributing to the catastrophic injury, as well as evidence of chronic mechanical overloading or cyclic loading.

Additional indirect but relevant evidence that cyclic loading and its resultant tissue fatigue and failure occur, is demonstrated by the predictable and repeatable anatomical location and patterns of injury. For example, equine

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<sup>5</sup> **Musculoskeletal injury rates in Thoroughbred racehorses following local corticosteroid injection. Whitton RC, et.al. Vet J 2014;200(01): 71-16**

<sup>6</sup> **Patterns of stress fractures associated with complete bone fractures in race horses. Stover SM, et al. Proc AAEP 1993;39, 131-2**

<sup>7</sup> **Physical activity: Does long-term high-intensity exercise in horses result in tendon degeneration? Birch HI, et.al. J Appl Phys 2008;105, 1927-33**

<sup>8</sup> **Third metacarpal condylar fatigue fractures in equine athletes occur within previously modeled subchondral bone. Whitton RC, et.al. Bone 2010; 47 826-31**

<sup>9</sup> **Preexisting lesions associated with complete diaphyseal fractures of the third metacarpal bone in 12 Thoroughbred racehorses. Gray SN, et. al. J Vet Diag Invest 2017: 29(4) 437-41**

<sup>10</sup> **YouTube video demonstrating steel fatigue, crack formation, failure <https://www.youtube.com/watch?v=hASl6d3z3BM>**

<sup>11</sup> **Bone fatigue and its implications for injuries in racehorses. Martig S, et.al. Eq Vet J 2014;46 408-15**

<sup>12</sup> **Subchondral focal osteopenia associated with proximal sesamoid bone fracture in Thoroughbred racehorses. Shaffer SK et.al. Eq Vet J 2021, Mar;53(2):294-305. <https://pubmed.ncbi.nlm.nih.gov/32474944/>**

humeral fractures have highly predictable preexisting patterns of bone fatigue with predictable location of fracture lines, which was present in the 2023 humeral fracture fatality during training.

In a similar manner, Thoroughbred racehorses compared to harness horses experience characteristically different types of cyclic loading, tissue fatigue, and subsequently different tissue pathology and injuries. As a consequence of cyclic loading, the most common fatal injury in the Thoroughbred racehorse in the United States are front limb proximal sesamoid bone fractures, while the Standardbred racehorse most commonly sustains non fatal suspensory ligament injury. When tissue fatigue related injuries progress into catastrophic failures, they often occur without previous lameness, or lameness associated with another anatomical location. Recognition of fatigue related injuries and responding in an appropriate manner before they develop into a non fatal end of career injuries would dampen the worsening attrition of VL horses at EMD.

The link between IACS, cyclic loading, and injury can be best demonstrated by considering that IACS are extremely effective at decreasing inflammation and pain, but have no efficacy at decreasing tissue fatigue if rest is not initiated. Anti inflammatory medications decrease heat, pain, and swelling, the hallmarks of inflammation, but do nothing to address the origin of that inflammation. In fact what anti inflammatory IACS injection and NSAID medications do is to influence a trainer's decision to either continue high speed exercise or begin a less traumatic low intensity exercise. As a result the horse remains at a higher risk of musculoskeletal injury than it may have had if the training workload decision was made with observations of the horse without the effect of these medications.

It is known that career delaying injury (CDI) and career ending injuries (CEI) are far more common than fatal musculoskeletal injury (FMSI). Because of this, the magnitude of CEI's contribution to the attrition of the racehorse population is far greater than from FMSI.

It is also known that CDI and CEI involve the same structures, in the same anatomical locations, as those resulting in FMSI. Also, all of them, as is case with the majority of sports injuries, are impacted by the accumulation of chronic mechanical loading.

However, what is unknown is why an injury occurring at the same anatomical locations, resulting from the same mechanical forces, progresses to a delay of a racing career in one horse, an end of a career in another, or a FMSI in another. As such, gaining an understanding of factors contributing to all these injuries is essential in reducing their numbers.

# **Equine Medical Director Concerns and Recommendations:**

## **Concerns:**

- Racing in Washington has a “numbers” problem, with racehorse numbers decreasing 22% in the last 6 years.
- For the last four years more than half of the horses on the veterinarian’s list for unsoundness have retired from racing. This is a significant and troublesome trend and measures to reverse it would be beneficial.
- From a population perspective, the 2023 attrition rate of horses on the VL was 7.3% of the total racehorse population, an increase from 2022 when it was 5.3%.
- As the number of horses that were retired but not on the VL is unknown, the attrition rate of racehorses in Washington due to sports injury is unknown.
- Horses placed on the veterinarian’s list before their race were far more likely to return to racing than horses placed on the VL after the race.
- Earlier detection of injury and placement on the VL may decrease the number of horses retired due to sports injury.
- As the actual incidence and extent of injuries resulting in retirement, or a significant delay in a career of a racehorse is unknown, knowledge of the specifics of serious injuries is now more important than when the WHRC originally adopted rules requiring trainers to report serious injuries.

## **Recommendations:**

- As compliance of reporting serious injury by trainers has not been attained, and knowledge of serious injury is more critical than when original rules were adopted:
- It is recommended that veterinarians be required to report horses with injury where 21 days or longer without exercise is advised.