

# **HISA’s Review of Winter and Spring 2023 Laurel Park Equine Fatalities**

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## I. INTRODUCTION

In 2023, there were unfortunately three racetracks that experienced a cluster of fatalities over a short period of time: Laurel Park, Churchill Downs Racetrack, and Saratoga Race Course. In accordance with its mission to regulate safety, the Horseracing Integrity and Safety Authority, Inc. (“HISA”) has initiated reviews of the facts and processes leading up to and during the period of the fatalities at these three racetracks, primarily to better inform its safety practices going forward. HISA released the Churchill Downs Report on September 12, 2023<sup>1</sup> and will be releasing the Saratoga Racetrack Report as soon as it is complete. Set forth below are the findings of the Laurel Park Report (the “Report”).

Between March 5 and March 25, 2023, three horses sustained fatal musculoskeletal injuries while training or racing on Laurel Park’s dirt racing surface. After two additional horses sustained fatal musculoskeletal injuries while training on Laurel Park’s dirt racing surface on the morning of April 8, the Maryland Jockey Club (“MJC”), the operator of Laurel Park, cancelled that afternoon’s racing card to allow for a full evaluation of the racing surface. Reports indicate that jockeys refused to ride due to inconsistencies in the surface following inclement weather. Racing resumed on April 13 and, between then and April 20, three additional horses sustained fatal musculoskeletal injuries while training or racing on the track’s dirt surface. On April 21, the MJC suspended live racing indefinitely and began working with the Maryland Racing Commission (“MRC”) to address concerns relating to the recent injuries.

This Report focuses on the cluster of equine fatalities described in the paragraph above but includes a review of all 13 equine fatalities that occurred at Laurel Park from January 1 (the beginning of Laurel Park’s winter meet) through May 7 (the end of Laurel Park’s spring meet), as the cluster spanned both meets. A trainer and jockey were also injured as a result of two of these incidents.

The events covered in this Report occurred prior to HISA’s establishment of its Track Surface Advisory Group (“TSAG”).<sup>2</sup> Therefore, HISA did not conduct an independent investigation at the time of the fatalities at Laurel Park but has rather engaged in a review of the procedures followed in response to the fatalities that is based on contemporaneous accounts of the situation, including expert reports, media reports, meetings, interviews and letters to the MRC. HISA also initiated a veterinary review of each of the 13 equine fatalities that occurred during the 2023 winter and spring meets and HISA’s Director of Equine Safety & Welfare attended the mortality reviews of all horses covered by this Report. HISA’s conclusions and next steps are set out at the end of this Report.

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<sup>1</sup> <https://hisaus.org/news/hisa-releases-findings-of-churchill-downs-investigation-and-announces-critical-initiatives-to-reduce-equine-fatalities>

<sup>2</sup> On September 7, 2023, HISA announced the formation of the TSAG, comprised of seven seasoned track superintendents whose expertise spans dirt, turf, and synthetic surfaces. These individuals are available to conduct on-site racetrack inspections on an emergency basis. A copy of the media release announcing the TSAG can be accessed [here](#).

## II. SCOPE OF REVIEW

The following documents were examined in connection with HISA's review:

- A. All racetrack surface data collected by the Racing Surfaces Testing Laboratory ("RSTL") for the 2023 winter and spring meets along with historical data;
- B. Information regarding the locations of the injuries on the Laurel Park dirt racing surface;
- C. The April 21, 2023 letter from Mike Rogers, Acting President and General Manager, 1/ST Racing & Gaming (which owns the MJC) and Aidan Butler, Chief Executive Officer, 1/ST Racing & Gaming, to Michael J. Alego, Chairman of the MRC;
- D. The April 22, 2023 letter from the Maryland Thoroughbred Horsemen's Association, Inc. ("MTHA") and the Maryland Horse Breeders Association ("MHBA") to the MRC;
- E. The April 23, 2023 letter from RSTL to the MJC;
- F. The April 27, 2023 report of Mr. John Passero, a track maintenance consultant;
- G. All available veterinary histories of each deceased horse;
- H. HISA Director of Equine Safety & Welfare's observations from her meeting with Laurel Park Racing's Regulatory Veterinarians;
- I. HISA Director of Equine Safety & Welfare's observations from the mortality reviews conducted;
- J. HISA Director of Equine Safety & Welfare's discussions with the two largest private veterinary practices serving the racetracks in Maryland;
- K. HISA Director of Racetrack Safety's interviews of the Laurel Park track superintendent;
- L. Relevant media reports regarding the events covered in this Report;
- M. The MRC's investigative reports for each deceased horse;
- N. The necropsy summaries of each deceased horse;
- O. The expert opinion and report of Dr. Alina Vale, an equine veterinarian with expertise in necropsies retained by HISA to review the necropsy reports;
- P. Analysis of all relevant data in the HISA portal, the platform where racing participants under HISA's purview register and report a variety of information, including equine medical records;
- Q. The expert analysis of the affected horses' high-speed exercise histories by Dr. Susan Stover, Chair of HISA's Racetrack Safety Committee and Professor of Veterinary Surgical & Radiological Sciences at the University of California Davis; and
- R. The racing and training histories of each deceased horse.

### III. CHRONOLOGY

The following section contains a chronology of relevant events. All horses that collapsed or sustained injuries as set forth in the chronology below were subsequently euthanized.

- January 1, 2023: Laurel Park winter meet begins.
- January 14: Goldbar collapses in the barn area.
- February 5: Bullout sustains a pastern fracture while galloping after a workout.
- February 10: Celtic Cousen sustains a pastern fracture during a workout.
- February 23: Auspicious Lad collapses while galloping during morning training.
- March 5: Utterly Courageous sustains a medial sesamoid fracture during a workout.
- March 18: Lady Macho sustains a pastern fracture during the second race.
- March 25: Forth sustains an open mid-cannon fracture during the fifth race.
- March 31: Laurel Park winter meet ends.
- April 1: Laurel Park spring meet begins.
- Early April 2023: The cushion of the dirt track is peeled back to evaluate the surface base.
- April 4: Mike Rogers, representing the MJC, reported to the MRC that track repairs at Laurel Park were completed.
- April 8: We Call Him Clyde sustains a pastern fracture during a workout.
- April 8: Notion Street sustains a sesamoid bone fracture during a workout.
- April 8: Laurel Park cancels live racing for the day to allow for a full evaluation of the racing surface.
- April 11: Hello Jamrock is euthanized due to an infection in the hind limb.
- April 18: Witty Banter sustains a pastern fracture while galloping during morning training.
- April 18-20: RSTL conducts on-site visit and evaluation of Laurel Park dirt track. Track surface consultant Dennis Moore is also on-site during this time to examine the surface and make recommendations.
- April 20: Golden Pegasus sustains a sesamoid bone fracture during the fourth race.
- April 20: Bigmancan sustains a sesamoid bone fracture during the fifth race.
- April 20: The MTHA asks HISA to send a representative to attend meetings with stakeholders.
- April 21: HISA's Director of Equine Safety and Welfare arrives at Laurel Park and meets with various stakeholders, including members of the MTHA and Regulatory Veterinarians employed by Laurel Park.
- April 21: Laurel Park cancels live racing until further notice.
- April 21: Mike Rogers and Aidan Butler send letter to MRC stating that track experts have advised that there are no issues with the track and that it is safe to race and train.
- April 22: The MTHA and the MHBA send letter to MRC requesting they retain racing surfaces expert John Passero to evaluate the dirt surface at Laurel Park.
- April 22: HISA's Director of Equine Safety and Welfare interviews the two largest private veterinary practices serving the racetracks in Maryland.
- April 23: RSTL issues letter stating all measurements made on the Laurel Park main track surface are as consistent or more consistent than other regional tracks.

- April 25: The MTHA and MJC reach an agreement to allow MTHA consultant John Passero to inspect the racing surface.
- April 25: The MRC holds an emergency meeting to discuss surface issues.
- April 25-26: John Passero conducts a review of the dirt surface at Laurel Park.
- April 27: John Passero issues written report deeming that the dirt track could be reopened for training on April 27 and endorses taking entries for April 29.
- April 29: Racing resumes at Laurel Park.
- May 7: Laurel Park spring meet ends without any additional injuries or fatalities.
- June 14: HISA's Director of Equine Safety and Welfare attends the 13 mortality reviews conducted by the MRC's Equine Medical Director.

## IV. Background

Three horses sustained fatal musculoskeletal injuries while training or racing on Laurel Park's dirt racing surface between March 5 and March 25, 2023. Horsemen expressed dissatisfaction with the racing surface and requested that the surface cushion and pad material be peeled back to allow for an inspection of the base near the ½ mile pole. HISA is not aware of any issues that were identified in connection with this inspection. Clay material was mixed into the displaced cushion and pad material that was reintegrated to the area of the surface disturbed by the inspection.

Two horses sustained fatal musculoskeletal injuries while training on Laurel Park's dirt racing surface on the morning of April 8, 2023. The MJC decided to cancel that afternoon's racing card "out of an abundance of caution to do a full evaluation of the racing surfaces."<sup>3</sup> Reports indicate that "jockeys refused to ride that afternoon because of obvious inconsistencies of the surface after inclement weather."<sup>4</sup>

Racing resumed on April 13. After one training fatality on April 18 and two racing fatalities in the afternoon of April 20, the MTHA contacted HISA with a request to send a representative to attend meetings with stakeholders. HISA's Director of Equine Safety and Welfare, Dr. Jennifer Durenberger, arrived on-site the morning of April 21. The MJC decided to cancel live racing until further notice.

Meanwhile, from April 18-20, RSTL and track surface expert Dennis Moore conducted various tests and inspections of the surface following the base inspection and integration of clay material referenced above. Their testing and observations found that the reopened area around the ½ mile pole had a relatively lower density compared to the rest of the track.<sup>5</sup> According to an April 23 letter from RSTL to the MJC, the density in this area was increased through the use of roller harrows and heavy working of the surface.<sup>6</sup>

On April 22, the MTHA and the MHBA jointly submitted a letter to the MRC, expressing concern for "the safety of riders and horses" due to the "condition of the dirt track."<sup>7</sup> The letter indicates that "many owners ha[d] taken their horses off the track or sent [them] to other racetracks and training facilities" over track surface concerns.<sup>8</sup> The MTHA and MHBA requested the MRC retain racing surface expert John Passero to "evaluate the dirt course at Laurel Park and make any recommendations he deems appropriate to ensure that it is safe for training and racing."<sup>9</sup>

The MRC scheduled an emergency meeting on April 25 to address the surface issues at Laurel Park. According to reports, MRC Chair Michael Algeo announced at the emergency meeting that the MTHA and MJC reached an agreement that morning to allow MTHA consultant John Passero to

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<sup>3</sup> This information was obtained from an April 8, 2023 social media post by an account identified as the Maryland Jockey Club.

<sup>4</sup> See April 22, 2023 letter from MTHA and MHBA to MRC, attached as Appendix I.

<sup>5</sup> See April 23, 2023 letter from RSTL to MJC, attached as Appendix II.

<sup>6</sup> *Id.*

<sup>7</sup> See Appendix I.

<sup>8</sup> *Id.*

<sup>9</sup> *Id.*

inspect the racing surface. Mr. Passero was on-site later that day. He found areas of the surface to be lacking sufficient cushion, which he recommended the track address by adjusting watering practices and using drag harrows.<sup>10</sup> Based on his observations following the implementation of his recommended maintenance protocols, he advised that the dirt surface could be opened for training beginning on April 27 and for racing on April 29.<sup>11</sup> Live racing did resume on April 29 and there were no reported fatalities during the final seven days of the spring meet, which concluded on May 7.

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<sup>10</sup> See April 27, 2023 Report of John Passero, attached as Appendix III.

<sup>11</sup> *Id.*

## V. Racetrack Surface

The events covered in this Report occurred prior to the establishment of HISA's TSAG on September 7. Therefore, HISA did not perform an independent evaluation of Laurel Park's surface in April 2023 and this section is limited to a summary of the surface reviews and observations as described in the MJC's April 21 letter to the MRC (Appendix IV), RSTL's April 23 letter to the MJC (Appendix II), and John Passero's report dated April 27 (Appendix III), which HISA supplemented with clarifying interviews with the Laurel Park Track Superintendent, RSTL employees, Dennis Moore and John Passero.

### 1. Surface Reviews

#### a. *1/ST Racing & Gaming Track Surface Consultants*

At the request of Maryland horsemen, track management removed the cushion of the dirt track in or around early April to evaluate the base of the racing surface in an area of concern around the ½ mile pole. After confirming no deficiencies in the base, clay material was mixed into the displaced cushion and pad material as it was reintegrated to the area disturbed by the inspection.

Thereafter, Dr. Patrick Erbland, RSTL Chief Scientist, was on-site from April 18 to April 20 to perform an evaluation of the Laurel Park dirt surface.<sup>12</sup> Dr. Erbland's inspection included ground-penetrating radar base testing, biomechanical surface testing, and checking of grades.<sup>13</sup> Following that series of tests and the resulting modifications made by Mr. Moore, Dr. Erbland did not detect or report any inconsistencies in the surface.

A letter from 1/ST Racing & Gaming to the MRC, dated April 21, 2023, stated that their track surface consultant Dennis Moore was "on site for three days" around the same time as RSTL to "conduct routine testing of the Laurel Park racing surface."<sup>14</sup> Mr. Moore and RSTL performed a "battery of tests" and the results "were all within industry norms."<sup>15</sup> The letter concludes that, "[b]ased on these tests and their professional knowledge, our track experts have advised that there are no issues with the track and that it is safe to race and train."<sup>16</sup>

In a letter dated April 23, 2023 from RSTL to the MJC, RSTL noted that the reopened area around the ½ mile pole was found to have a relatively lower density compared to the rest of the track.<sup>17</sup> The letter stated that after "Dennis Moore arrived and inspected the track, heavy harrowing was performed to increase the density" in this area.<sup>18</sup> RSTL noted that "[a]dditional density of the hardpan or pad in areas where there has been recent maintenance can be effectively produced

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<sup>12</sup> See Appendix II.

<sup>13</sup> *Id.*

<sup>14</sup> See April 21, 2023 letter from Mike Rogers, Acting President and General Manager, and Aidan Butler, Chief Executive Officer, 1/ST Racing & Gaming, to Michael J. Alego, Chairman of the MRC, attached as Appendix IV. HISA understands the reference to "independent engineering experts" in the letter to be a reference to RSTL.

<sup>15</sup> *Id.*

<sup>16</sup> *Id.*

<sup>17</sup> See Appendix II.

<sup>18</sup> *Id.*

using the roller harrows and heavy working of the surface.”<sup>19</sup> All “measurements made on the track surface were found to be consistent or more consistent than other regional tracks” and “[t]he addition of material was [found to be] very consistent.”<sup>20</sup>

b. *John Passero*

At the request of the MTHA, track surface consultant John Passero was on-site a few days after RSTL and Mr. Moore to perform an evaluation of Laurel Park’s dirt racing surface. (There was no training or racing conducted between Mr. Moore’s and Mr. Passero’s visits.) Mr. Passero visited Laurel Park and prepared a report documenting his observations on the condition of the Laurel Park dirt surface from April 25-26.<sup>21</sup> Mr. Passero believed portions of the surface were lacking sufficient cushion and recommended Laurel Park implement the following changes to previous maintenance protocols:

- The slowing down of tractors significantly during harrowing.
- Triple harrowing of the track before breaks; once wrong way and twice right way.
- Moderate watering procedure changes so the surface does not “explode” under horse’s feet, which had been a regular complaint from horsemen and riders.
- Use of drag harrows.
- Close monitoring of the track surface after rain.<sup>22</sup>

According to Mr. Passero, the track was previously using roller harrows as part of its regular maintenance of the track surface, though Laurel Park made the switch to drag harrows shortly before Mr. Passero’s arrival. According to Mr. Passero, that change, along with adjustments to their watering practices, resulted in “significantly more body in the track.”<sup>23</sup> Based on his observations and analysis of the track surface composition, combined with the implementation of his recommended changes to the maintenance protocols, Mr. Passero concluded that the “Laurel Park dirt surface [i]s safe for training” beginning on April 27 and endorsed taking entries for April 29.<sup>24</sup>

2. Injury Location on the Racetrack

The locations of the 11 training- and racing-related injuries on the dirt racing surface are plotted on the diagram below (the fatalities marked in orange are irrelevant to this injury location analysis as they were sudden deaths and not musculoskeletal injuries). Six of the fatal musculoskeletal injuries were reported to occur between the ½ mile and ¼ mile pole. While this may indicate a correlation between injury and location on the track, no definitive conclusion can be drawn without additional information about the proportion of high-speed furlongs that occur around just the stretch turn roughly between the ½ mile and ¼ mile pole relative to the number of high-speed furlongs occurring around the clubhouse turn roughly between the 15/16 mile and 5/8-mile pole. Nearly all workouts are conducted around the stretch turn only, and more one-turn (stretch turn only) races are written than two-turn (stretch turn plus clubhouse turn) races during that time of year on the dirt track.

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<sup>19</sup> *Id.*

<sup>20</sup> *Id.*

<sup>21</sup> See Appendix III.

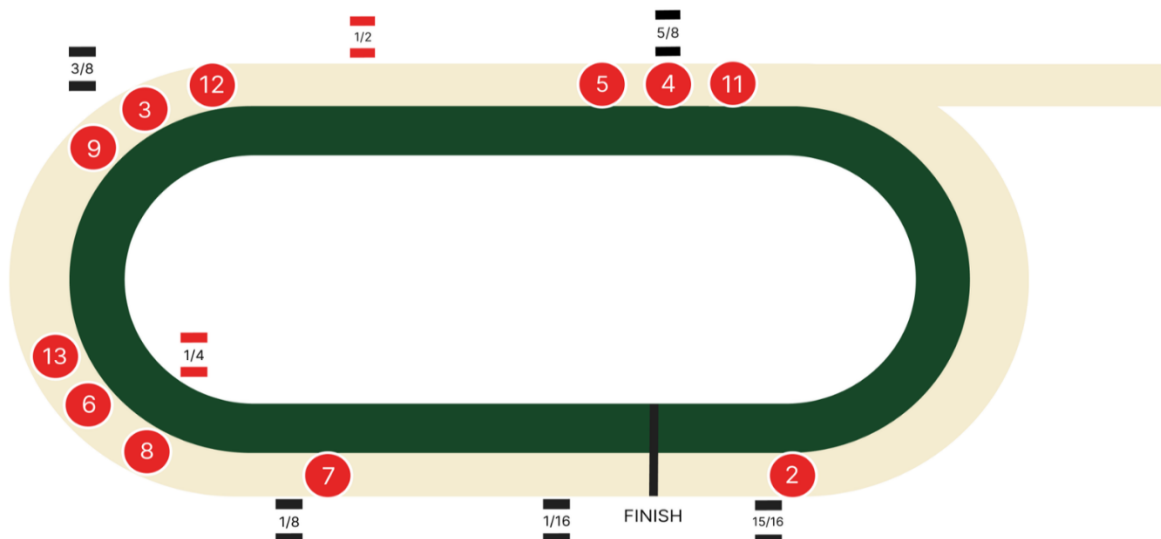
<sup>22</sup> *Id.*

<sup>23</sup> *Id.*

<sup>24</sup> *Id.*

# Equine Fatalities at Laurel Racetrack

1/1/2023 – 5/7/2023



- 1 **Goldbar** (training) collapsed in the barn area.
- 2 **Bullout** (training) was injured galloping out after the work and pulled up near the 15/16ths pole
- 3 **Celtic Cousen** (training) began the work at the 1/2 mile pole and was injured and pulled up at the 3/8ths pole.
- 4 **Auspicious Lad** (training) was galloping on the dirt track during morning training. The horse collapsed and died at the 5/8ths pole.
- 5 **Lady Macho** (racing) broke from post position 4 at 12:58 P.M. The horse started to drift out 4 wide and was injured at the 3/8ths pole and fell. The number 5 horse collided with Lady Macho from behind and fell. The number 5 horse's jockey was injured and transported to the hospital.
- 6 **Forth** (racing) was running near the front then was injured and fell near the 1/4 pole.
- 7 **Utterly Courageous** (training) had been injured and fell at the 1/8th pole. The rider was injured and transported to the hospital.
- 8 **We Call Him Clyde** (training) pulled up near the 1/4 pole.
- 9 **Notion Street** (training) After switching leads the horse was injured and pulled up near the 3/8ths pole.
- 10 **Hello Jamrock** (stable area) was euthanized due to an infection in a hind limb and concern of laminitis in the opposite hindlimb.
- 11 **Witty Banter** (training) Pulled up after the 3/4 pole.
- 12 **Golden Pegasus** (racing) was injured and fell near the 3/8ths then continued another 1/16th mile without the rider.
- 13 **Bigmancan** (racing) was injured at the 1/2 mile pole after racing a 1/4 mile and pulled up.

## VI. Veterinary Review

### 1. Injury Presentation

There were 13 equine fatalities during the 2023 winter and spring meets at Laurel Park. The causes of the fatalities can be summarized as follows:

- 1 traumatic injury in the barn area
- 6 fractures sustained in training on the dirt track
- 4 fractures sustained in racing on the dirt track
- 1 case of exercise-associated sudden death
- 1 case of hindlimb cellulitis

Of the 10 horses with fractures, proximal phalanx (“pastern”) fractures were over-represented (five), four involved the metacarpal- or metatarsal-phalangeal joint (“ankles,” or “fetlocks”) and one involved the third metacarpal bone.

Eight of the 10 horses with musculoskeletal fractures had not raced as two-year-olds, with one not racing until age four. Older age at first race start has been identified as a risk factor for musculoskeletal injury.<sup>25</sup>

Five of the horses had recently changed trainers (defined as within the previous three months). Risk of fatal injury decreases with increasing amount of time that a horse has been trained by a single trainer.<sup>26</sup>

One of the horses sustaining a fracture was on the veterinarians’ list as unsound at the time of the injury. Appearance on the veterinarians’ list is strongly associated with future fatal injury.<sup>27</sup>

In the cases of the traumatic injury and the exercise-associated sudden deaths, a definitive cause of death could not be determined and those deaths are highly unlikely to be related to the condition of the surface.

Two of the incidents resulted in human injury (one trainer, one jockey).

### 2. Necropsy Summary

Dr. Alina Vale<sup>28</sup> reviewed the necropsy reports along with other pertinent medical information for each fatality at Laurel Park during the 2023 winter and spring meets.<sup>29</sup> Although unable to identify a singular cause for the fatalities, Dr. Vale made the following observations and underscored what she considered to be significant elements of the necropsy reports:

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<sup>25</sup> Georgopoulos, S. P., & Parkin, T. D. (2016). Risk factors associated with fatal injuries in Thoroughbred racehorses competing in flat racing in the United States and Canada. *Journal of the American Veterinary Medical Association*, 249(8), 931-939.

<sup>26</sup> *Id.*

<sup>27</sup> *Id.*

<sup>28</sup> See Appendix V for Dr. Alina Vale’s Curriculum Vitae.

<sup>29</sup> See Appendix VI for a summary of Dr. Vale’s report.

- a. In the necropsy reports of fracture cases, typical pre-existing lesions associated with a fracture were not described; and
- b. The pathologist commented that several P1 (pastern) fractures were unique compared to what is normally seen. There were five comminuted P1 fracture cases in this review. The Equine Medical Director for the MRC reported this frequency of pastern fractures was very unusual at Laurel Park. Existing literature supports the idea that P1 fractures were over-represented at Laurel Park during the period of this review.<sup>30</sup>

### 3. High-Speed Exercise Analysis

Dr. Susan Stover<sup>31</sup> analyzed the lifetime high-speed exercise history (official timed works and races) of the 10 horses that died or were euthanized at Laurel Park racetrack because of a musculoskeletal injury.<sup>32</sup> Their lifetime high-speed histories were compared with three control horses per injured horses matched by participation in the last event (official timed work or race) of the injured horse (exercise histories for control horses are truncated to the date of death of the injured horse). Thus, the deceased horses are similar in age, sex, and quality to the control horses.

The exercise histories were reduced to 65 variables. Univariate conditional logistic regression was used to find variables that may be different between injured and control horses. Five variables became apparent because they presented differently between injured and control horses. Injured (case) horses had more high-speed furlongs in the four, six, and eight months before the date of death and more high-speed furlongs in the combined three and four months before the date of death and in the combined five and six months before the date of death.

The data revealed that injured horses had: (i) more races per year in their career and (ii) more days between their last high-speed event and date of death.<sup>33</sup> This is consistent with Dr. Stover's findings from the high-speed analysis performed in connection with the Churchill Downs Report, released by HISA earlier this year.<sup>34</sup> In summary, based on this analysis, there are horse level risk factors that likely contributed to risk for injury.

The factors observed are consistent with our knowledge of repetitive, overuse (fatigue) injuries in racehorses. Frequent high-intensity exercise (as observed in injured horses) that does not allow for recovery of exercise-induced microdamage contributes to the development of stress fractures and subchondral stress remodeling which predispose horses to catastrophic injuries.<sup>35</sup>

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<sup>30</sup> Stover, S. (2003) The Epidemiology of Racehorse Injuries. *Clinical Techniques in Equine Practice*, 2(4), 312-322.

<sup>31</sup> See Appendix VII for Dr. Susan Stover's Curriculum Vitae.

<sup>32</sup> This excludes the fatalities attributable to sudden death (1), rib trauma (1), and hindlimb cellulitis (1).

<sup>33</sup> See Appendix VIII for Dr. Stover's full analysis including graphs.

<sup>34</sup> <https://hisaus.org/news/hisa-releases-findings-of-churchill-downs-investigation-and-announces-critical-initiatives-to-reduce-equine-fatalities>

<sup>35</sup> Cresswell EN, Ruspi BD, Wollman CW, Peal BT, Deng S, Toler AB, McDonough SP, Palmer SE, Reesink HL. Determination of correlation of proximal sesamoid bone osteoarthritis with high-speed furlong exercise and catastrophic sesamoid bone fracture in Thoroughbred racehorses. *Am J Vet Res*. 2021 Jun;82(6):467-477. doi: 10.2460/ajvr.82.6.467. PMID: 34032482.

## VII. Rule Violations / Procedural Deficiencies

HISA's review did not reveal any violations of HISA's rules by any Covered Persons that contributed directly to the injuries. Although there was not strict compliance with the rules discussed below, many of the steps taken by various Covered Persons were consistent with the spirit of the rules in that track surface experts and HISA's Director of Equine Safety and Welfare were contacted for the purpose of conducting a methodical review of the racetrack safety issues and mitigating the risk of additional injuries. Nevertheless, the timeliness and completeness of information reporting required by the rules must be resolved going forward to optimize HISA's ability to protect equine welfare.

### 1. Racetrack Safety and Welfare Committee Meetings

Based on interviews with stakeholders and Laurel Park's own End of Meet Reports for the 2023 winter and spring meets, the Racetrack Safety and Welfare Committee ("RSWC") had not met as required under Rule 2121. This rule requires that on the initiative of the MRC Regulatory Veterinarian, who chairs the RSWC, the Committee is to meet to review the circumstances surrounding all equine catastrophic injuries and human injury occurrences. The purpose of this rule is to enable a local body of experts to conduct a methodical review of equine fatalities, injuries, and racetrack safety issues and to identify practical interventions to reduce the potential for future equine injuries and fatalities. HISA will work with all parties in the future to ensure that this meeting takes place when there is an equine fatality.

### 2. Timely Injury and Fatality Reporting

During the period covered by this review, HISA was not receiving from the MRC's Executive Director or Equine Medical Director reports of "all equine injuries and fatalities . . . within 72 hours of injury" as required by HISA Racetrack Safety Rule 2131(c)(7), nor was it receiving from the MRC's Regulatory Veterinarian timely fatality notices or necropsy reports as outlined in Racetrack Safety Rules 2131(c)(7) and 2170(e), respectively. Timely reporting of injuries and fatalities is critical to HISA's ability to facilitate appropriate intervention measures.

### 3. Veterinary Reporting

Rule 2251(b) requires veterinarians to submit treatment records to HISA within 24 hours of treatment or examination. Review of the subject horses' veterinary treatment history revealed significant gaps in reporting and, in some cases, a failure to report altogether. The purpose of this reporting is to discover high-risk practices so that injuries and illnesses can be prevented in the future. Knowledge of medication, treatments, examinations, and surgical procedures is necessary to correlate certain practices with risk for injury and illness, so that high-risk practices can be discovered, and injuries and illnesses can be prevented in the future. Collection and correlation of the information with data on injuries and illnesses will enhance equine welfare by allowing the development of strategies for injury and illness prevention. HISA has begun enforcement of such requirements nationally.

### 4. Horse Registration and Information Accuracy

Covered Persons are required to register their Covered Horses and keep the information in each horse's record current as required by HISA Registration Rule 9000(i). Of the 13

affected horses, three of the horses had not been registered with HISA within 30 days of becoming a Covered Horse and two had raced while unregistered. Three of the 13 reflected an incorrect physical location of the horse in the portal. Having accurate information about the locations of all horses under HISA's jurisdiction is a fundamental underpinning of the Anti-Doping and Medication Control ("ADMC") Program which, in turn, helps to assure the integrity of racing.<sup>36</sup>

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<sup>36</sup> HISA notes that its ADMC Program did not take effect until May 22, 2023, 15 days after the conclusion of Laurel Park's 2023 spring meet.

## VIII. Conclusion and Follow-Up

As mentioned above, HISA's TSAG was not in effect at the time of the cluster of fatalities in March and April 2023 at Laurel Park. In fact, the TSAG was created to address circumstances such as those that occurred at Laurel Park on a going forward basis. Based on the evidence and information available to HISA, the cluster of fatalities cannot be attributed to a singular cause. However, HISA's review does establish that both the MTHA and MHBA expressed concerns about the consistency of the track surface during March and April which lead to the track inspection visits of Mr. Moore and Mr. Passero. Following those visits, in late April, Laurel Park implemented changes in track maintenance practices that were designed to increase the consistency of the track surface pad and cushion. It is notable that following the track maintenance procedures that were implemented after Mr. Moore's and Mr. Passero's visits, there were no further fatalities during the spring meet. Therefore, it would be reasonable to assume that those changes contributed to a safer surface going forward.

In addition, the following veterinary findings are significant for the fact that they presented additional risk factors that likely contributed to the injuries:

- a. Eight of the 10 horses with musculoskeletal fractures had not raced as two-year-olds, with one not racing until age four. Older age at first race start has been identified as a risk factor for musculoskeletal injury.<sup>37</sup>
- b. Five of the horses had recently changed trainers (defined as within the previous three months). Risk of fatal injury decreases with increasing amount of time that a horse has been trained by a single trainer.<sup>38</sup>
- c. One of the horses sustaining a fracture was on the veterinarians' list as unsound at the time of the injury.<sup>39</sup> Appearance on the veterinarians' list is strongly associated with future fatal injury.
- d. The exercise histories suggest an increased risk of injury and are consistent with those horses that sustained musculoskeletal injuries during the 2023 Churchill Downs Spring Meet.

The findings and observations noted in this Report underscore the necessity of implementing the critical initiatives previously identified in HISA's Strategic Response, available [here](#). As outlined in the Strategic Response, HISA's TSAG was recently assembled and is available to respond immediately when racetracks are facing an ongoing crisis. HISA is also collaborating with Amazon Web Services and Palantir to apply data analytics, machine learning and artificial intelligence to HISA's vast data sources to analyze the factors contributing to equine injuries and inform potential interventions to reduce them moving forward.

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<sup>37</sup> Georgopoulos & Parkin, "Risk factors associated with fatal injuries in Thoroughbred racehorses competing in flat racing in the United States and Canada," 931-939.

<sup>38</sup> *Id.*

<sup>39</sup> The horse Bullout had not yet worked off the veterinarians' list at the time of the injury. See Appendix VI.

## **Appendix I**

*April 22, 2023 Letter from Maryland Thoroughbred  
Horsemen's Association and Maryland Horse  
Breeders Association to Maryland Racing  
Commission*



April 22, 2023

Honorable Michael J. Algeo, Chairperson  
Maryland Racing Commission  
300 East Towsontown Boulevard  
Towson, MD 21286

Via E-Mail

RE: Maryland Racing - Health and Safety Emergency

Dear Chairman Algeo:

Maryland racing is facing a catastrophic emergency. The death of five horses so far this month as well as other numerous serious injuries this year has called into question the safety of racetrack conditions at Laurel Park.

On Thursday, GOLDEN PEGASUS, a four-year-old colt, was euthanized after suffering serious injury on the far turn in the fourth race. One race later, six-year-old BIGMANCAN pulled up lame during a race and had to be vanned off; he was subsequently euthanized. In a later race the same day, five-year-old EXCELLORATOR was pulled up at the conclusion of the race and vanned off. Earlier the same week, the horse, WITTY BANTER, trained by respected Maryland trainer, Hamilton A. Smith, broke down while simply galloping at the  $\frac{3}{4}$ -pole during training, shattering a pastern and requiring euthanasia. Two weeks prior on April 8, two additional horses suffered fatal injuries during routine morning workouts. When jockeys refused to ride that afternoon because of obvious inconsistencies of the surface after inclement weather, the card was canceled.

Additionally, there have been a number of other catastrophic injuries during racing and training since January 1, 2023, and an abnormal number of other horses who have been injured, requiring removal from training.

The condition of the dirt track is a serious threat to the life and safety of both riders and horses and must be immediately addressed. Horsemen are concerned for the safety of riders and horses, and many owners have taken their horses off the track or sent to other racetracks and training facilities, which is eroding the great racing product Maryland is able to offer.

We are requesting the Commission forthwith, without delay, retain, nationally recognized racing surfaces expert, John Passero, to evaluate the dirt course at Laurel Park and make any recommendations he deems appropriate to ensure that it is safe for training and racing. We request that he report his findings to the Commission and to the public, and that he remains in an independent monitoring capacity until further notice.

As the *Baltimore Sun* has noted, Passero is likely considered “the best track superintendent in the country”. He has a deep understanding of racetrack maintenance and safety and is well aware of the intricacies and challenges of surfaces in the Mid-Atlantic region, which differ greatly from Florida and California where other 1/ST Racing tracks are located.

Passero has served as track superintendent for Maryland racetracks during the DeFrancis family ownership, and his opinion is trusted and relied upon by owners, riders and trainers throughout the country and the world.

The issue of racetrack safety is not a new one. We have been raising our concerns with 1/ST Racing and others for years. This issue has been well-documented before the Maryland Racing Commission, most recently by the Maryland Stadium Authority (MSA), the state agency tasked with overseeing the Racing Redevelopment Plan for Laurel Park and Pimlico. In its September 30, 2022 Report on Facility Redevelopment, the Authority reported extensively on Laurel Park’s “known track failures.”

MSA and its design consultants worked closely with the MTHA to examine track conditions, with a focus on safety. The Authority and its consultants, like the MTHA, came to the inescapable conclusion that the severity of conditions ultimately required complete track replacement, instead of partial replacement. Although 1/ST Racing originally objected, on August 17, 2022 it too, came to the same conclusion about the track conditions and the need for complete track replacement.

Despite this acknowledgment, 1/ST Racing continues to deny there is a problem, wrongly solely blaming trainers and horses for repeated incidents. Indeed, two weeks ago when two horses broke down during training at Laurel Park, there was irrefutable evidence that there was insufficient cushion at the spots of the breakdowns and an inconsistent surface throughout.

Instead of considering all factors, including the surface as a possible contributing factor, 1/ST Racing blamed “a minority of trainers and riders,” in a letter to the Commission and requested the immediate imposition of training protocols currently in place in California without open debate and consideration of unique factors that exist in Maryland.

As you know, Maryland horsemen have always shown a willingness to be open to new ways to improve safety during racing and training and we consider ourselves a national leader in that area. We sincerely look forward to continued open discussions about new ideas in this regard. However, we need help from the Commission to require 1/ST Racing to show the same sincerity and willingness to address our concerns about the track surface.

Mr. Chairman, you are quoted in the press as having instigated the closure of Laurel Park on April 21st in the face of mounting angry calls from owners and trainers asking for action. MTHA and MHBA support that decision. Regrettably, rather than working with all parties cooperatively to identify the problem, 1/ST Racing has resorted to its old playbook to insist that there is nothing wrong with the track surface and that the problem lies solely

with horses and horsemen. And, to make matters worse, in response to a request from the MTHA that live racing be moved to Pimlico while the problem is identified, addressed and hopefully rectified, 1/ST Racing has severely limited training at both Laurel Park and Pimlico and sought entries for racing at Laurel Park on Thursday, ignoring our concerns for the welfare of our horses and lives of our riders.

As such, we respectfully request that MRC immediately retain Mr. Passero on an emergency basis, and assess the costs to 1/ST Racing. Furthermore, if necessary, we request that the Commission move live racing to Pimlico unless the necessary repairs can be completed.

The Commission has both the authority and responsibility to act immediately. Under state law, the Commission has a duty to protect “health, safety and welfare” of these horses. BR §11-209(c). Consistent with Maryland caselaw, the Attorney General has long held that the Commission has broad, plenary authority over Maryland Racing. 1977 Md. AG LEXIS 15 \* | 62 Op. Atty Gen. Md. 755. See, e.g. Lussier v. Maryland Racing Comm’n, 343 Md. 681 (1996). The legislature has also given the Commission the authority to retain any experts necessary for the best interests of Maryland racing. BR §11-207, 211.

Maryland racing is truly at an inflection point. Our horses and riders’ lives are at risk and our industry’s future is on the line. The status quo at Laurel Park cannot continue. The racing industry now looks to the Commission to act immediately to protect this great and historic treasure.

Very truly yours,



Timothy L. Keefe, President  
MTHA



Kent A. Murray, President  
MHBA

cc: Honorable Wes Moore, Governor  
Honorable Bill Ferguson, President of the Senate  
Honorable Adrienne Jones, Speaker of the House  
Honorable Guy Guzzone, Chairman, Senate Budget and Tax Committee  
Honorable Vanessa Atterbeary, Chairman House Ways and Means Committee  
Honorable Portia Wu, Secretary Department of Labor

## **Appendix II**

*April 23, 2023 Letter from Racing Surfaces Testing  
Laboratory to Maryland Jockey Club*



Subject: Laurel Main Track Review

April 23, 2023

Maryland Jockey Club  
P.O. Box 130  
Laurel, MD 20725

Between April 18, 2023 through April 20, 2023 Dr. Patrick Erbland performed testing of the Laurel Park main track racing surface in accordance with the applicable ASTM and other test standards. Testing during the visit included ground penetrating radar testing (GPR), biomechanical surface testing (OBST), and checking of grades. In addition, material test results from samples submitted and collected were included. All data was reviewed by Dr. Mick Peterson and Kaleb Dempsey.

Three areas of focus were on the consistency of the cushion depth, consistency of the material and consistency of the track performance using the OBST. Consistency was evaluated with prior testing, regional tracks and spatially on the track. Testing was also carried out to verify potential differences between maintenance equipment and how they may change the surface mechanics. This test was intended to determine which equipment can be used to provide the most consistent surface and what settings would provide any desired incremental changes in the track performance.

The cushion depth was found to be relatively consistent when using the GPR testing (see Figure 1) and shown to have a consistent layer thickness over the limestone base with verification via by hand probing. An area around the ½ mile pole which had been recently renovated was determined to have a relatively lower density indicated by the lack of fully defined layer formation in the radar and indicated by the blue regions. This was an area that had been disturbed from the renovations requested by the horsemen. After Dennis Moore arrived and inspected the track, heavy harrowing was performed to increase the density via compaction from the loading on the tip of the harrow's teeth. This is typical of all recently renovated or reopened surfaces and is a standard practice to address under developed regions. The additional equipment testing was performed in order to optimize the choice and settings of equipment.

Testing of the track particle size distribution was performed both with traditional methods as well as laser diffraction for spatial and historical comparisons. The consistency was found to be higher than that of typical racetracks and showed that the fine material has been incrementally increased as planned with the recent addition of the new material (see Figure 2). The sand content of the surface also retains a high percentage of quartz as determined by X-ray diffraction (XRD) which generally results in a more durable racetrack over time. These test results are comparable to other racetracks in the region.

OBST testing of the surface showed that cushioning, slide, and impact firmness were all spatially consistent (see Figure 3). The overall variation as represented by the standard deviation was more



consistent than our standard target of 1.0 kN of cushioning. All of the measured performance parameters were more consistent than typical measurements for racetracks.

Comparison of the different types of maintenance equipment which could be used to reset and establish the hardpan and for daily maintenance also showed the roller harrows would be relatively more effective in reducing the variation in the impact firmness (see Figure 4). Several of these effects were shown to be significant.

All the measurements made on the Laurel main track surface are as consistent or more consistent than other regional tracks. Additional density of the hardpan or pad in areas where there has been recent maintenance can be effectively produced using the roller harrows and heavy working of the surface. The addition of material was very consistent and the result is a track with lower spatial variation than most other racing surfaces. The laboratory has also received another set of samples collected over the weekend and is currently in the process of testing the materials for spatial consistency from the last round of material additions.

Sincerely,

A handwritten signature in black ink, appearing to read "Kaleb Dempsey".

Kaleb Dempsey  
Chief Technology Officer  
Racing Surfaces Testing Laboratory  
Lexington Kentucky 40502

A handwritten signature in black ink, appearing to read "Mick Peterson".

Michael "Mick" Peterson, Ph.D.  
Executive Director  
Racing Surfaces Testing Laboratory  
&  
Professor of Biosystems and Agricultural Engineering  
University of Kentucky  
Lexington Kentucky 40502

Cc: Ann McGovern, HISA



Figures and Tables:  
4/19/23 Noon Ground Penetrating Radar (GPR)

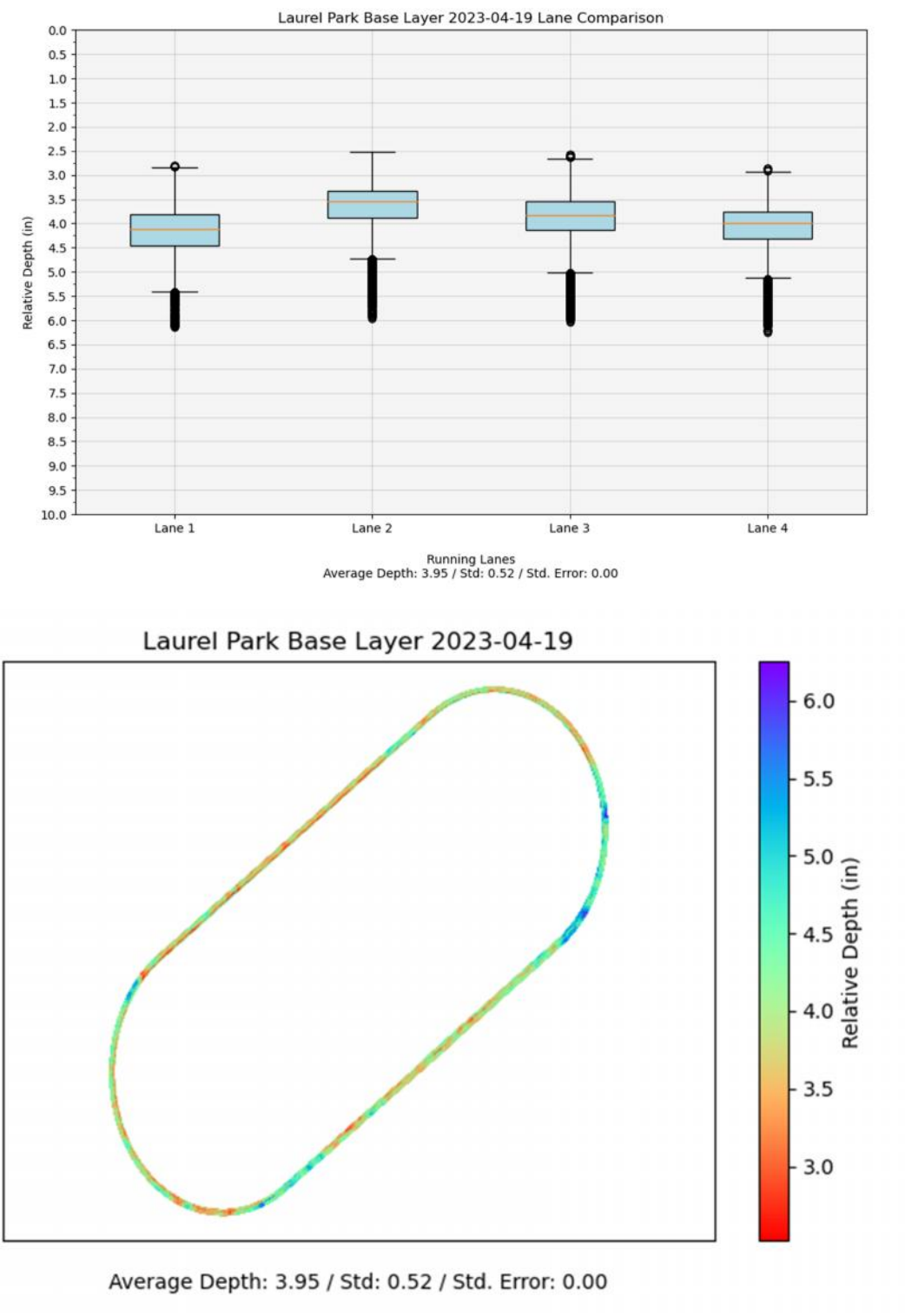


Figure 1: Ground penetrating radar results with lane variation in top figure and spatial variation in lower figure



SAMPLE DESCRIPTION	Chute	Mile	7/8	3/4	5/8	1/2	3/8	1/4	1/8	Finish 1	Finish 2	Avg.	SD
NO. 10 (2mm)	2.8%	2.8%	2.4%	2.8%	2.6%	2.5%	2.7%	2.8%	2.6%	2.3%	2.4%	2.6%	0.2%
NO. 14 (1.41 mm)	2.7%	2.7%	2.4%	2.5%	2.4%	2.3%	2.3%	2.7%	2.6%	2.5%	2.6%	2.5%	0.1%
NO. 18 (1 mm)	3.8%	3.9%	3.5%	3.6%	3.4%	3.4%	3.5%	3.9%	3.8%	3.5%	3.7%	3.6%	0.2%
NO. 35 (0.5mm)	19.0%	18.9%	18.2%	18.4%	18.0%	17.5%	18.1%	19.1%	19.1%	18.2%	19.3%	18.5%	0.5%
NO. 40 (0.42 mm)	7.9%	7.6%	7.5%	7.8%	7.6%	7.6%	7.4%	7.4%	7.7%	7.7%	8.0%	7.6%	0.2%
NO. 60 (0.25 mm)	30.8%	30.5%	31.1%	31.4%	31.5%	31.7%	31.7%	30.6%	30.6%	30.8%	31.1%	31.1%	0.4%
NO. 100 (0.149 mm)	13.1%	13.8%	13.7%	13.6%	14.1%	14.6%	14.2%	13.7%	13.7%	14.5%	13.2%	13.9%	0.4%
NO. 140 (0.105 mm)	4.2%	4.4%	4.6%	4.4%	4.7%	4.8%	4.6%	4.4%	4.5%	4.6%	4.3%	4.5%	0.1%
NO. 200 (0.074 mm)	2.6%	2.6%	2.8%	2.6%	2.7%	2.8%	2.6%	2.5%	2.6%	2.9%	2.6%	2.7%	0.1%
NO. 270 (0.053mm)	2.3%	2.3%	2.5%	2.2%	2.3%	2.4%	2.3%	2.1%	2.2%	2.4%	2.3%	2.3%	0.1%
PAN (SILT & CLAY)	10.8%	10.6%	11.3%	10.6%	10.7%	10.5%	10.4%	10.7%	10.7%	10.7%	10.4%	10.7%	0.2%
USDA % Sand	89.2%	89.4%	88.7%	89.4%	89.3%	89.5%	89.6%	89.3%	89.3%	89.3%	89.6%	89.3%	0.2%
USDA % Silt	8.8%	9.6%	10.3%	9.6%	10.7%	10.5%	9.4%	9.7%	9.7%	9.7%	9.4%	9.9%	0.4%
USDA % Clay	2.0%	1.0%	1.0%	1.0%	0.0%	0.0%	1.0%	1.0%	1.0%	1.0%	1.0%	0.8%	0.4%
OTHER:													
MOISTURE	6.8%	8.0%	7.9%	7.9%	7.5%	8.6%	8.4%	9.7%	8.3%	8.5%	8.2%	8.3%	0.6%

Figure 2: Composition of the racing surface showing spatial variation.



## 4/18/23 10:30am Entire Oval Drag Harrowed (AT-DH-EO)

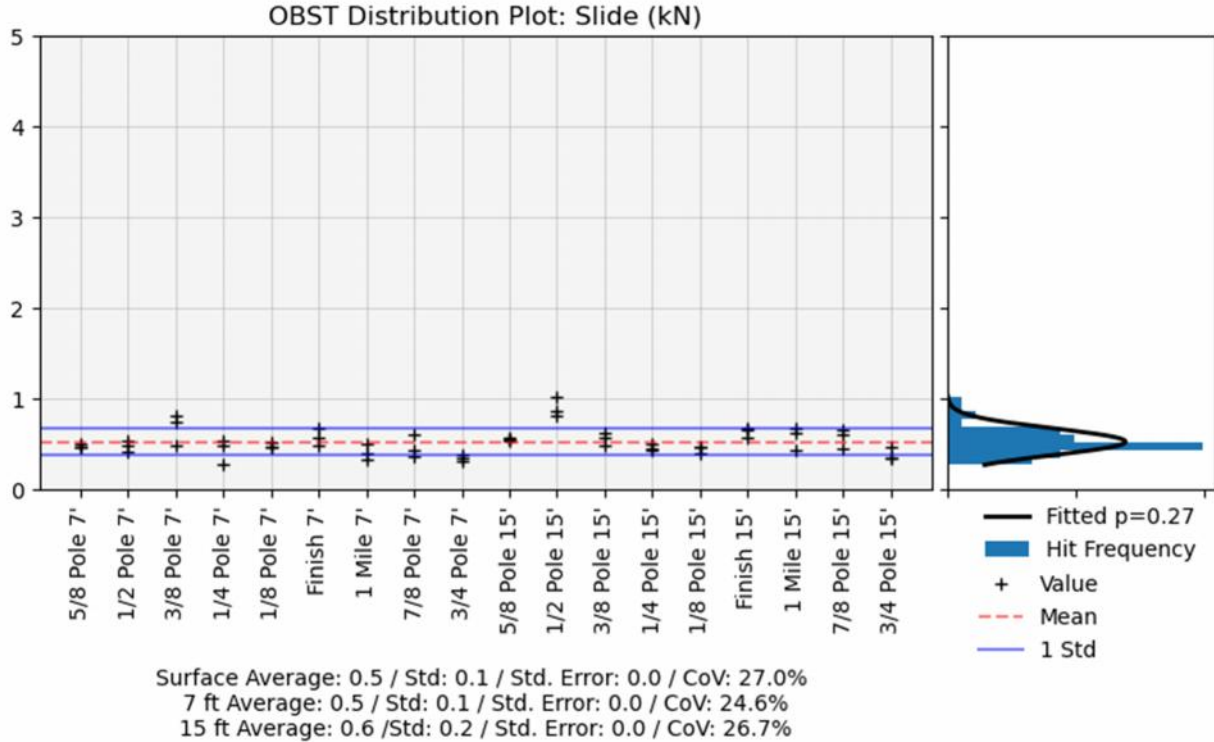
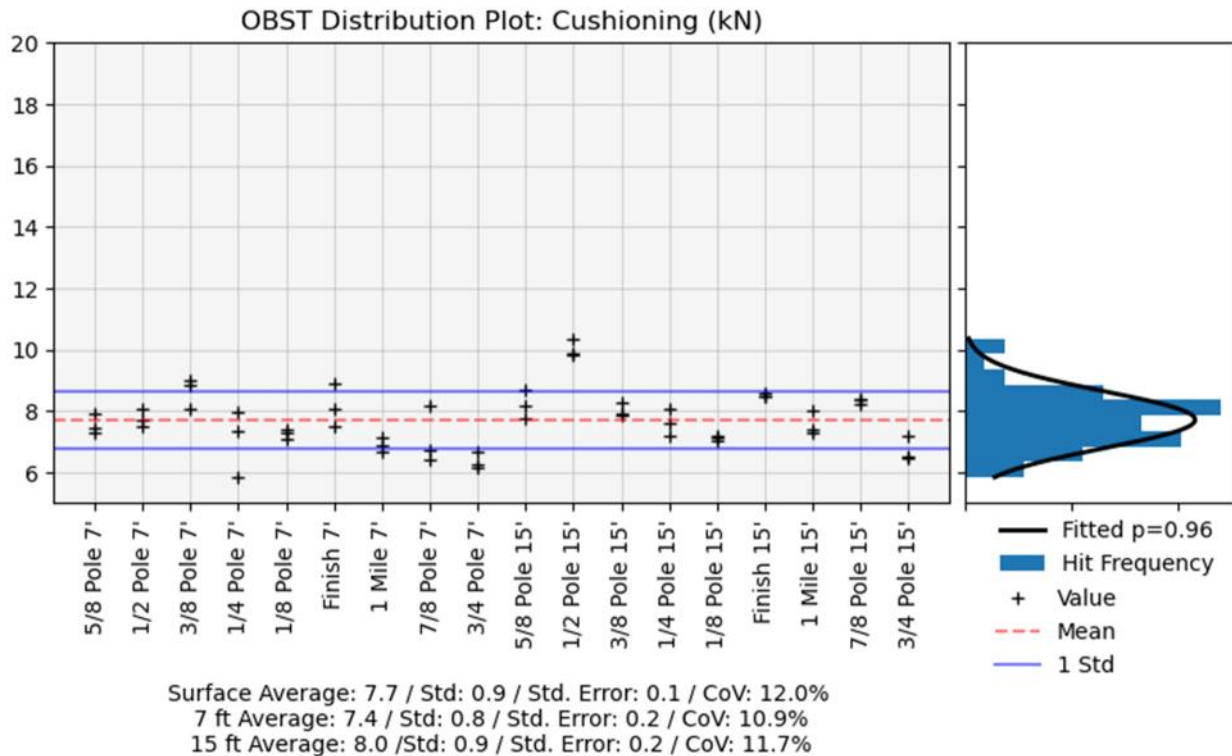


Figure 3: Biomechanical surface testing results from the track



) Track Maintenance decided to move testing from the chute to the 5/8 Pole at request and extensively harrowed the oval after testing

LRL OBST Data	ID	Cushioning (kN)	Slide (kN)	Impact Firmness (G)	Cushion Depth (in)
June 2022 Entire Oval		8.5 +/- 1.3	0.6 +/- 0.2	-47.5 +/- 6.9	
Dec. 2022 Entire Oval		8.5 +/- 0.8	0.7 +/- 0.1	-51.6 +/- 5	
4/18/23 10:30am Entire Oval Drag Harrowed	AT-DH-EO	7.7 +/- 0.9	0.5 +/- 0.1	-34.8 +/- 4.7	5
4/18/23 12:00pm 5/8 Pole Drag Harrowed	AT-DH	8.2 +/- 0.7	0.6 +/- 0.1	-36.6 +/- 4.3	4.5
4/18/23 1:00pm 5/8 Pole Drag Harrow x20	DH	8.9 +/- 1	0.7 +/- 0.2	-41.1 +/- 6.2	4.5
4/18/23 2:00pm 5/8 Pole Roller Harrow x20	RH	7.8 +/- 0.7	0.6 +/- 0.1	-40.2 +/- 2.8	4

\*Times are approximate, meant to distinguish order of testing in accordance to the test plan

\*\*Cushion depth was hand measured from the top of the harrow's plowed ridge until firm resistance was met (base and or pad layer developed)

Figure 4: Effect of different maintenance equipment on the racing surface.

## **Appendix III**

*John Passero's April 27, 2023 Report*

Laurel Park Report  
John Passero  
April 27, 2023

I am pleased to submit the following report to the Maryland Racing Commission regarding my observations and recommendations on the condition of the Laurel Park dirt surface as of Thursday morning, April 27, 2023, as well as ongoing maintenance protocols.

I have been on site at Laurel Park walking and riding tractors on the entire dirt surface and have made the following observations and recommended changes to previous maintenance protocols that were discussed and approved by a representative of Maryland Jockey Club:

- The slowing down of tractors significantly during harrowing.
- Triple harrowing of the track before breaks; once wrong way and twice right way.
- Moderate watering procedure changes so the surface does not explode under horse's feet, which has been a regular complaint from horsemen and riders.
- Usage of drag harrows. I strongly feel that adjustable harrows on wheels that have been used are not suitable for this racetrack surface. Drag harrows will give the cushion significantly more body in short order.
- Horsemen have stated they have concerns about the track surface after rain. I noticed that underneath the cushion, the current silt material is holding a little too much water. This will be observed and can easily be addressed in the future.

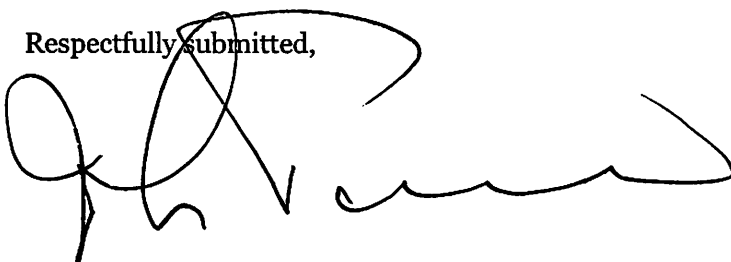
I have been provided complete specifications of the composition of the track surface and will perform an analysis and make recommendations, subject to the approval of MJC.

My number one goal is to continue to recommend changes to protocols with the goal of getting more body into the cushion. I will also continue to recommend the MJC track crew closely regulate water applications which should make a significant difference. With the recommended adjusted watering and harrowing performed this morning, I have already noticed significantly more body in the track.

In my best opinion and based on my observations and recommended changes to the maintenance plan in effect, I feel that the Laurel Park dirt surface is safe for training beginning on Thursday, April 27, 2023.

Furthermore, I recommend and endorse taking entries for Saturday, April 29, 2023, and soliciting feedback from horsemen and riders after training on Thursday, April 27 and Friday, April 28. I will closely monitor weather conditions and may recommend the cancellation of training on Saturday morning to make sure the track is primed and safe for racing in the afternoon, which I fully expect it to be.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'John Passero', written over the 'Respectfully submitted,' text.

## **Appendix IV**

*April 21, 2023 Letter from Maryland Jockey Club to  
Maryland Racing Commission*



## THE MARYLAND JOCKEY CLUB

P.O. Box 130  
Laurel, Maryland 20725

April 21, 2023

Mr. Michael J. Algeo  
Chairman  
Maryland Racing Commission

Dear Chairman Algeo,

We write regarding the cancellation of racing today following our communication where you stated that you had consulted with several stakeholders and recommended we not race until certain track issues are satisfactorily addressed. Furthermore, you informed us that you had authorized the Maryland Racing Commission (MRC) to issue a Plenary Order to cease racing at Laurel if we did not agree to cancel racing.

While we appreciate your concerns and share your commitment to safety we want to assure you that 1/ST Racing & Gaming and the Maryland Jockey Club are continually and proactively engaged in analyzing our racing and training surfaces. In fact, Dennis Moore, a leading industry expert has been on site for three days to conduct routine testing of the Laurel Park racing surface. During this time, the following battery of tests were performed by Dennis along with independent engineering experts:

- Particle size distribution via the following methods:
  - Laser Diffraction
  - Sieve and Hydrometer
- Orono Biomechanical Surface Test (ASTM Standard F3400)
  - Peak Vertical Load
  - Peak Fore-Aft Load
  - Peak Vertical Deacceleration
- Ground Penetrating Radar
- Percentage Surface Crossfall
- Bulk Density
- X-ray Diffraction
- Base Inspection

The results of these tests were all within industry norms. Based on these tests and their professional knowledge, our track experts have advised that there are no issues with the track and that it is safe to race and train.

In addition, Dr. Jennifer Durenberger, Director of Equine Safety and Welfare with HISA has at our request reviewed Laurel's fatality data, and stated "I've reviewed the data provided to me this morning by the Maryland Racing Commission and find a racing fatality rate at Laurel of approximately 1.3/1,000 starts since January 1st. By comparison, the Equine Injury Database

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### LAUREL PARK

Laurel Racing Assoc., Inc.  
(301) 725-0400 Fax (410) 792-4877

### PIMLICO RACE COURSE

The Maryland Jockey Club of Baltimore City, Inc.  
(410) 542-9400 Fax (410) 466-2521

## THE MARYLAND JOCKEY CLUB

To: Mr. Michael J. Algeo

Date: April 21, 2023

Page 2


shows a rate of approximately 1.98/1,000 at this same point (through April 21) last year." As you can see, the current fatality rate has decreased from last year at the same point.

It may be useful to remind all concerned that catastrophic injuries in racehorses are overwhelmingly the result of preexisting injuries in addition to other factors. While track surface is certainly a factor there are many others to be considered. In fact, Dr. Sue Stover, a leading researcher into racetrack musculoskeletal fatalities cautions against blaming the track stating in The Paulick Report : "The easiest thing to do is blame the racetrack [surface]...the track likely influenced what was going on, but these horses were likely set up to have these injuries no matter where they were." To this point, we don't receive post-mortem results on a timely basis and do not have access to medical records or other information concerning the horses involved which would better inform our safety reviews.

If you have any expert opinions or data contradicting the information we have provided which would form the basis for a Plenary Order due to safety concerns with the track, we request that you share that information with us as soon as possible to help us make an informed decision on allowing racing and training at our facility. Access to medical records would also be important.

Thank you for your attention to this matter and we look forward to hearing back from you.

Sincerely,

By:   
Mike Rogers  
Acting President and General Manager

By:   
Aidan Butler  
Chief Executive Officer  
1/ST Racing & Gaming

## **Appendix V**

*Dr. Alina Vale's Curriculum Vitae*

## CV of the Author

**Alina Vale, DVM, MS, cVMA**

### Veterinary Experience

**Official Veterinarian, California Horse Racing Board.** 2019-current. Equine fatality investigations. Chair, Postmortem Review Panel. Pre-race entry screening. Trainer education.

**Consultant, Horseracing Integrity & Safety Authority.** 2022- current. Support Racetrack Safety Committee develop best practices for tracks to demonstrate compliance with safety regulations; Veterinary records project.

**Consultant, British Horse Racing Authority.** 2021. Equine Postmortem Study project. 2023 Postmortem Program presentation at the summer Veterinary Officer meeting and staff training to develop a postmortem review program.

**Equine Welfare Assessment.** 2021-2022. Perform equine welfare assessments at equestrian facilities which include evaluating historical data, tailoring a questionnaire, and conducting a site visit which included observing training. Evaluate horses and the environment to identify potential concerns, educate, and collaborate with owners, trainers, riders, and other stakeholders to provide solutions to improve equine welfare and public perception. Recent projects: AQ Stable, Dubai, UAE. Hipodromo Camarero, Puerto Rico.

**Expert Witness, Court of Arbitration for Sport.** 2021. Alleged doping and equine abuse case.

**Monitoring Veterinarian, Del Mar Thoroughbred Club.** 2019. Observe morning training to identify horses not traveling well and provide emergency services. Participate in media interviews to educate the concerned public and meet with government officials to discuss racehorse welfare and safety.

**Consultant, FluxErgy.** 2018-2021. Provide insight to improve the biotech company's product portfolio, marketing content, and brand awareness for equine veterinary health.

**Drug Testing Veterinarian, United States Polo Association.** 2018- 2021. Developed a quality, standardized drug testing program to ensure equity, fairness and the appropriate use of therapeutic medications.

**Third Party Lasix Administration, Breeder's Cup, Santa Anita Park & Del Mar Thoroughbred Club.** 2014- 2019.

**Drug Testing Veterinarian, Del Mar Thoroughbred Club, CA,** 2010 & 2018 meets- Conducted pre-race TCO2 testing. 2014- Conducted Jockey Club graded stakes out of competition testing.

**Hair Sample Collection, Oklahoma Quarter Horse Racing Assoc.** 2018. Collected equine hair samples for drug testing.

**Endurance Vet,** Western US and UAE. 2009 -2018. AERC Certified control judge and treatment vet at endurance rides (including the Tevis Cup, 2010 World Equestrian Games, multi-day events) and Ride and Tie events (Head Vet at 2016 World Championships).

**Equine Technical Sales Rep, Ceva Animal Health.** Western US. 2014- 2015. Created an equine business unit in 9 states, developed relationships with key accounts, hosted educational meetings and client appreciation events, worked with universities and key opinion leaders, attended conferences, and assisted with marketing strategy.

**Associate,** von Bluecher, Blea, Hunkin, INC. Los Angeles, CA. 2012- 2013. Worked in a racetrack practice providing routine health care, airway and lameness evaluation, diagnostic imaging, general anesthesia, and emergency services.

**Interim Manager/Resident Vet,** Emaar Breeding Stable, Dubai, UAE. 2011- 2012. Managed a rapidly expanding 400-horse breeding operation, trained and supervised 28 employees, managed construction and development. Veterinary work included emergencies, routine herd health and foal care, and assisting reproduction veterinarian.

**Associate, Dubai Equine Hospital,** UAE Oct. 2010-2011. Worked at a stable of 2-year-old Thoroughbreds in training, with racehorses, endurance horses, and traveled abroad with horses.

**Intern, Rood and Riddle Equine Hospital,** Lexington, KY, 2009-2010. Rotated through the hospital services including internal medicine, lameness and surgery, anesthesia, and emergency duties.

### Research Experience

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- Leclerc, M., Magdesian, K. G., Cole, C. A., Szabo, N. J., Ruby, R. E., Rhodes, D. M., Edman, J., **Vale, A.**, Wilson, W. D., Tell, L. A. (2012) Pharmacokinetics and preliminary safety evaluation of azithromycin in adult horses. J. vet. Pharmacol. Therap. 35, 541–549.

## **Education**

**Bachelor’s Degree, Veterinary Science, University of California, Davis.**

**2007**

**Doctorate of Veterinary Medicine, University of California, Davis.**

**2009**

**Medical Acupuncture for Veterinarians, Colorado State University.**

**2014**

**Master’s Degree, Forensic Veterinary Medicine, University of Florida.**

**2016**

## **Organizations**

**American Veterinary Medical Association-** Animal Welfare Assessment Contest participant, 2018. Future Leader program, 2017- 2018, Enhanced leadership and communication skills while developing a national Pet Obesity campaign with emphasis on One Health. Participated in networking opportunities, a mentorship program, and speaking engagements including the 2018 Veterinary Leadership Conference and 2018/2019 AVMA Conventions.

2021 Convention Presentation “Can Horseracing in California Survive? Lessons Learned from the CHRB Equine Postmortem Examination Review Program”

2023 Convention Presentation “Sanctioned Horse Racing: The New Rules of Racing”

**American Association of Equine Practitioners-** Chair of the Welfare & Public Policy Advisory Council. Prior Chair of the Equine Abuse and Neglect subcommittee.

2017 Emerging Leader at the AVMA Veterinary Leadership Conference

2019 Convention: Moderator of Equine Abuse & Neglect Table Topic

2019 Convention Presentation co-author: “Mitigation of 100-mile Fatalities associated with American Endurance Rides (2002-2018)”

2021 Convention Presentation: “How to Develop an Equine Postmortem Examination Review Program”

2023 Round Table panelist: “Social License to Operate: Why does public perception matter for equine sport?”

**Association of Racecourse Veterinary Surgeons (Great Britain)**

2023 Summer Scientific Meeting Presentations: Postmortem Review Program, Strategy to Reduce Fatalities, Approach to Incidents at California Racetracks

**Racing Medication and Testing Consortium RegVet CE**

2023 Best Practices- The Racing Regulatory Veterinarian Presentation “Equine Mortality Reviews”

**International Veterinary Forensic Science Association**

2021-2023 Conference Presentations "Review of the Santa Anita Racetrack Equine Fatality Report", "Sudden Death of Medina Spirit- Postmortem Exam Review", "Equine Abuse & Neglect", "Regulated Racing vs. Unregulated (Match) Racing"

### **Midwest Veterinary Conference**

2022 Conference Presentations (6 hrs) "Equine Abuse & Neglect" for Law Enforcement and Shelter Veterinarians

**Ontario Association of Equine Practitioners 2020**, Equine Welfare Presentation

**Veterinary Information Network 2023**, Equine Abuse & Neglect Presentation

**American Endurance Ride Conference-** served on the Veterinary and Welfare of the Horse Committees. Wrote educational articles in the *Endurance News* magazine and Equine Fatality Reports.

**Lecture and mentor** pre-vet and veterinary students- Career opportunities, Equine Medicine & Surgery, Acupuncture, Veterinary Forensics, Racehorse Welfare & Safety

## **Appendix VI**

### *Summary of Dr. Vale's Report*

Expert Report  
Alina Vale, DVM, MS  
Consultant

Horseracing Integrity & Safety Authority  
Laurel Park Fatalities Veterinary Review 2023

## Veterinary Review

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## Introduction

The Horseracing Integrity & Safety Authority (HISA) has accumulated data obtained from equine fatalities at Laurel Park Racetrack in Laurel, Maryland. All horses were submitted to the Frederick Animal Health Laboratory for necropsy (an animal autopsy, or postmortem examination).

## Instructions

I have been instructed by Dr. Jennifer Durenberger, HISA's Director of Equine Safety and Welfare to review information provided by the Maryland Racing Commission (MRC) and HISA regarding each fatality at Laurel Park during the Spring 2023 race meet. I have been provided with documents from 13 equine fatality cases, including 2 medical cases, 1 sudden death and 10 musculoskeletal cases. Documents included necropsy reports, fatality reports, death certificates, investigation reports, pre-race inspection records, race charts, past performance information, workout histories, and medical records covering the final 60 days.

## Postmortem Examination Review #1: Goldbar

Horse Information: 4-year-old Thoroughbred gelding, Microchip # 981020031377683, Trainer: Jamie Ness

### Incident Summary:

On January 14, 2023 Goldbar was tacked up and in the shedrow of the stable area prepared for training. The horse collapsed and was untacked then stood with assistance. The horse was walked into the stall and treated by attending veterinarians. The horse collapsed and displayed seizure activity then was euthanized. Blood samples were submitted for testing.

### Necropsy Summary:

A necropsy examination revealed suspected right thorax trauma with possible rib fracture at T11. The liver was sampled for anticoagulant rodenticide testing, and no rodenticides were detected.

### Racing/Training History:

The horse ran 4 races, with the final race 1/7/23. The horse won the final race and was claimed. The horse had not trained since the claim due to swelling over the left jugular vein, which the new trainer noted 2 days after the claim. This was the first morning the horse was saddled to be taken to the track with the final trainer.

### Conclusion:

This horse sustained trauma of unknown origin and collapsed in the barn area.

## Postmortem Examination Review #2: Bullout

Horse Information: 3-year-old Thoroughbred gelding, Microchip# 9851020035768410, Trainer: Hamilton Smith

### Incident Summary:

On February 5, 2023 Bullout was performing a 4 furlong timed workout on the dirt track during morning training to be removed from the Veterinarian's List. The horse appeared sound under saddle for the regulatory veterinarian. The track was listed as fast. The horse was injured galloping out after the work and pulled up near the 15/16ths pole. The horse was treated then euthanized on the track by an attending veterinarian. A blood sample was collected for drug testing. During the MRC review, the jockey shared that he believed the track was frozen beneath the cushion on the day of injury. In the investigation report it was explained that the track was frozen and hard.

### Necropsy Summary:

A necropsy examination revealed a comminuted P1 (long pastern bone, or first phalanx) fracture in the right forelimb. The pathologist commented the fracture was unique compared to what is normally seen.

### Racing/Training History:

This horse ran 5 races in 2022 and was scratched during the post parade prior to a race 1/8/23. The horse worked 4 furlongs on 1/25/23. The horse had not yet worked off the veterinarian's list at the time of the injury.

### Conclusion:

This horse sustained a pastern fracture galloping out after a timed workout. Concern was expressed that the track was hard and frozen beneath the cushion.

### Postmortem Examination Review #3: Celtic Cousen

Horse Information: 4-year-old Thoroughbred gelding, Microchip# 981020031383379, Trainer: Hamilton Smith

#### Incident Summary:

On February 10, 2023 Celtic Cousen was performing a timed workout during morning training. The dirt track was listed as fast. The horse began the work at the ½ mile pole and was injured and pulled up at the 3/8ths pole. The horse was treated then euthanized on the track by an attending veterinarian.

#### Necropsy Summary:

A necropsy examination revealed a comminuted P1 fracture in the left forelimb. Additional findings included moderate to severe degenerative joint disease in the fetlock joints, characterized by score lines and bone cysts on both condyles.

#### Racing/Training History:

This horse began timed works on 8/11/21 but did not race as a 2-year-old. The horse performed timed workouts throughout 2022 at Elloree Training Center in South Carolina and had 4 lifetime starts with the first 11/20/22 and the final 1/27/23. The horse was scratched from a race and placed on the Veterinarian's List 10/30/22, reportedly for a hoof quarter crack. The horse returned to timed works 11/6/22 from the gate with the note 'driving'. The horse accumulated 133 high-speed furlongs (HSF) prior to the first start then only worked once, 12/22/22 (48.4s for 4 furlongs over a muddy track), after beginning the racing career. The trainer reported receiving the horse from the training center three months prior to injury.

#### Conclusion:

This horse sustained a pastern fracture between the approaching the 3/8ths pole just after starting a timed workout.

## Postmortem Examination Review #4: Auspicious Lad

Horse Information: 4-year-old Thoroughbred gelding, Microchip #981020031371631 (not detectable at necropsy), Trainer: Kenneth Cox

### Incident Summary:

On February 23, 2023 Auspicious Lad was galloping on the dirt track during morning training. The horse collapsed and died at the 5/8ths pole. A blood sample was collected for drug testing.

### Necropsy Summary:

A necropsy examination revealed: head trauma (hemorrhage) suspected possibly at the time of the fall; right shoulder bruising present; traces of rodenticide (diphacinone) detected in the liver. The cause of death was believed to be due to trauma and rodenticide exposure.

Tissue samples were submitted to the University of California at Davis for histology (microscopic examination). The degree of autolysis (tissue degradation) precluded identification of all the possible lesions that could have contributed to the sudden death. The conclusion was that the cause of death was undetermined.

### Racing/Training History:

This horse did not race as a 2-year-old. The horse ran 15 lifetime races, with the final race 2/17/23. The horse had not worked since 12/21/22.

### Conclusion:

This horse collapsed while galloping during morning training. Autolysis hindered histological examination. Trauma was suspected to be due to the fall. Traces of Diphacinone anticoagulant rodenticide were detected. A definitive cause of death was not determined.

## Postmortem Examination Review #5: Lady Macho

Horse Information: 7-year-old Thoroughbred mare, Microchip# 981020019324545 (noted in the necropsy as 981020019324544), Trainer: William E. Atkins

### Incident Summary:

On March 18, 2023 Lady Macho ran in a Starter Allowance race at 1 mile on the dirt track with a purse of \$26,000. The weather was clear, and the track was rated as fast. The horse broke from post position 4 at 12:58 P.M. The horse started to drift out 4 wide and was injured at the 3/8ths pole and fell. The number 5 horse collided with Lady Macho from behind and fell. The number 5 horse's jockey sustained a concussion and has fully recovered. Lady Macho stood and traveled to the outside rail. The horse was evaluated and euthanized on the track by a regulatory veterinarian. A blood sample was collected for drug testing.

### Necropsy Summary:

A necropsy examination confirmed a comminuted P1 fracture in the right forelimb. Additional findings included degenerative joint disease in the other fetlock joints and fibrotic tendons and ligaments in the left hock.

### Racing/Training History:

This horse did not race as a 2-year-old. The horse had 52 lifetime starts. The horse did not race between Dec. 2019 and July 2020, but otherwise raced approximately monthly, and sometimes twice per month. The final trainer claimed the horse 4/9/22, and the horse had been claimed 4 other times during the racing career. The trainer scratched the horse from a race 1/6/23 then the horse worked 1/8/23. The final work was 3/9/23, 5 furlongs in 1:02.6.

### Conclusion:

This horse sustained a pastern fracture at the 3/8ths pole during a race.

## Postmortem Examination Review #6: Forth

Horse Information: 5-year-old Thoroughbred gelding, Microchip# 981020023486914, Trainer: Mario Serey, Jr.

### Incident Summary:

On March 25, 2023 Forth ran in a Claiming race at 6 furlongs on the dirt track with a purse of \$20,520. The horse was in for a claiming price of \$5,000. The weather was cloudy, and the track was listed as sloppy (sealed). The race was off at 2:34 P.M. and the horse was running near the front then was injured and fell near the ¼ pole. The horse stood and traveled clockwise on the track. The horse was evaluated and euthanized on the track by a regulatory veterinarian. A blood sample was collected for drug testing.

### Necropsy Summary:

A necropsy examination revealed an open, comminuted, mid-cannon bone fracture of the left forelimb. Additional findings included a small divot on the proximal aspect of the cannon bone in the right carpus.

### Racing/Training History:

This horse did not race as a 2-year-old. The horse had 20 lifetime starts, with no races between June 2021 and March 2022. The horse was claimed 12/29/22 and raced 6 times, but never worked, with the final trainer.

### Conclusion:

This horse sustained an open mid-cannon bone fracture during a race. The track was listed as sloppy (sealed).

## Postmortem Examination Review #7: Utterly Courageous

Horse Information: 5-year-old Thoroughbred mare, Microchip# 981020027288212, Trainer: Aimee Hall

### Incident Summary:

On March 29, 2023 Utterly Courageous was euthanized by an attending veterinarian due to pain associated with a sesamoid bone fracture and suspected laminitis. The horse had been injured and fell at the 1/8<sup>th</sup> pole on 3/5/23 during a 4-furlong workout on the dirt track, which was rated as fast. The horse was transported by ambulance off the track for radiographs, and subsequent medical management in the stall at the racetrack. The rider, who was also the trainer and owner, was injured, attended to by track paramedics, and ambulated to the University of Maryland Hospital. During the investigation, the trainer noted the track contributed to the injury, stating it was a little dry but normal.

### Necropsy Summary:

A necropsy examination revealed a non-healed apical and midbody fracture (3 pieces) of the medial sesamoid bone in the left forelimb. On cross section the hoof wall appeared thicker with remodeling around the coffin bone and subjective rotation. On cross section of the right front hoof there did not appear to be rotation of the coffin joint. The left front hoof had an egg bar horseshoe with toe grabs.

### Racing/Training History:

This horse did not race as a 2-year-old and did not begin timed works until July 2021. The horse ran 17 lifetime races, beginning 11/12/21. The horse ran 15 races in 2022 and the final race was 1/22/23. The horse did not work after the final race until 3/5/23, the day of the injury.

### Conclusion:

This horse sustained a medial sesamoid bone fracture while performing a high-speed workout. Medical management was pursued instead of surgical repair. The horse was euthanized 24 days after injury.

## Postmortem Examination Review #8: We Call Him Clyde

Horse Information: 3-year-old Thoroughbred gelding, Microchip# 981020033751857, Trainer: Donna Lockard

### Incident Summary:

On April 8, 2023 We Call Him Clyde was performing a workout on the dirt track during morning training, within the first ten minutes after the harrow break but behind other horses. The track was rated as fast. The horse pulled up near the ¼ pole with a right hind comminuted pastern fracture. The attending veterinarian evaluated and euthanized the horse on the track. In the investigation the trainer reported the racetrack contributed to the injury, stating it was apparently not good. The jockey riding the horse during workouts reported the track condition was bad, in that horses were digging very deep into the base of the track.

### Necropsy Summary:

A necropsy examination revealed a comminuted P1 fracture in the right hind limb. Additional findings included a severe bleeding stomach ulcer. The hind limb pastern fracture was atypical as was the severity of the ulcer compared to other racehorses the pathologist had examined.

### Racing/Training History:

This horse did not race as a 2-year-old. The horse ran 1 race, on 1/15/23. On 3/19/23 the horse was a medical scratch from a race for being sick or off feed. The horse worked 4/2/23, 4 furlongs in :51.8, ranking 44/44.

### Conclusion:

This horse sustained a pastern fracture during a high-speed workout.

## Postmortem Examination Review #9: Notion Street

Horse Information: 3-year-old Thoroughbred filly, Microchip# 981020035773536, Trainer: Benjamin M. Feliciano, Jr.

### Incident Summary:

On April 8, 2023 Notion Street was performing a workout on the dirt track during morning training at approximately 7:40 A.M. The track was rated as fast. After switching leads the horse was injured and pulled up near the 3/8ths pole. The horse was transported by ambulance off the track, and treated and evaluated by an attending veterinarian prior to euthanasia. In the Investigation report the trainer noted the track was a little hard, and the jockey reported the track was hard.

### Necropsy Summary:

A necropsy examination revealed biaxial sesamoid bone fractures in the right forelimb. Additional findings included degenerative joint disease characterized by bone cysts on distal cannon bone in the right front fetlock joint.

### Racing/Training History:

This horse did not race nor perform timed workouts as a 2-year-old. The horse completed 6 works at the Fairhill Training Center then ran 1 race on 3/19/23 and was claimed. The final works were spaced out (2/21/23, 3/1/23) leading up to the race and the horse had not completed a timed work since the previous race.

### Conclusion:

This horse sustained biaxial sesamoid bone fractures during a high-speed work near the 3/8ths pole. This horse completed 6 timed works as a 3-year-old then ran once and was claimed. There was a delay in working back.

## Postmortem Examination Review #10: Hello Jamrock

Horse Information: 4-year-old Thoroughbred filly, Microchip# 981020033089824, Trainer: Valrie Smith

### Incident Summary:

On the morning of April 11, 2023 Hello Jamrock was euthanized by an attending veterinarian for unresolving right hock cellulitis and laminitis developing in the left hindlimb.

### Necropsy Summary:

A necropsy examination revealed cellulitis of the right hindlimb (*Streptococcus dysgalactiae* spp. *Equisimilis* was cultured from the hock) with necrosuppurative tendonitis, and laminitis of the left hindlimb.

### Racing/Training History:

This horse ran 8 lifetime races. In the Investigation report, the trainer shared that the horse had arthroscopic chip removal surgery in the knees (carpi) in March 2022. The last work was 1/21/23 then the horse raced 1/29/23, 3/12/23, and 4/2/23. The horse was a Stewards List scratch on 2/11/23 and was scratched 3/25/23. The trainer reported the horse was injured in the starting gate during the final race, in which the horse was bumped at the start and finished last. The jockey was not interviewed as part of the investigation. The horse was not euthanized the day of the race, however, the trainer believed the fatality was due to an incident in the starting gate. Thus, a jockey interview may have led to a better understanding of the circumstances of the incident.

### Conclusion:

This horse was euthanized due to an infection in a hind limb and concern of laminitis in the opposite hindlimb.

## Postmortem Examination Review #11: Witty Banter

Horse Information: 7-year-old Thoroughbred mare, Microchip# 981020019473975 & 981020025183411, Trainer: Hamilton Smith

### Incident Summary:

On April 18, 2023 Witty Banter was galloping on the dirt track during morning training. The dirt was listed as fast. The horse was injured and pulled up, transported by ambulance off the track, and treated and radiographed by an attending veterinarian prior to euthanasia. In the Investigation report the trainer stated he believed that the racetrack contributed to the injury. The trainer shared that he thought the track was not maintained properly, especially at the end of the gap between the 6 furlong and 5 ½ pole where the tractors make a circle to go to the mile pole maintenance gap. In the Investigation report the exercise rider stated the incident occurred at the ¾ pole, and that the track was deep. The exact location was not noted in the death certificate.

### Necropsy Summary:

A necropsy examination revealed a comminuted P1 fracture in the right forelimb. Additional findings included degenerative joint disease, characterized as bone cysts, in all four fetlocks which the pathologist noted to be common in a racehorse of this age.

### Racing/Training History:

This horse did not race as a 2 nor 3-year-old. The horse had 31 lifetime starts with the final race 2/24/23.

### Conclusion:

This horse sustained a pastern fracture while galloping during morning training.

## Postmortem Examination Review #12: Golden Pegasus

Horse Information: 4-year-old Thoroughbred colt, Microchip # 981020031321788, Trainer: Hugh McMahon

### Incident Summary:

On April 20, 2023 Golden Pegasus ran in a 1 1/16 miles Claiming race on the dirt with a \$44,000 purse. The horse was in for a claiming price of \$40,000. The weather was clear, and the track was listed as fast. The race was off at 2:00 P.M., and the horse was checked off the leader's heels approaching the backstretch, then regrouped to track towards the rail. The horse was injured and fell near the 3/8ths then continued another 1/16<sup>th</sup> mile without the ride. The horse was euthanized on the track by a regulatory veterinarian. In the Investigation report the trainer noted horses were digging very deep into the foundation of the track and felt there was a lot of moisture in the track that day. The jockey reported the track was fast and hard.

### Necropsy Summary:

A necropsy examination revealed biaxial sesamoid bone fractures in the right forelimb. Additional findings included degenerative joint disease, characterized as bone cysts, in all four fetlocks which the pathologist noted to be common in a racehorse of this age.

### Racing/Training History:

This horse did not race as a 2-year-old. The horse ran 11 lifetime races, and this was the first race with the final trainer after being claimed 2/23/23 at the New Orleans Fairgrounds Racecourse. The horse had a history of 1 other claim and 2 trainer changes. The final works were 3/14/23, 3/23/23, 4/3/23, and 4/14/23 with the final 2 works each 1 mile in length.

### Conclusion:

This horse sustained sesamoid bone fractures near the 3/8ths pole during a race.

### Postmortem Examination Review #13: Bigmancan

Horse Information: 6-year-old Thoroughbred gelding, Microchip# 981020023299550, Trainer: Damon R. Dilodovico

#### Incident Summary:

On April 20, 2023 Bigmancan ran in the 5<sup>th</sup> race, a 6 furlong Starter Optional Claiming race on the dirt. The purse was \$32,600 and the horse was in for a \$16,000 claim. The weather was clear, and the track was listed as fast. The race was off at 2:34 P.M. The horse was injured at the ½ mile pole after racing a ¼ mile and pulled up. The horse was transported by ambulance off the track then treated and radiographed by an attending veterinarian prior to euthanasia.

#### Necropsy Summary:

A necropsy examination revealed a fractured medial proximal sesamoid bone in the right forelimb. Additional findings included degenerative joint changes in the forelimb fetlock joints, and the pathologist noted the changes are common in racehorses.

#### Racing/Training History:

This horse ran 38 lifetime races. The horse was claimed 6 times, with the final claim 2/11/23. The horse raced 3/4/23, 3/25/23 and 4/30/23 with the final trainer. The horse did not perform a timed workout with the final trainer. In the Investigation report the trainer stated that he did not train the horse when the track was bad, and the horse had big ankles (fetlocks). The trainer also reported administering bute (phenylbutazone) sometimes.

#### Conclusion:

This horse sustained a medial proximal sesamoid bone fracture after racing a quarter mile.

## **Appendix VII**

*Dr. Susan Stover's Curriculum Vitae*

## **SUSAN M STOVER, DVM PhD DiplACVS**

Distinguished Professor Emeritus, Department of Surgical and Radiological Sciences  
University of California, Davis, CA 95616

### **Current and Previous Positions**

2023-present	Distinguished Professor Emeritus, JD Wheat Veterinary Orthopedic Research Laboratory, VM:Surgical and Radiological Sciences, University of California, Davis, Davis, CA
2019-2023	Distinguished Professor and Director, JD Wheat Veterinary Orthopedic Research Laboratory, VM:SRS, University of California, Davis, Davis, CA
2017-2019	Distinguished Professor and Director, JD Wheat Veterinary Orthopedic Research Laboratory, VM:APC, University of California, Davis, Davis, CA
1998-2017	Professor and Director, JD Wheat Veterinary Orthopedic Research Laboratory, VM:APC, University of California, Davis, Davis, CA
1994-1998	Associate Professor, VM:APC, University of California, Davis, Davis, CA
1987-1994	Assistant Professor, Dept. Anatomy, Physiology & Cell Biology (VM:APC), School of Veterinary Medicine, University of California, Davis, Davis, CA
1980-1983	Visiting Lecturer (Equine Surgeon), Department of Surgery, School of Veterinary Medicine, University of California, Davis, Davis, CA
1979-1980	Veterinarian, Central Washington Equine and Livestock Clinic, Yakima, WA

### **Educational Background**

Washington State University, Pullman, WA	BS	1974	Veterinary Science
Washington State University, Pullman, WA	DVM	1976	Veterinary Medicine
University of California, Davis, CA	Internship	1976-1977	Equine Surgery
University of California, Davis, CA	Residency	1977-1979	Equine Surgery
American College of Veterinary Surgeons	Diplomate	1986	Veterinary Surgery
University of California, Davis, CA	PhD	1987	Comparative Pathology

### **Short Summary**

Dr. Stover is a Distinguished Professor Emeritus at the University of California at Davis. She received her veterinary degree from Washington State University, and subsequently completed an Equine Surgery Internship and Residency at University of California at Davis. She was in equine practice in Washington State before returning to the Veterinary Medical Teaching Hospital, UC Davis to teach clinical equine lameness and surgery to veterinary students and residents. She became board certified by the American College of Veterinary Surgeons while pursuing a PhD program focused on equine orthopedic research (Dorsal metacarpal disease ('bucked shins') in Thoroughbred racehorses). She now devotes her time to equine orthopedic research, with over 200 research publications.

Her major research focuses are the biomechanics and prevention of musculoskeletal injuries in equine athletes and treatment of orthopedic disorders in domestic and non-domestic animals. Her key contributions to the safety and welfare of horses include discovery and detection of lesions that predispose to catastrophic injuries in racehorses and elucidation of factors that contribute to injury development in racehorses and sport horses. Current research efforts are focused on understanding how training and injury affect bone adaptation or propensity for bone fracture and the effects of arena surface materials and shoes on hoof and fetlock biomechanics and thus propensity for injury in athletes.

### **Honors**

1976	Large Animal Surgery Clinics Award, College of Veterinary Medicine, Washington State University
1983	Clinical Faculty Teaching Award, School of Veterinary Medicine, University of California, Davis

- 1986 Autotutorial Excellence SCAVMA National Symposium Videotape - "Surgical Removal of One Conceptus from the Mare with a Twin Pregnancy"
- 1996 Norden Distinguished Teaching Award for the School of Veterinary Medicine, Univ California, Davis
- 1997 Bayer Excellence in Equine Research Award, American Veterinary Medical Association Council on Research
- 2005 Chancellor's Distinguished Lectureship Series, Louisiana State University, "Clues to the genesis of musculoskeletal injuries from Thoroughbred racehorses"
- 2007 Faculty Research Award, School of Veterinary Medicine, University of California, Davis
- 2007 American Horse Publications Award, 3<sup>rd</sup> place, "Suspensory Ligament Injuries in Horses", co-author
- 2008 Outstanding Women in Racing
- 2010 Distinguished Veterinary Alumnus Award for Excellence in Teaching and Research, Washington State University
- 2013 Alumni Achievement Award, School of Veterinary Medicine, University of California, Davis
- 2014 American College of Veterinary Surgeons Foundation Award for Career Achievement
- 2016 American Veterinary Medical Association Lifetime Excellence in Research Award
- 2016 University of Kentucky Equine Research Hall of Fame Inductee
- 2018 International Equine Veterinarian Hall of Fame Inductee, American Farriers Journal
- 2019 John Hickman Memorial Lecture, British Equine Veterinary Association
- 2022 Frank J. Milne State-of-the-Art Lecture, American Association of Equine Practitioners

**Racehorse and Sport Surface Related Publications (from over 200 publications)**

- 1992 Stover SM, Johnson BJ, Daft BM, Read DH, Anderson M, Barr BC, Kinde H, Moore J, Stoltz J, Ardans AA. An association between complete and incomplete stress fractures of the humerus in racehorses. *Equine Veterinary Journal*, 24(4): 260-3.
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- 1994 Les CM, Keyak JH, Stover SM, Taylor KT, Kaneps AJ. Estimation of material properties in the equine metacarpus with use of quantitative computed tomography. *Journal of Orthopedic Research*, 12(6): 822-33.
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- 1996 Hornof WJ, Stover SM, Koblik PD, Arthur RM. Oblique views of the ilium and the scintigraphic appearance of stress fractures of the ilium. *Equine Veterinary Journal*, 28(5): 355-8.
- 1996 Martin RB, Stover SM, Gibson VA, Gibeling JC, Griffin LV. In vitro fatigue behavior of the equine third metacarpus: remodeling and microcrack damage analysis. *Journal of Orthopedic Research*, 14(5): 794-801.
- 1996 Estberg L, Stover SM, Gardner IA, Drake CM, Johnson B, Ardans A. High-speed exercise history and catastrophic racing fracture in thoroughbreds. *American Journal of Veterinary Research*, 57(11): 1549-55.
- 1996 Martin RB, Lau ST, Mathews PV, Gibson VA, Stover SM. Collagen fiber organization is related to mechanical properties and remodeling in equine bone. A comparison of two methods. *Journal of Biomechanics*, 29(12): 1515-21.
- 1997 Martin RB, Gibson VA, Stover SM, Gibeling JC, Griffin LV. Residual strength of equine bone is not reduced by intense fatigue loading: implications for stress fracture. *Journal of Biomechanics*, 30(2): 109-14.
- 1997 Griffin LV, Gibeling JC, Gibson VA, Martin RB, Stover SM. Artifactual nonlinearity due to wear grooves and friction in four-point bending experiments of cortical bone. *Journal of Biomechanics*, 30(2): 185-8.
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## **Appendix VIII**

### *Dr. Stover's Analysis*

# Exercise History Report (Full)

## Bigmancan



**UC DAVIS**

**VETERINARY MEDICINE**

*J. D. Wheat Veterinary Orthopedic  
Research Laboratory*

**Apr-27-2023**

## **Exercise History Report (Full)**

### **J.D. Wheat Veterinary Orthopedic Research Laboratory**

This report summarizes the high speed exercise history for Case Horse. There are four parts to this report:

Part 1 is a graph that depicts the races and officially recorded high speed workouts for Case Horse over the horse's career. The graph is useful for visually assessing features of a horse's career like: career length, periods of layup, and exercise consistency. If Case Horse had zero recorded high-speed exercise events, this graph is not produced. Event histories for three breed, sex, age, and event-matched control horses are also plotted.

Part 2 includes graphs which illustrate Case Horse's exercise history alongside that of Control Horses. These graphs are useful for visually comparing periods of layup and specific rates of exercise in the horses' exercise histories.

Part 3 is a chronological listing of races and officially timed works beginning with the most recent event (race or work).

Part 4 is a chart that allows comparison of exercise variables between Case Horse and other racehorses of similar age, sex, and breed that did not die at the same time from an injury. Similar to comparing the results of a blood test to a range of normal values, the values for Case Horse can be assessed in the context of a normal range for 95% of a sample of similar racehorses that did not die during the same time as Case Horse.

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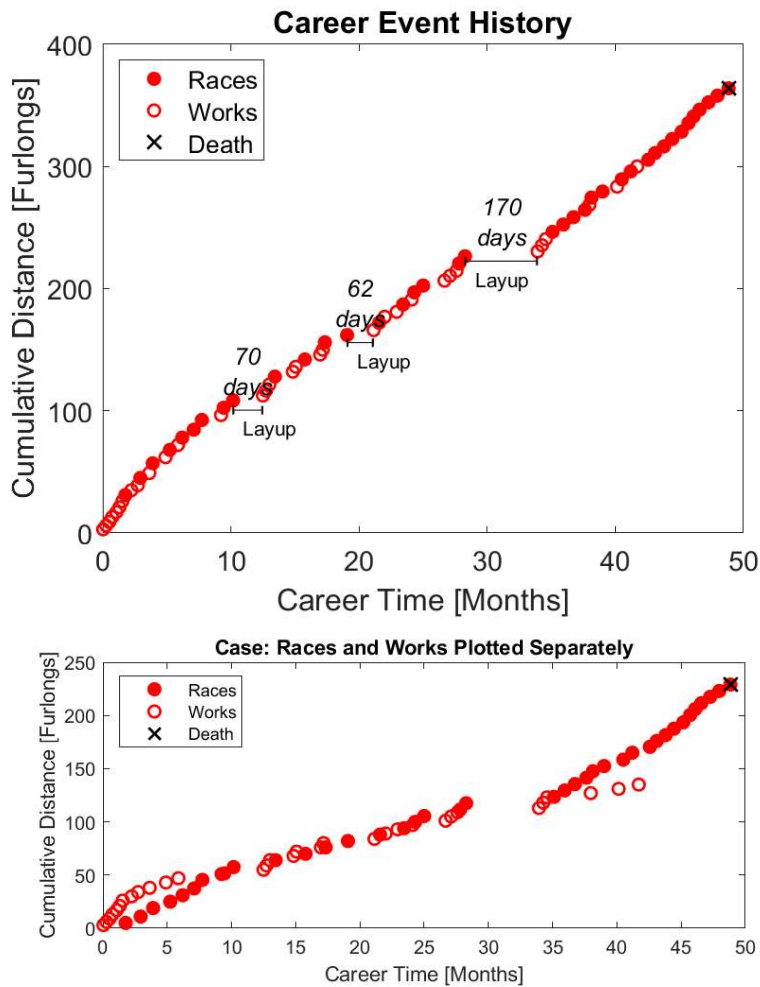
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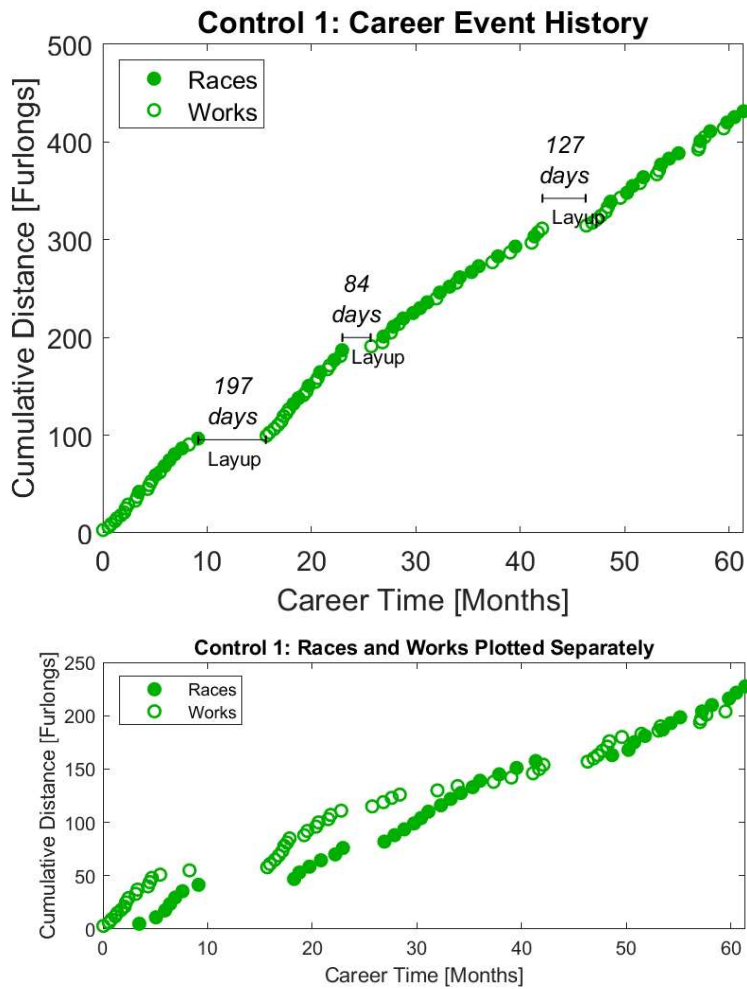
# Part 1: Graphical Representation of Individual High-Speed Exercise Histories

Races (filled circles), officially timed high-speed works (open circles), layups (line with endcaps, periods of time greater than 60 days in length without a race or timed work), and time of death (X) are illustrated over time (Career Time in months). With each event (race or work), the number of furlongs the horse exercised in that event is added to the number of furlongs exercised in all previous events.

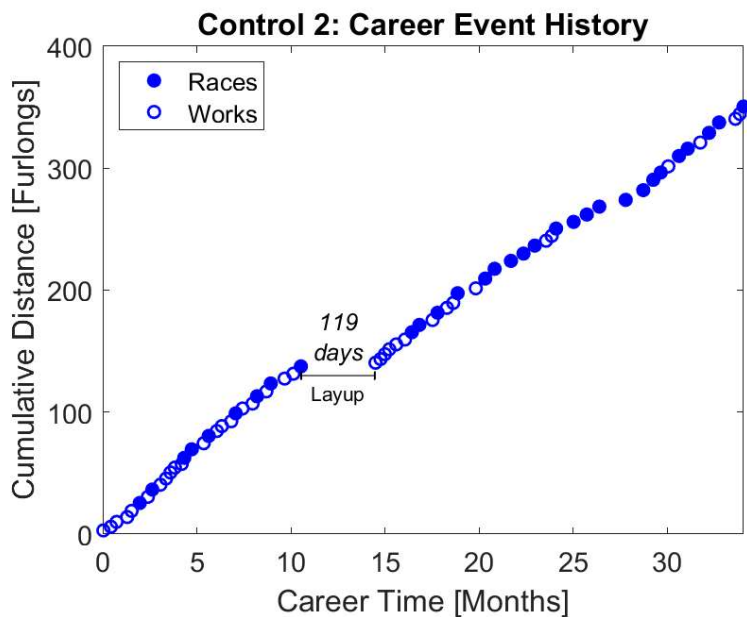
## Case Horse High Speed Exercise History



## Control 1 High Speed Exercise History

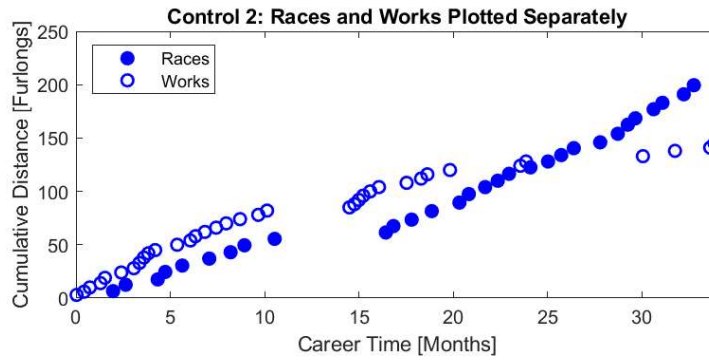


## Control 2 High Speed Exercise History

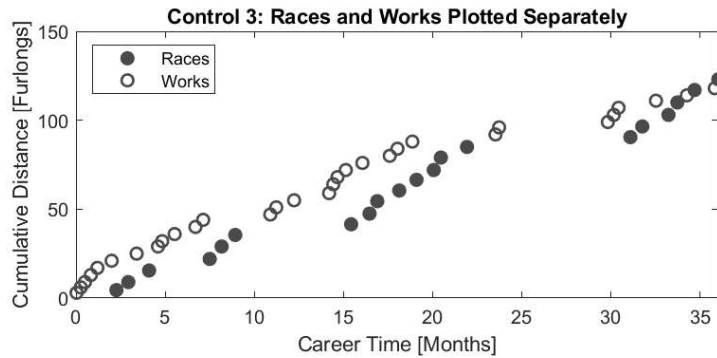
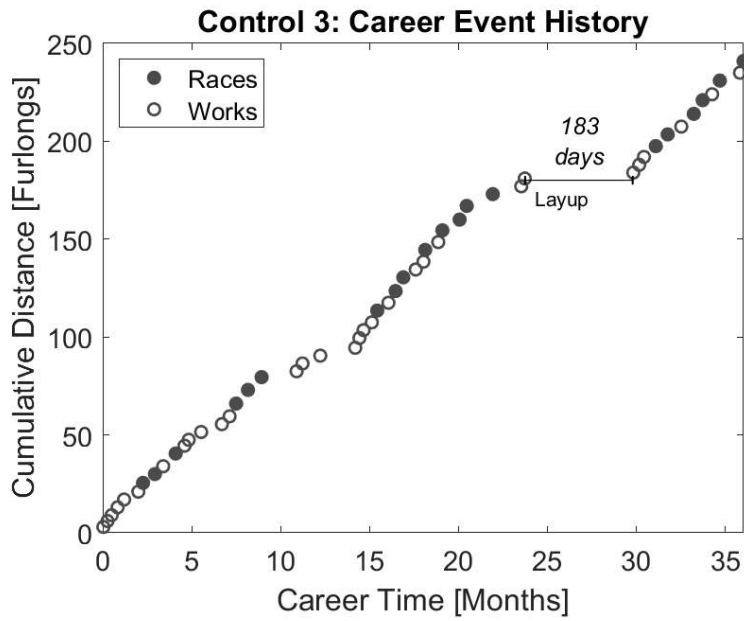


## Part 1: Graphical Representation of Individual High-Speed Exercise Histories

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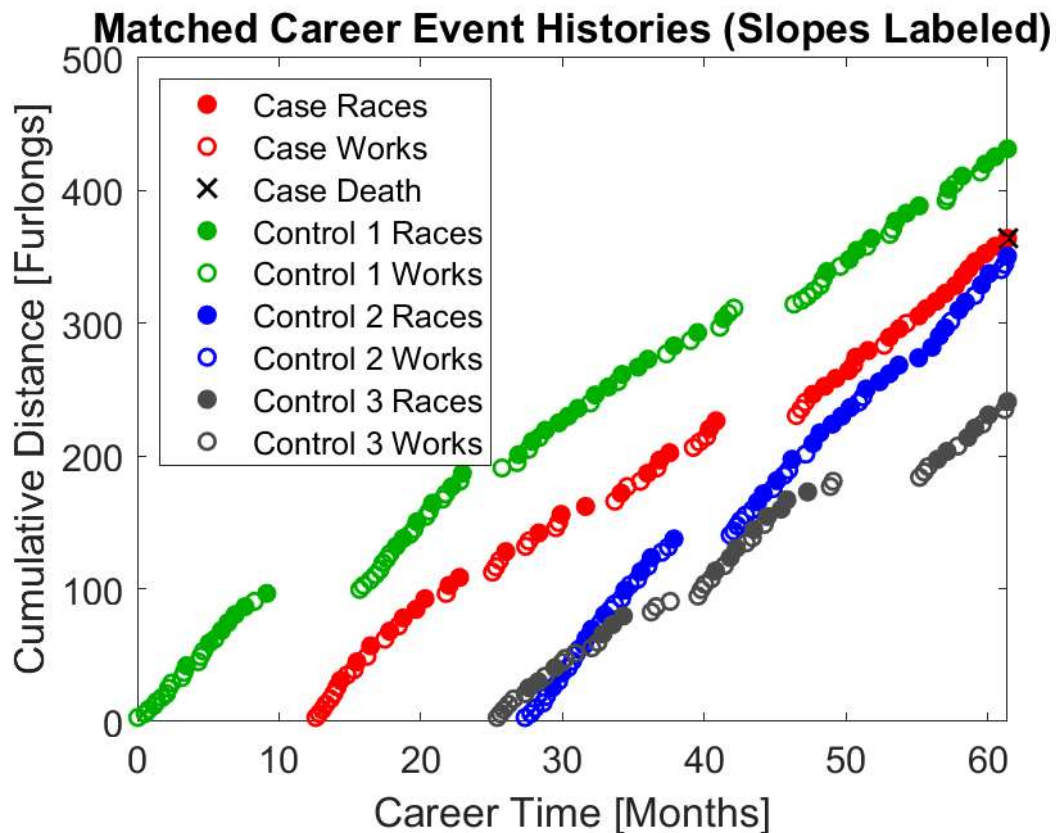


### Control 3 High Speed Exercise History



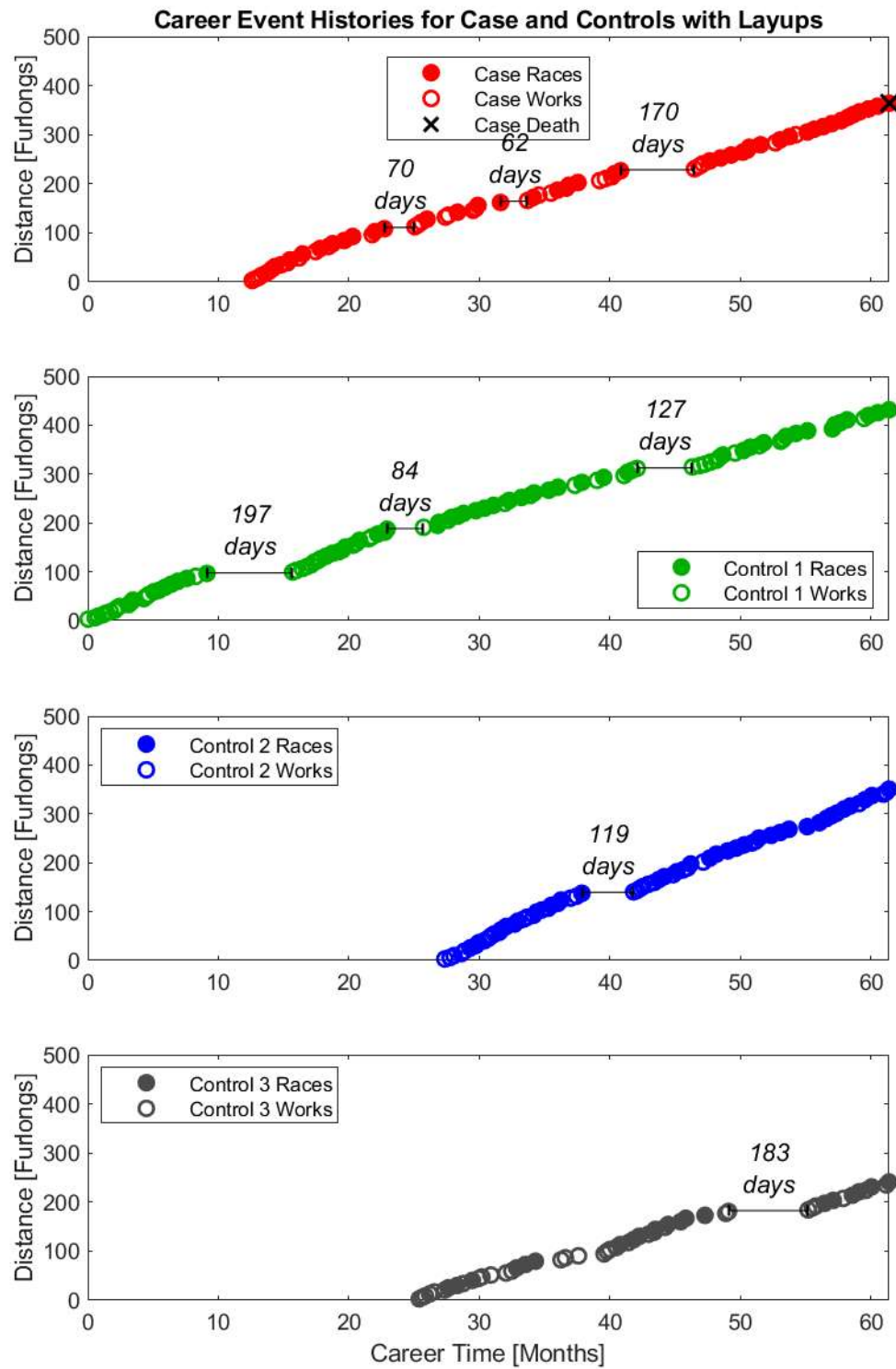
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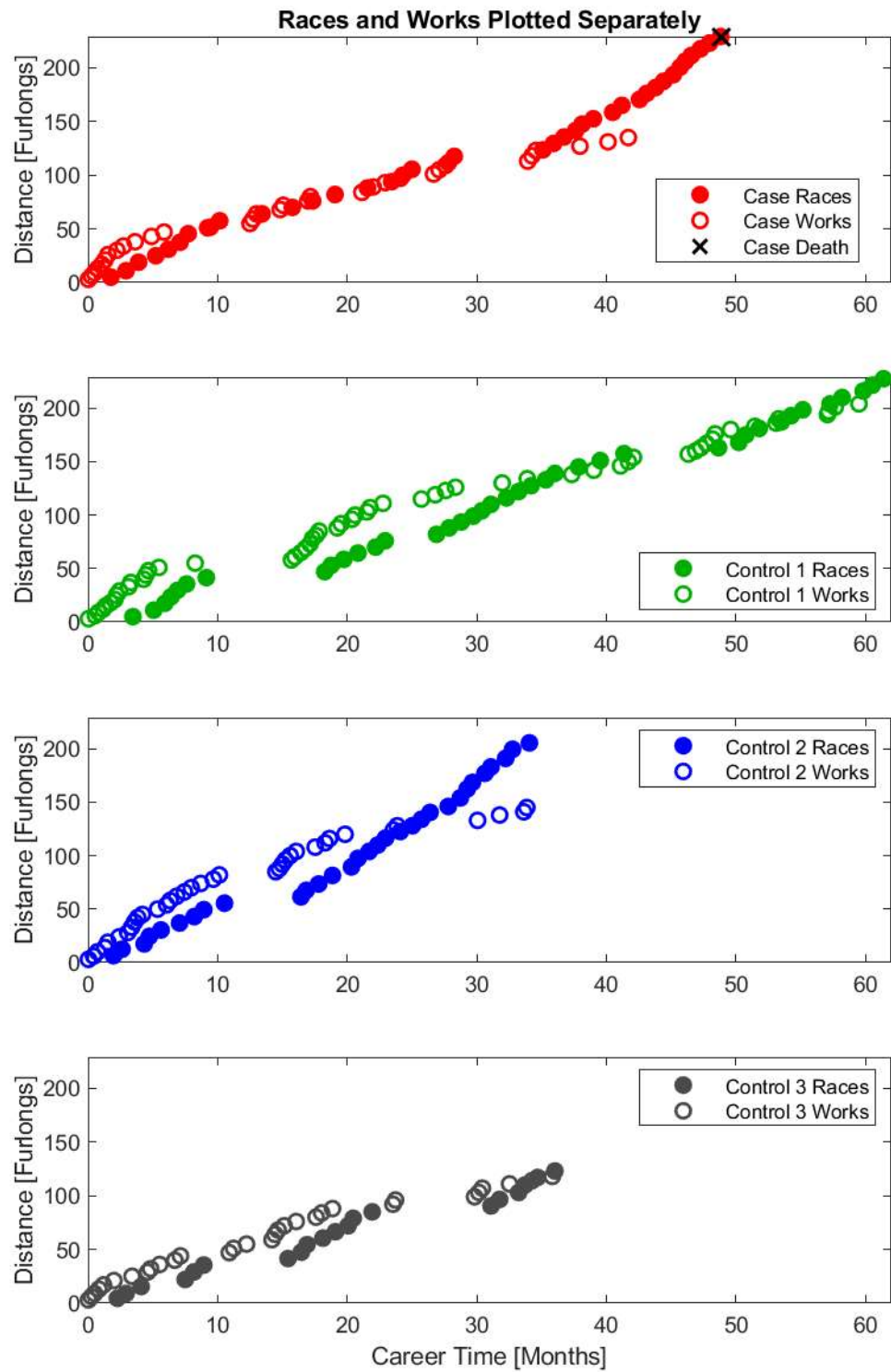
## Part 2: Case and Control Horses Plotted Together



Case and Control Horses' exercise event histories are plotted on the same axes. The plots are aligned by the match date (equal to the date of death of Case Horse). Lines segments indicate specific rates of exercise at the start of career, end of career (for Case Horse), and match date (for Control Horses). Event rates are calculated as the slopes of the plots over 2 to 5 events not spanning a layup period, in units of furlongs per month.

## Part 2: Case and Control Horses Plotted Together





## Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
4/20/2023	R	6.0	LRL	Dirt	Fast		3U	SOC 12500/20000	300	8
3/25/2023	R	5.5	LRL	Dirt	Sloppy		4U	SOC 12500 - N	1600	4
3/4/2023	R	6.0	LRL	Dirt	Fast		4U	SOC 12500 - N	3200	3
2/11/2023	R	5.5	LRL	Dirt	Fast		4U	SOC 8000/12500-c	15600	1
1/28/2023	R	5.5	LRL	Dirt	Fast		4U	Str100001\$/y	2600	3
1/16/2023	R	7.0	LRL	Dirt	Fast		4U	Aoc32000 (40-32)nw2/x	1740	5
12/31/2022	R	6.0	LRL	Dirt	Fast		3U	SOC 12500 - N	6400	2
12/9/2022	R	6.0	LRL	Dirt	Good		3U	SOC 8000 - N	15600	1
11/20/2022	R	5.5	LRL	Turf	Good		3U	SOC 8000/12500	5200	2
10/30/2022	R	5.5	LRL	Turf	Firm		3U	SOC 8000/12500	2600	3
10/14/2022	R	5.5	LRL	Dirt	Good		3U	Clm6000 (8-6)- c	4400	2
9/18/2022	W	4.0	PIM	Dirt	Fast	:51.80				
9/3/2022	R	6.5	TIM	Dirt	Fast		3U	Clm12500 (12.5-10.5)	2400	3
8/13/2022	R	6.0	LRL	Dirt	Fast		3U	Clm8000 (8-6)- c	13200	1
8/2/2022	W	4.0	PEN	Dirt	Fast	:49.80				
6/29/2022	R	5.0	PEN	Turf	Firm		3U	Clm10000 (10-9)	2090	3
6/3/2022	R	6.0	PEN	Dirt	Fast		3U	Clm6250 (6.25-6)nw2/6mx- c	7860	1
5/29/2022	W	4.0	CDT	Dirt	Fast	:49.20				
5/19/2022	R	6.0	PEN	Dirt	Fast		3U	Clm12500 (12.5-10.5)	1194	4
4/22/2022	R	6.0	PEN	Dirt	Fast		3U	Clm8000 (8-7)nw1/6mx	8160	1

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
3/29/2022	R	6.0	PEN	Dirt	Fast		4U	Clm8000 (8-7)nw1/6mx- c	2720	2
3/4/2022	R	6.0	PEN	Dirt	Fast		4U	Clm12500 (12.5-10.5)-N	597	5
2/16/2022	W	5.0	PEN	Dirt	Fast	01:02.0				
2/7/2022	W	5.0	PEN	Dirt	Fast	01:02.2				
1/28/2022	W	4.0	PEN	Dirt	Fast	:49.30				
8/11/2021	R	6.0	PEN	Dirt	Sloppy		3U	Clm10000 (10-9)nw4/L	9840	1
7/28/2021	R	6.0	PEN	Dirt	Fast		3U	Clm16000 (16-14)cnd	1991	3
7/22/2021	W	4.0	PEN	Dirt	Fast	:48.70				
7/7/2021	W	4.0	PEN	Dirt	Fast	:50.20				
6/24/2021	W	4.0	PEN	Dirt	Fast	:48.60				
5/5/2021	R	5.5	PEN	Dirt	Good		3U	Alw28000nw1/ x	16800	1
4/14/2021	R	6.0	PEN	Dirt	Fast		4U	Clm16000 (16-14)nw2/L	11280	1
4/8/2021	W	4.0	PEN	Dirt	Fast	:49.00				
3/19/2021	R	6.0	TP	AllWthr	Fast		3U	Clm15000 (15-10)nw2/L- c	1400	3
3/4/2021	W	4.0	SKY	AllWthr	Fast	:48.80				
2/4/2021	W	5.0	SKY	AllWthr	Fast	01:02.4				
1/22/2021	R	6.0	TP	AllWthr	Fast		4U	Clm15000 (15-10)nw2/L	2800	2
1/9/2021	W	4.0	SKY	AllWthr	Fast	:51.20				
11/8/2020	R	6.0	CD	Dirt	Fast		3U	Clm20000nw2/ L	1475	4
9/17/2020	R	6.0	CD	Dirt	Fast		3U	Clm50000nw2/ L	555	7
9/12/2020	W	4.0	CDT	Dirt	Fast	:49.80				
9/6/2020	W	4.0	CDT	Dirt	Fast	:48.60				
8/1/2020	R	6.0	ELP	Dirt	Sloppy		3	Alw38000nw2/ L	1140	5

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
7/11/2020	W	4.0	CDT	Dirt	Fast	:47.80				
7/4/2020	W	4.0	CDT	Dirt	Fast	:48.80				
5/23/2020	R	6.5	CD	Dirt	Fast		3U	Alw81000nw1/ x	867	7
5/10/2020	W	5.0	SKY	AllWthr	Fast	01:03.0				
5/2/2020	W	4.0	SKY	AllWthr	Fast	:51.00				
4/25/2020	W	4.0	SKY	AllWthr	Fast	:50.40				
2/15/2020	R	6.0	TP	AllWthr	Fast		3	Msw	27600	1
1/24/2020	R	6.0	TP	AllWthr	Fast		3	Msw	9200	2
1/18/2020	W	4.0	SKY	AllWthr	Fast	:49.80				
12/4/2019	R	8.0	TP	AllWthr	Fast		2	Msw	260	9
11/15/2019	R	6.5	CD	Dirt	Fast		2	Msw	4750	4
10/19/2019	R	6.0	KEE	Dirt	Fast		2	Msw	3550	4
10/9/2019	W	4.0	CDT	Dirt	Fast	:49.80				
9/20/2019	R	6.0	CD	Dirt	Fast		2	Msw	9500	3
9/10/2019	W	5.0	CDT	Dirt	Fast	01:01.8				
8/11/2019	R	8.0	ELP	Turf	Firm		2	Msw	380	7
8/3/2019	W	4.0	CDT	Dirt	Fast	:49.20				
7/13/2019	R	6.0	ELP	Dirt	Fast		2	Msw	10000	2
7/7/2019	W	4.0	CDT	Dirt	Fast	:50.20				
6/22/2019	W	4.0	CDT	Dirt	Sloppy	:53.80				
6/8/2019	R	5.0	CD	Dirt	Sloppy		2	Msw	2690	4
6/1/2019	W	5.0	CDT	Dirt	Fast	:59.80				
5/25/2019	W	4.0	CDT	Dirt	Fast	:49.20				
5/18/2019	W	4.0	CDT	Dirt	Fast	:47.60				
5/8/2019	W	4.0	CDT	Dirt	Fast	:47.80				
5/1/2019	W	3.0	CDT	Dirt	Fast	:36.00				
4/24/2019	W	3.0	CDT	Dirt	Fast	:38.80				
4/17/2019	W	3.0	CDT	Dirt	Fast	:38.40				
Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
4/20/2023	R	6.0	LRL	Dirt	Fast		3U	SOC 12500/20000	300	8

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
3/25/2023	R	5.5	LRL	Dirt	Sloppy		4U	SOC 12500 - N	1600	4
3/4/2023	R	6.0	LRL	Dirt	Fast		4U	SOC 12500 - N	3200	3
2/11/2023	R	5.5	LRL	Dirt	Fast		4U	SOC 8000/12500-c	15600	1
1/28/2023	R	5.5	LRL	Dirt	Fast		4U	Str100001\$/y	2600	3
1/16/2023	R	7.0	LRL	Dirt	Fast		4U	Aoc32000 (40-32)nw2/x	1740	5
12/31/2022	R	6.0	LRL	Dirt	Fast		3U	SOC 12500 - N	6400	2
12/9/2022	R	6.0	LRL	Dirt	Good		3U	SOC 8000 - N	15600	1
11/20/2022	R	5.5	LRL	Turf	Good		3U	SOC 8000/12500	5200	2
10/30/2022	R	5.5	LRL	Turf	Firm		3U	SOC 8000/12500	2600	3
10/14/2022	R	5.5	LRL	Dirt	Good		3U	Clm6000 (8-6)- c	4400	2
9/18/2022	W	4.0	PIM	Dirt	Fast	:51.80				
9/3/2022	R	6.5	TIM	Dirt	Fast		3U	Clm12500 (12.5-10.5)	2400	3
8/13/2022	R	6.0	LRL	Dirt	Fast		3U	Clm8000 (8-6)- c	13200	1
8/2/2022	W	4.0	PEN	Dirt	Fast	:49.80				
6/29/2022	R	5.0	PEN	Turf	Firm		3U	Clm10000 (10-9)	2090	3
6/3/2022	R	6.0	PEN	Dirt	Fast		3U	Clm6250 (6.25-6)nw2/6mx- c	7860	1
5/29/2022	W	4.0	CDT	Dirt	Fast	:49.20				
5/19/2022	R	6.0	PEN	Dirt	Fast		3U	Clm12500 (12.5-10.5)	1194	4
4/22/2022	R	6.0	PEN	Dirt	Fast		3U	Clm8000 (8-7)nw1/6mx	8160	1
3/29/2022	R	6.0	PEN	Dirt	Fast		4U	Clm8000 (8-7)nw1/6mx- c	2720	2
3/4/2022	R	6.0	PEN	Dirt	Fast		4U	Clm12500 (12.5-10.5)-N	597	5

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
2/16/2022	W	5.0	PEN	Dirt	Fast	01:02.0				
2/7/2022	W	5.0	PEN	Dirt	Fast	01:02.2				
1/28/2022	W	4.0	PEN	Dirt	Fast	:49.30				
8/11/2021	R	6.0	PEN	Dirt	Sloppy		3U	Clm10000 (10-9)nw4/L	9840	1
7/28/2021	R	6.0	PEN	Dirt	Fast		3U	Clm16000 (16-14)cnd	1991	3
7/22/2021	W	4.0	PEN	Dirt	Fast	:48.70				
7/7/2021	W	4.0	PEN	Dirt	Fast	:50.20				
6/24/2021	W	4.0	PEN	Dirt	Fast	:48.60				
5/5/2021	R	5.5	PEN	Dirt	Good		3U	Alw28000nw1/ x	16800	1
4/14/2021	R	6.0	PEN	Dirt	Fast		4U	Clm16000 (16-14)nw2/L	11280	1
4/8/2021	W	4.0	PEN	Dirt	Fast	:49.00				
3/19/2021	R	6.0	TP	AllWthr	Fast		3U	Clm15000 (15-10)nw2/L- c	1400	3
3/4/2021	W	4.0	SKY	AllWthr	Fast	:48.80				
2/4/2021	W	5.0	SKY	AllWthr	Fast	01:02.4				
1/22/2021	R	6.0	TP	AllWthr	Fast		4U	Clm15000 (15-10)nw2/L	2800	2
1/9/2021	W	4.0	SKY	AllWthr	Fast	:51.20				
11/8/2020	R	6.0	CD	Dirt	Fast		3U	Clm20000nw2/ L	1475	4
9/17/2020	R	6.0	CD	Dirt	Fast		3U	Clm50000nw2/ L	555	7
9/12/2020	W	4.0	CDT	Dirt	Fast	:49.80				
9/6/2020	W	4.0	CDT	Dirt	Fast	:48.60				
8/1/2020	R	6.0	ELP	Dirt	Sloppy		3	Alw38000nw2/ L	1140	5
7/11/2020	W	4.0	CDT	Dirt	Fast	:47.80				
7/4/2020	W	4.0	CDT	Dirt	Fast	:48.80				
5/23/2020	R	6.5	CD	Dirt	Fast		3U	Alw81000nw1/ x	867	7

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
5/10/2020	W	5.0	SKY	AllWthr	Fast	01:03.0				
5/2/2020	W	4.0	SKY	AllWthr	Fast	:51.00				
4/25/2020	W	4.0	SKY	AllWthr	Fast	:50.40				
2/15/2020	R	6.0	TP	AllWthr	Fast		3	Msw	27600	1
1/24/2020	R	6.0	TP	AllWthr	Fast		3	Msw	9200	2
1/18/2020	W	4.0	SKY	AllWthr	Fast	:49.80				
12/4/2019	R	8.0	TP	AllWthr	Fast		2	Msw	260	9
11/15/2019	R	6.5	CD	Dirt	Fast		2	Msw	4750	4
10/19/2019	R	6.0	KEE	Dirt	Fast		2	Msw	3550	4
10/9/2019	W	4.0	CDT	Dirt	Fast	:49.80				
9/20/2019	R	6.0	CD	Dirt	Fast		2	Msw	9500	3
9/10/2019	W	5.0	CDT	Dirt	Fast	01:01.8				
8/11/2019	R	8.0	ELP	Turf	Firm		2	Msw	380	7
8/3/2019	W	4.0	CDT	Dirt	Fast	:49.20				
7/13/2019	R	6.0	ELP	Dirt	Fast		2	Msw	10000	2
7/7/2019	W	4.0	CDT	Dirt	Fast	:50.20				
6/22/2019	W	4.0	CDT	Dirt	Sloppy	:53.80				
6/8/2019	R	5.0	CD	Dirt	Sloppy		2	Msw	2690	4
6/1/2019	W	5.0	CDT	Dirt	Fast	:59.80				
5/25/2019	W	4.0	CDT	Dirt	Fast	:49.20				
5/18/2019	W	4.0	CDT	Dirt	Fast	:47.60				
5/8/2019	W	4.0	CDT	Dirt	Fast	:47.80				
5/1/2019	W	3.0	CDT	Dirt	Fast	:36.00				
4/24/2019	W	3.0	CDT	Dirt	Fast	:38.80				
4/17/2019	W	3.0	CDT	Dirt	Fast	:38.40				
Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
4/20/2023	R	6.0	LRL	Dirt	Fast		3U	SOC 12500/20000	300	8
3/25/2023	R	5.5	LRL	Dirt	Sloppy		4U	SOC 12500 - N	1600	4
3/4/2023	R	6.0	LRL	Dirt	Fast		4U	SOC 12500 - N	3200	3
2/11/2023	R	5.5	LRL	Dirt	Fast		4U	SOC 8000/12500-c	15600	1

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
1/28/2023	R	5.5	LRL	Dirt	Fast		4U	Str100001\$/y	2600	3
1/16/2023	R	7.0	LRL	Dirt	Fast		4U	Aoc32000 (40-32)nw2/x	1740	5
12/31/2022	R	6.0	LRL	Dirt	Fast		3U	SOC 12500 - N	6400	2
12/9/2022	R	6.0	LRL	Dirt	Good		3U	SOC 8000 - N	15600	1
11/20/2022	R	5.5	LRL	Turf	Good		3U	SOC 8000/12500	5200	2
10/30/2022	R	5.5	LRL	Turf	Firm		3U	SOC 8000/12500	2600	3
10/14/2022	R	5.5	LRL	Dirt	Good		3U	Clm6000 (8-6)- c	4400	2
9/18/2022	W	4.0	PIM	Dirt	Fast	:51.80				
9/3/2022	R	6.5	TIM	Dirt	Fast		3U	Clm12500 (12.5-10.5)	2400	3
8/13/2022	R	6.0	LRL	Dirt	Fast		3U	Clm8000 (8-6)- c	13200	1
8/2/2022	W	4.0	PEN	Dirt	Fast	:49.80				
6/29/2022	R	5.0	PEN	Turf	Firm		3U	Clm10000 (10-9)	2090	3
6/3/2022	R	6.0	PEN	Dirt	Fast		3U	Clm6250 (6.25-6)nw2/6mx- c	7860	1
5/29/2022	W	4.0	CDT	Dirt	Fast	:49.20				
5/19/2022	R	6.0	PEN	Dirt	Fast		3U	Clm12500 (12.5-10.5)	1194	4
4/22/2022	R	6.0	PEN	Dirt	Fast		3U	Clm8000 (8-7)nw1/6mx	8160	1
3/29/2022	R	6.0	PEN	Dirt	Fast		4U	Clm8000 (8-7)nw1/6mx- c	2720	2
3/4/2022	R	6.0	PEN	Dirt	Fast		4U	Clm12500 (12.5-10.5)-N	597	5
2/16/2022	W	5.0	PEN	Dirt	Fast	01:02.0				
2/7/2022	W	5.0	PEN	Dirt	Fast	01:02.2				
1/28/2022	W	4.0	PEN	Dirt	Fast	:49.30				

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
8/11/2021	R	6.0	PEN	Dirt	Sloppy		3U	Clm10000 (10-9)nw4/L	9840	1
7/28/2021	R	6.0	PEN	Dirt	Fast		3U	Clm16000 (16-14)cnd	1991	3
7/22/2021	W	4.0	PEN	Dirt	Fast	:48.70				
7/7/2021	W	4.0	PEN	Dirt	Fast	:50.20				
6/24/2021	W	4.0	PEN	Dirt	Fast	:48.60				
5/5/2021	R	5.5	PEN	Dirt	Good		3U	Alw28000nw1/ x	16800	1
4/14/2021	R	6.0	PEN	Dirt	Fast		4U	Clm16000 (16-14)nw2/L	11280	1
4/8/2021	W	4.0	PEN	Dirt	Fast	:49.00				
3/19/2021	R	6.0	TP	AllWthr	Fast		3U	Clm15000 (15-10)nw2/L- c	1400	3
3/4/2021	W	4.0	SKY	AllWthr	Fast	:48.80				
2/4/2021	W	5.0	SKY	AllWthr	Fast	01:02.4				
1/22/2021	R	6.0	TP	AllWthr	Fast		4U	Clm15000 (15-10)nw2/L	2800	2
1/9/2021	W	4.0	SKY	AllWthr	Fast	:51.20				
11/8/2020	R	6.0	CD	Dirt	Fast		3U	Clm20000nw2/ L	1475	4
9/17/2020	R	6.0	CD	Dirt	Fast		3U	Clm50000nw2/ L	555	7
9/12/2020	W	4.0	CDT	Dirt	Fast	:49.80				
9/6/2020	W	4.0	CDT	Dirt	Fast	:48.60				
8/1/2020	R	6.0	ELP	Dirt	Sloppy		3	Alw38000nw2/ L	1140	5
7/11/2020	W	4.0	CDT	Dirt	Fast	:47.80				
7/4/2020	W	4.0	CDT	Dirt	Fast	:48.80				
5/23/2020	R	6.5	CD	Dirt	Fast		3U	Alw81000nw1/ x	867	7
5/10/2020	W	5.0	SKY	AllWthr	Fast	01:03.0				
5/2/2020	W	4.0	SKY	AllWthr	Fast	:51.00				
4/25/2020	W	4.0	SKY	AllWthr	Fast	:50.40				

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
2/15/2020	R	6.0	TP	AllWthr	Fast		3	Msw	27600	1
1/24/2020	R	6.0	TP	AllWthr	Fast		3	Msw	9200	2
1/18/2020	W	4.0	SKY	AllWthr	Fast	:49.80				
12/4/2019	R	8.0	TP	AllWthr	Fast		2	Msw	260	9
11/15/2019	R	6.5	CD	Dirt	Fast		2	Msw	4750	4
10/19/2019	R	6.0	KEE	Dirt	Fast		2	Msw	3550	4
10/9/2019	W	4.0	CDT	Dirt	Fast	:49.80				
9/20/2019	R	6.0	CD	Dirt	Fast		2	Msw	9500	3
9/10/2019	W	5.0	CDT	Dirt	Fast	01:01.8				
8/11/2019	R	8.0	ELP	Turf	Firm		2	Msw	380	7
8/3/2019	W	4.0	CDT	Dirt	Fast	:49.20				
7/13/2019	R	6.0	ELP	Dirt	Fast		2	Msw	10000	2
7/7/2019	W	4.0	CDT	Dirt	Fast	:50.20				
6/22/2019	W	4.0	CDT	Dirt	Sloppy	:53.80				
6/8/2019	R	5.0	CD	Dirt	Sloppy		2	Msw	2690	4
6/1/2019	W	5.0	CDT	Dirt	Fast	:59.80				
5/25/2019	W	4.0	CDT	Dirt	Fast	:49.20				
5/18/2019	W	4.0	CDT	Dirt	Fast	:47.60				
5/8/2019	W	4.0	CDT	Dirt	Fast	:47.80				
5/1/2019	W	3.0	CDT	Dirt	Fast	:36.00				
4/24/2019	W	3.0	CDT	Dirt	Fast	:38.80				
4/17/2019	W	3.0	CDT	Dirt	Fast	:38.40				
Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
4/20/2023	R	6.0	LRL	Dirt	Fast		3U	SOC 12500/20000	300	8
3/25/2023	R	5.5	LRL	Dirt	Sloppy		4U	SOC 12500 - N	1600	4
3/4/2023	R	6.0	LRL	Dirt	Fast		4U	SOC 12500 - N	3200	3
2/11/2023	R	5.5	LRL	Dirt	Fast		4U	SOC 8000/12500-c	15600	1
1/28/2023	R	5.5	LRL	Dirt	Fast		4U	Str100001\$/y	2600	3
1/16/2023	R	7.0	LRL	Dirt	Fast		4U	Aoc32000 (40-32)nw2/x	1740	5

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
12/31/2022	R	6.0	LRL	Dirt	Fast		3U	SOC 12500 - N	6400	2
12/9/2022	R	6.0	LRL	Dirt	Good		3U	SOC 8000 - N	15600	1
11/20/2022	R	5.5	LRL	Turf	Good		3U	SOC 8000/12500	5200	2
10/30/2022	R	5.5	LRL	Turf	Firm		3U	SOC 8000/12500	2600	3
10/14/2022	R	5.5	LRL	Dirt	Good		3U	Clm6000 (8-6)- c	4400	2
9/18/2022	W	4.0	PIM	Dirt	Fast	:51.80				
9/3/2022	R	6.5	TIM	Dirt	Fast		3U	Clm12500 (12.5-10.5)	2400	3
8/13/2022	R	6.0	LRL	Dirt	Fast		3U	Clm8000 (8-6)- c	13200	1
8/2/2022	W	4.0	PEN	Dirt	Fast	:49.80				
6/29/2022	R	5.0	PEN	Turf	Firm		3U	Clm10000 (10-9)	2090	3
6/3/2022	R	6.0	PEN	Dirt	Fast		3U	Clm6250 (6.25-6)nw2/6mx- c	7860	1
5/29/2022	W	4.0	CDT	Dirt	Fast	:49.20				
5/19/2022	R	6.0	PEN	Dirt	Fast		3U	Clm12500 (12.5-10.5)	1194	4
4/22/2022	R	6.0	PEN	Dirt	Fast		3U	Clm8000 (8-7)nw1/6mx	8160	1
3/29/2022	R	6.0	PEN	Dirt	Fast		4U	Clm8000 (8-7)nw1/6mx- c	2720	2
3/4/2022	R	6.0	PEN	Dirt	Fast		4U	Clm12500 (12.5-10.5)-N	597	5
2/16/2022	W	5.0	PEN	Dirt	Fast	01:02.0				
2/7/2022	W	5.0	PEN	Dirt	Fast	01:02.2				
1/28/2022	W	4.0	PEN	Dirt	Fast	:49.30				
8/11/2021	R	6.0	PEN	Dirt	Sloppy		3U	Clm10000 (10-9)nw4/L	9840	1
7/28/2021	R	6.0	PEN	Dirt	Fast		3U	Clm16000 (16-14)cnd	1991	3

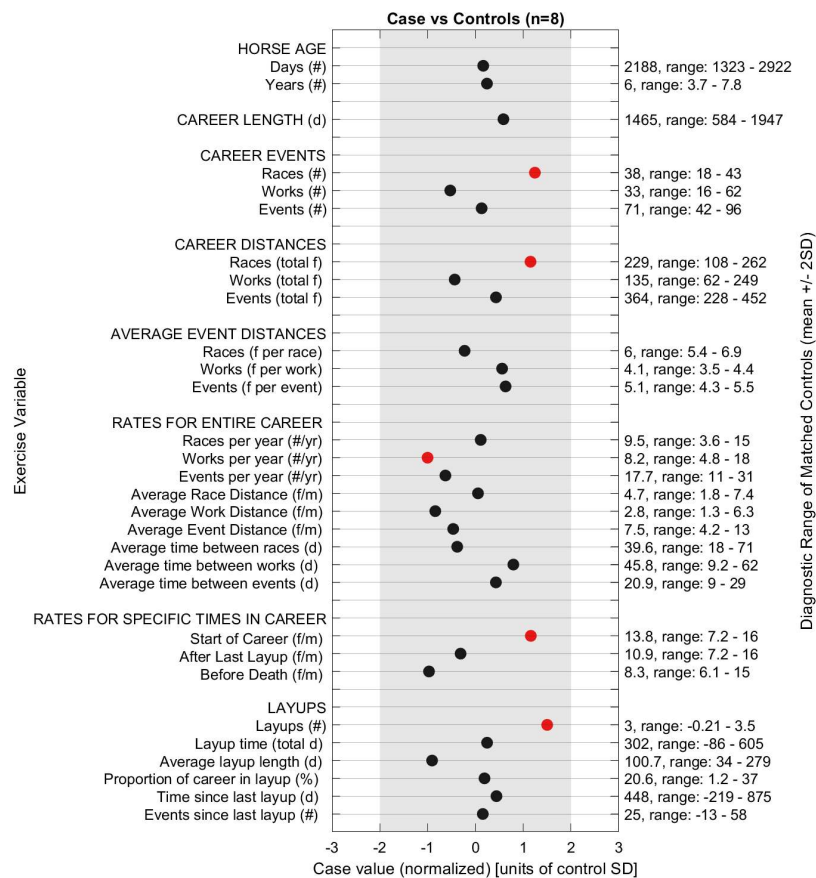
Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
7/22/2021	W	4.0	PEN	Dirt	Fast	:48.70				
7/7/2021	W	4.0	PEN	Dirt	Fast	:50.20				
6/24/2021	W	4.0	PEN	Dirt	Fast	:48.60				
5/5/2021	R	5.5	PEN	Dirt	Good		3U	Alw28000nw1/ x	16800	1
4/14/2021	R	6.0	PEN	Dirt	Fast		4U	Clm16000 (16-14)nw2/L	11280	1
4/8/2021	W	4.0	PEN	Dirt	Fast	:49.00				
3/19/2021	R	6.0	TP	AllWthr	Fast		3U	Clm15000 (15-10)nw2/L- c	1400	3
3/4/2021	W	4.0	SKY	AllWthr	Fast	:48.80				
2/4/2021	W	5.0	SKY	AllWthr	Fast	01:02.4				
1/22/2021	R	6.0	TP	AllWthr	Fast		4U	Clm15000 (15-10)nw2/L	2800	2
1/9/2021	W	4.0	SKY	AllWthr	Fast	:51.20				
11/8/2020	R	6.0	CD	Dirt	Fast		3U	Clm20000nw2/ L	1475	4
9/17/2020	R	6.0	CD	Dirt	Fast		3U	Clm50000nw2/ L	555	7
9/12/2020	W	4.0	CDT	Dirt	Fast	:49.80				
9/6/2020	W	4.0	CDT	Dirt	Fast	:48.60				
8/1/2020	R	6.0	ELP	Dirt	Sloppy		3	Alw38000nw2/ L	1140	5
7/11/2020	W	4.0	CDT	Dirt	Fast	:47.80				
7/4/2020	W	4.0	CDT	Dirt	Fast	:48.80				
5/23/2020	R	6.5	CD	Dirt	Fast		3U	Alw81000nw1/ x	867	7
5/10/2020	W	5.0	SKY	AllWthr	Fast	01:03.0				
5/2/2020	W	4.0	SKY	AllWthr	Fast	:51.00				
4/25/2020	W	4.0	SKY	AllWthr	Fast	:50.40				
2/15/2020	R	6.0	TP	AllWthr	Fast		3	Msw	27600	1
1/24/2020	R	6.0	TP	AllWthr	Fast		3	Msw	9200	2
1/18/2020	W	4.0	SKY	AllWthr	Fast	:49.80				
12/4/2019	R	8.0	TP	AllWthr	Fast		2	Msw	260	9

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
11/15/2019	R	6.5	CD	Dirt	Fast		2	Msw	4750	4
10/19/2019	R	6.0	KEE	Dirt	Fast		2	Msw	3550	4
10/9/2019	W	4.0	CDT	Dirt	Fast	:49.80				
9/20/2019	R	6.0	CD	Dirt	Fast		2	Msw	9500	3
9/10/2019	W	5.0	CDT	Dirt	Fast	01:01.8				
8/11/2019	R	8.0	ELP	Turf	Firm		2	Msw	380	7
8/3/2019	W	4.0	CDT	Dirt	Fast	:49.20				
7/13/2019	R	6.0	ELP	Dirt	Fast		2	Msw	10000	2
7/7/2019	W	4.0	CDT	Dirt	Fast	:50.20				
6/22/2019	W	4.0	CDT	Dirt	Sloppy	:53.80				
6/8/2019	R	5.0	CD	Dirt	Sloppy		2	Msw	2690	4
6/1/2019	W	5.0	CDT	Dirt	Fast	:59.80				
5/25/2019	W	4.0	CDT	Dirt	Fast	:49.20				
5/18/2019	W	4.0	CDT	Dirt	Fast	:47.60				
5/8/2019	W	4.0	CDT	Dirt	Fast	:47.80				
5/1/2019	W	3.0	CDT	Dirt	Fast	:36.00				
4/24/2019	W	3.0	CDT	Dirt	Fast	:38.80				
4/17/2019	W	3.0	CDT	Dirt	Fast	:38.40				

# Part 4: Comparison of Exercise Variables between Case Horse and 8 Control Horses (5+ year old, male, Thoroughbred)

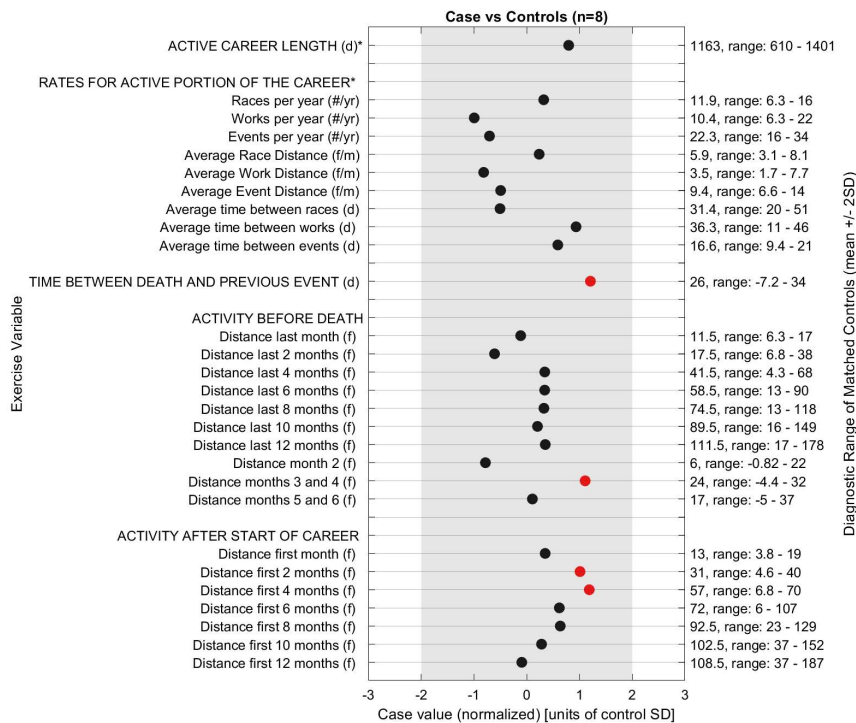


Case Horse values are indicated by black or red symbols: circles indicate values considered normal for 95% of 5+ year old, male, Thoroughbreds (n=8) (gray region) (black and red indicate within 1 and 2 SD, respectively, of mean value of controls), X's indicate values outside of the normal range. Two and 3 year old case horses are also matched to control horses by the quarter in which the case horse died (Jan-Mar, Apr-Jun, Jul-Sep, Oct-Dec). Variables that are not calculable are not plotted (e.g. time between races for a horse with zero events). f=furlongs; yr=year; m=month; d=days.

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^Rates are calculated over 2 to 5 events.

\*Active Career Length is the career length excluding the time during layups.

# Exercise History Report (Full)

## Bullout



**UCDAVIS**

**VETERINARY MEDICINE**

*J. D. Wheat Veterinary Orthopedic  
Research Laboratory*

**Apr-27-2023**

## **Exercise History Report (Full)**

### **J.D. Wheat Veterinary Orthopedic Research Laboratory**

This report summarizes the high speed exercise history for Case Horse. There are four parts to this report:

Part 1 is a graph that depicts the races and officially recorded high speed workouts for Case Horse over the horse's career. The graph is useful for visually assessing features of a horse's career like: career length, periods of layup, and exercise consistency. If Case Horse had zero recorded high-speed exercise events, this graph is not produced. Event histories for three breed, sex, age, and event-matched control horses are also plotted.

Part 2 includes graphs which illustrate Case Horse's exercise history alongside that of Control Horses. These graphs are useful for visually comparing periods of layup and specific rates of exercise in the horses' exercise histories.

Part 3 is a chronological listing of races and officially timed works beginning with the most recent event (race or work).

Part 4 is a chart that allows comparison of exercise variables between Case Horse and other racehorses of similar age, sex, and breed that did not die at the same time from an injury. Similar to comparing the results of a blood test to a range of normal values, the values for Case Horse can be assessed in the context of a normal range for 95% of a sample of similar racehorses that did not die during the same time as Case Horse.

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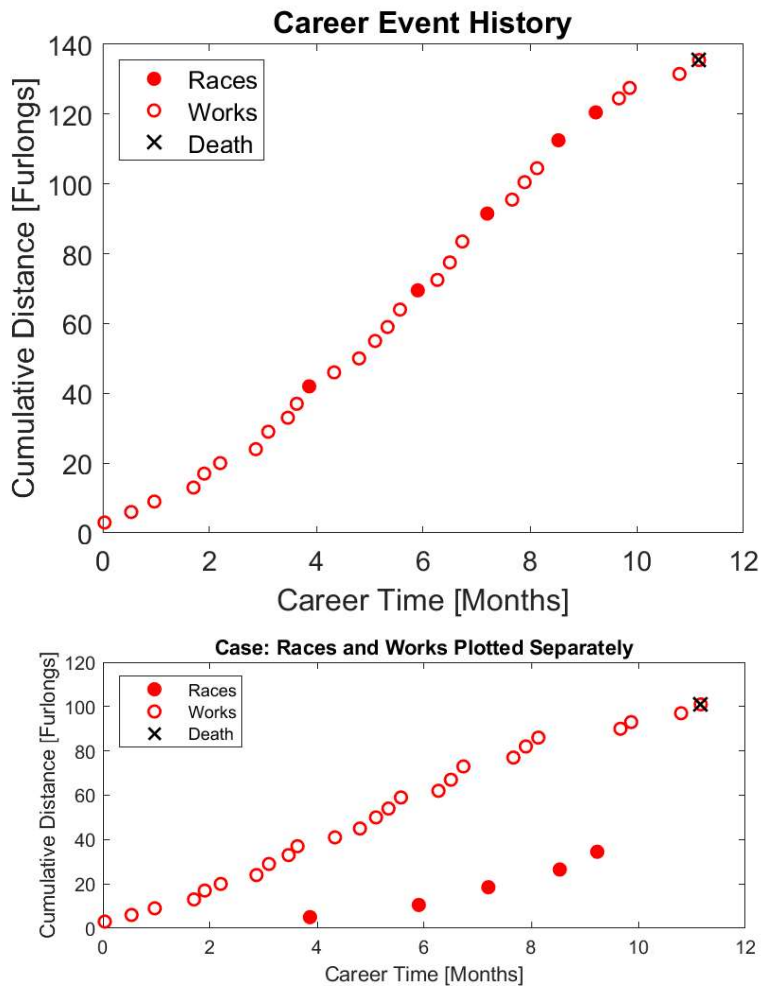
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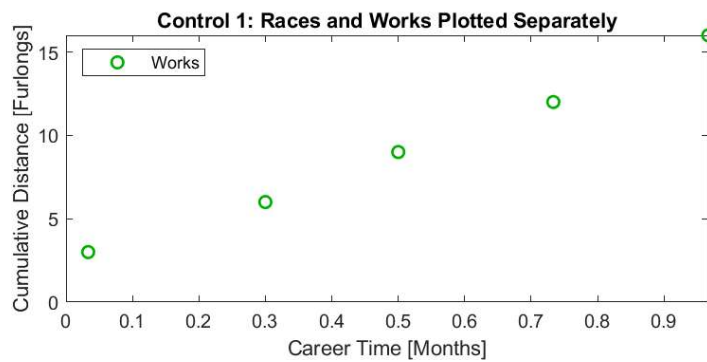
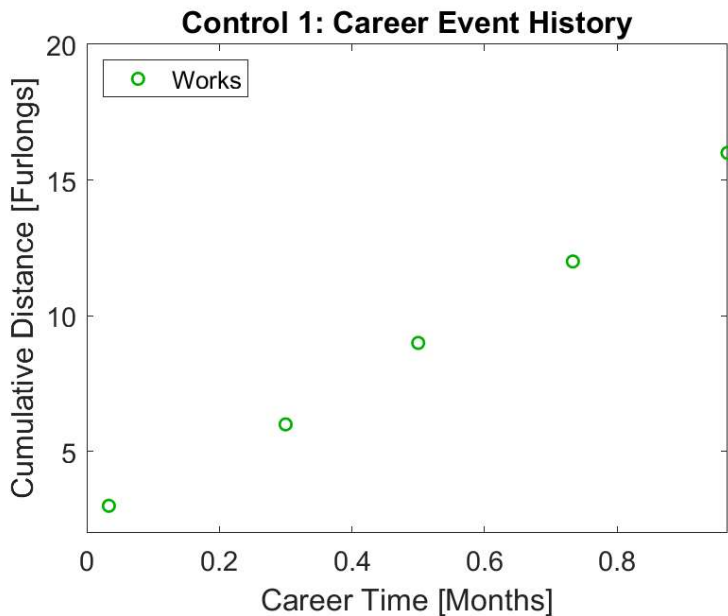
# Part 1: Graphical Representation of Individual High-Speed Exercise Histories

Races (filled circles), officially timed high-speed works (open circles), layups (line with endcaps, periods of time greater than 60 days in length without a race or timed work), and time of death (X) are illustrated over time (Career Time in months). With each event (race or work), the number of furlongs the horse exercised in that event is added to the number of furlongs exercised in all previous events.

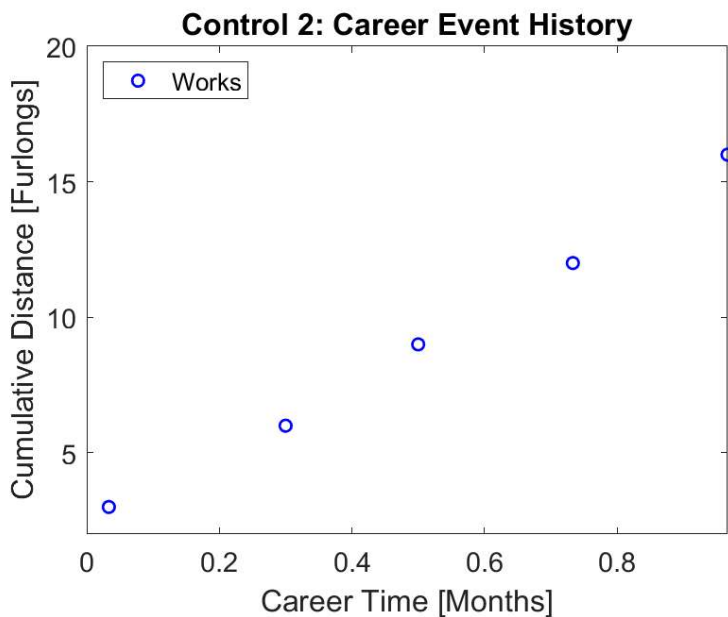
## Case Horse High Speed Exercise History



## Control 1 High Speed Exercise History

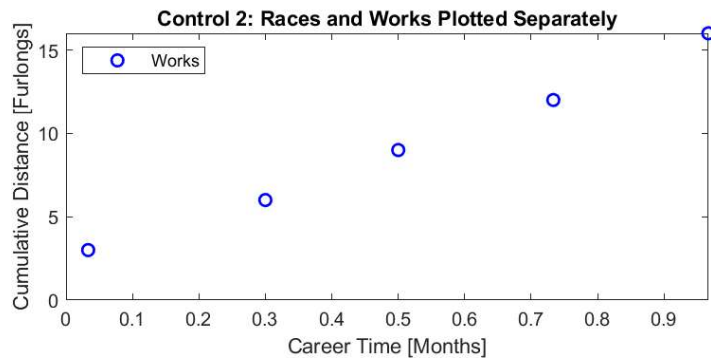


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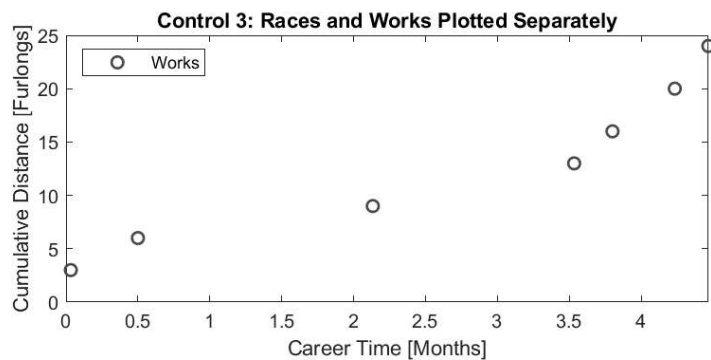
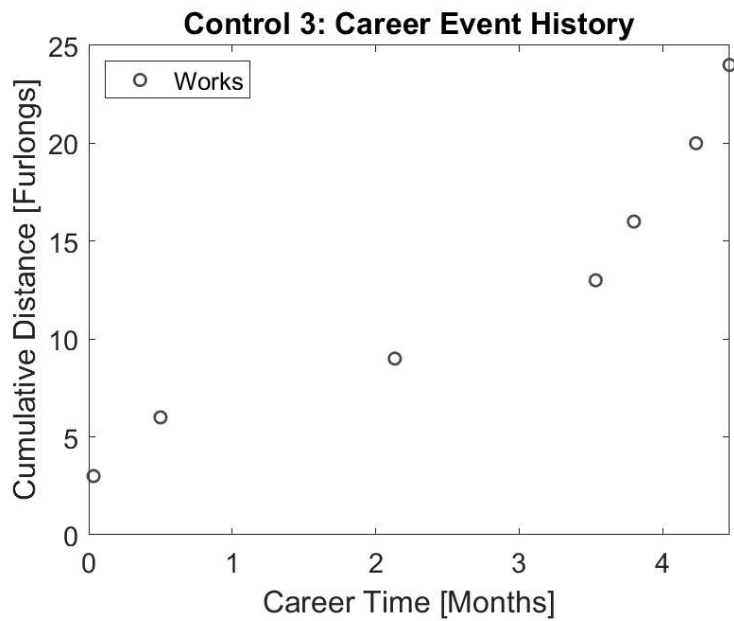


## Part 1: Graphical Representation of Individual High-Speed Exercise Histories

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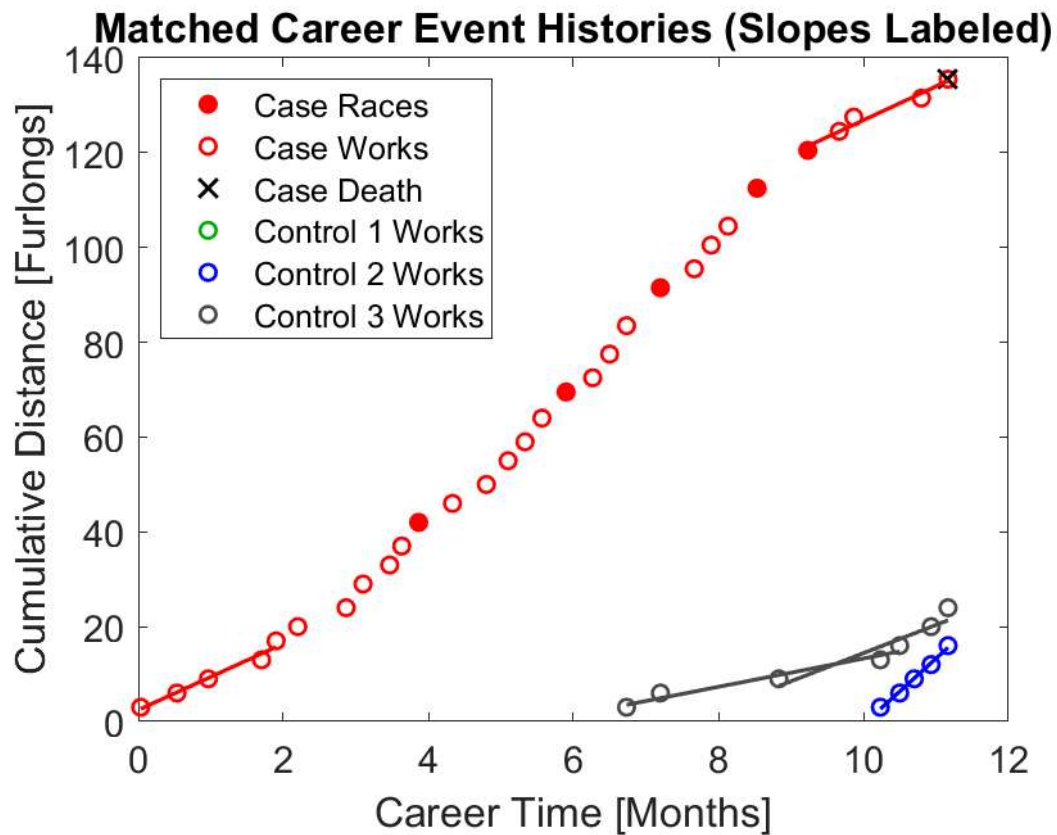


### Control 3 High Speed Exercise History

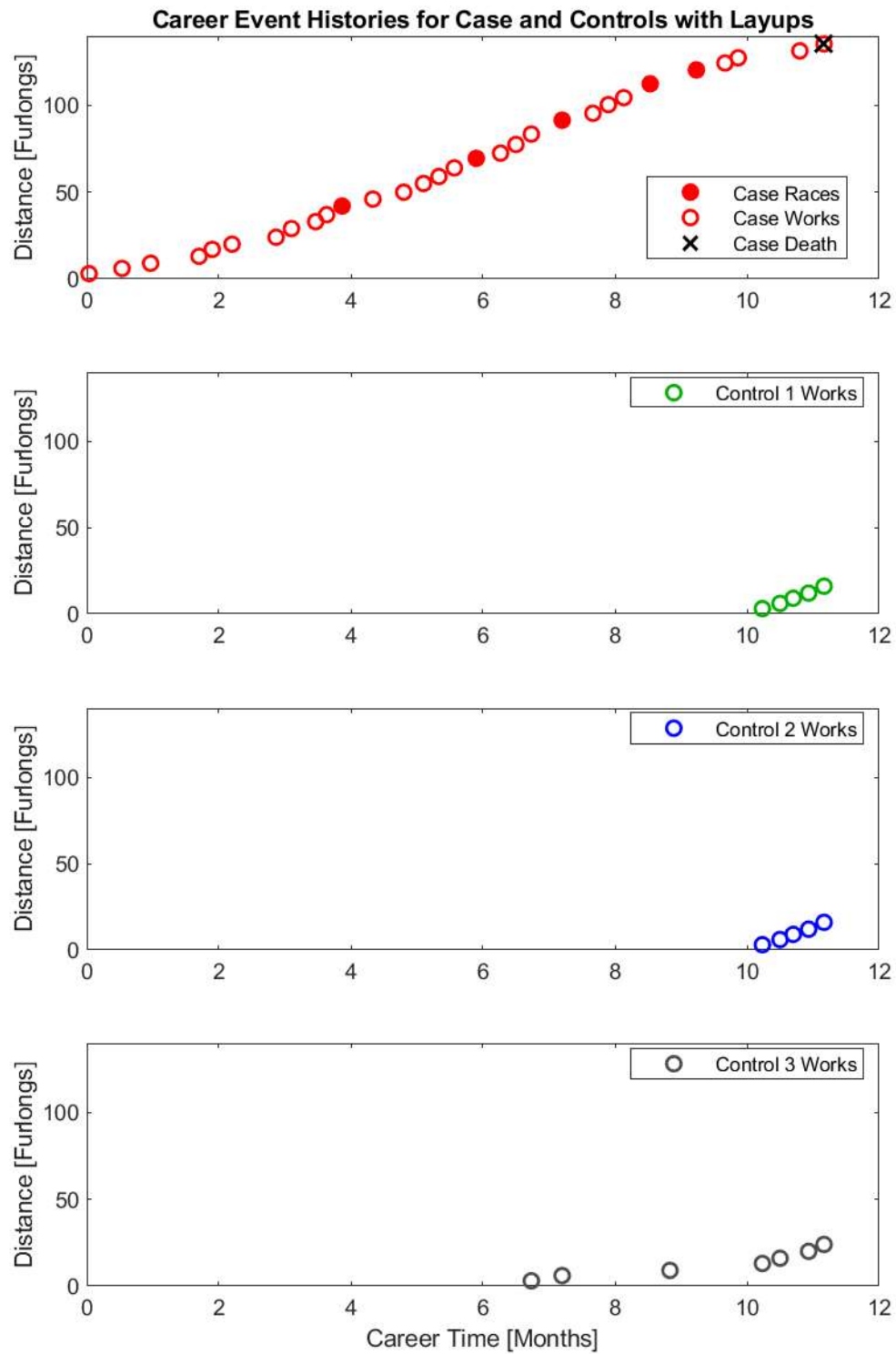


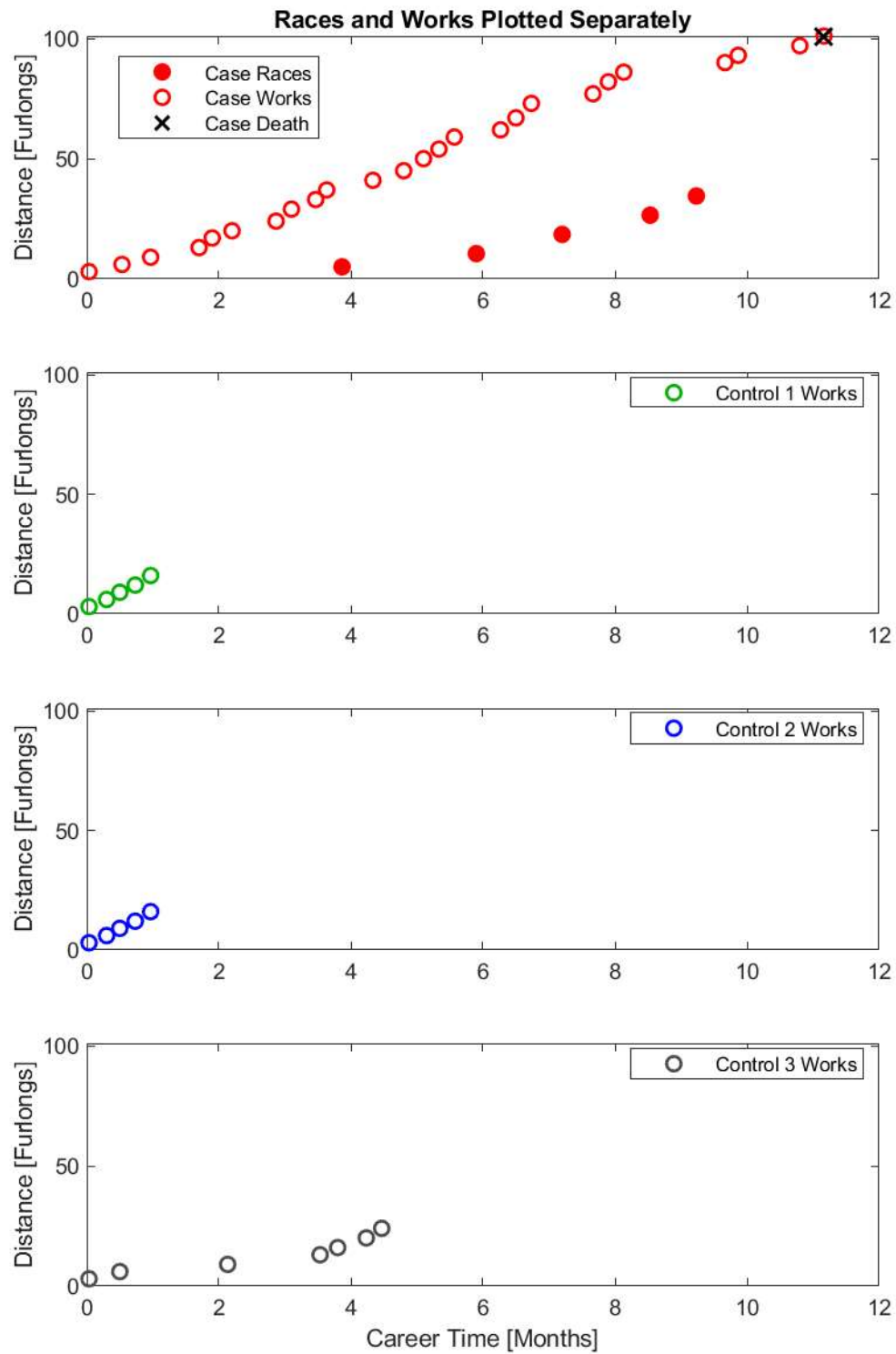
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## Part 2: Case and Control Horses Plotted Together



Case and Control Horses' exercise event histories are plotted on the same axes. The plots are aligned by the match date (equal to the date of death of Case Horse). Lines segments indicate specific rates of exercise at the start of career, end of career (for Case Horse), and match date (for Control Horses). Event rates are calculated as the slopes of the plots over 2 to 5 events not spanning a layup period, in units of furlongs per month.





### Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
2/5/2023	W	4.0	LRL	Dirt	Fast	:52.00				
1/25/2023	W	4.0	LRL	Dirt	Fast	:49.80				
12/28/2022	W	3.0	LRL	Dirt	Fast	:36.60				
12/22/2022	W	4.0	LRL	Dirt	Muddy	:50.20				
12/9/2022	R	8.0	LRL	Dirt	Good		2	Mcl12500 (12.5-10)	300	7
11/18/2022	R	8.0	LRL	Dirt	Fast		2	Mcl10000 (12.5-10)	750	5
11/6/2022	W	4.0	LRL	Dirt	Good	:49.40				
10/30/2022	W	5.0	LRL	Dirt	Fast	01:03.8				
10/23/2022	W	4.0	LRL	Dirt	Fast	:51.00				
10/9/2022	R	8.0	LRL	Dirt	Fast		2	Mcl10000 (12.5-10)	1250	4
9/25/2022	W	6.0	LRL	Dirt	Fast	01:17.6				
9/18/2022	W	5.0	LRL	Dirt	Fast	01:03.0				
9/11/2022	W	3.0	LRL	Dirt	Sloppy	:38.00				
8/31/2022	R	5.5	CNL	Turf	Firm		2	Mcl40000	1000	6
8/21/2022	W	5.0	LRL	Dirt	Fast	01:03.0				
8/14/2022	W	4.0	LRL	Dirt	Fast	:51.80				
8/7/2022	W	5.0	LRL	Dirt	Fast	01:03.0				
7/29/2022	W	4.0	LRL	Dirt	Fast	:49.40				
7/15/2022	W	4.0	LRL	Dirt	Fast	:51.40				
7/1/2022	R	5.0	LRL	Dirt	Fast		2	Mcl45000 (45-36)-N	300	7
6/24/2022	W	4.0	LRL	Dirt	Good	:50.40				
6/19/2022	W	4.0	LRL	Dirt	Fast	:49.40				
6/8/2022	W	5.0	ELL	Dirt	Fast	01:06.0				
6/1/2022	W	4.0	ELL	Dirt	Fast	:51.20				
5/12/2022	W	3.0	ELL	Dirt	Fast	:38.40				
5/3/2022	W	4.0	ELL	Dirt	Fast	:50.40				
4/27/2022	W	4.0	ELL	Dirt	Fast	:51.80				
4/5/2022	W	3.0	ELL	Dirt	Fast	:38.00				

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
3/23/2022	W	3.0	ELL	Dirt	Fast	:38.60				
3/8/2022	W	3.0	ELL	Dirt	Fast	:37.80				
Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
2/5/2023	W	4.0	LRL	Dirt	Fast	:52.00				
1/25/2023	W	4.0	LRL	Dirt	Fast	:49.80				
12/28/2022	W	3.0	LRL	Dirt	Fast	:36.60				
12/22/2022	W	4.0	LRL	Dirt	Muddy	50.20				
12/9/2022	R	8.0	LRL	Dirt	Good		2	Mcl12500 (12.5-10)	300	7
11/18/2022	R	8.0	LRL	Dirt	Fast		2	Mcl10000 (12.5-10)	750	5
11/6/2022	W	4.0	LRL	Dirt	Good	:49.40				
10/30/2022	W	5.0	LRL	Dirt	Fast	01:03.8				
10/23/2022	W	4.0	LRL	Dirt	Fast	:51.00				
10/9/2022	R	8.0	LRL	Dirt	Fast		2	Mcl10000 (12.5-10)	1250	4
9/25/2022	W	6.0	LRL	Dirt	Fast	01:17.6				
9/18/2022	W	5.0	LRL	Dirt	Fast	01:03.0				
9/11/2022	W	3.0	LRL	Dirt	Sloppy	:38.00				
8/31/2022	R	5.5	CNL	Turf	Firm		2	Mcl40000	1000	6
8/21/2022	W	5.0	LRL	Dirt	Fast	01:03.0				
8/14/2022	W	4.0	LRL	Dirt	Fast	:51.80				
8/7/2022	W	5.0	LRL	Dirt	Fast	01:03.0				
7/29/2022	W	4.0	LRL	Dirt	Fast	:49.40				
7/15/2022	W	4.0	LRL	Dirt	Fast	:51.40				
7/1/2022	R	5.0	LRL	Dirt	Fast		2	Mcl45000 (45-36)-N	300	7
6/24/2022	W	4.0	LRL	Dirt	Good	:50.40				
6/19/2022	W	4.0	LRL	Dirt	Fast	:49.40				
6/8/2022	W	5.0	ELL	Dirt	Fast	01:06.0				
6/1/2022	W	4.0	ELL	Dirt	Fast	:51.20				
5/12/2022	W	3.0	ELL	Dirt	Fast	:38.40				
5/3/2022	W	4.0	ELL	Dirt	Fast	:50.40				

### Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
4/27/2022	W	4.0	ELL	Dirt	Fast	:51.80				
4/5/2022	W	3.0	ELL	Dirt	Fast	:38.00				
3/23/2022	W	3.0	ELL	Dirt	Fast	:38.60				
3/8/2022	W	3.0	ELL	Dirt	Fast	:37.80				
Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
2/5/2023	W	4.0	LRL	Dirt	Fast	:52.00				
1/25/2023	W	4.0	LRL	Dirt	Fast	:49.80				
12/28/2022	W	3.0	LRL	Dirt	Fast	:36.60				
12/22/2022	W	4.0	LRL	Dirt	Muddy	50.20				
12/9/2022	R	8.0	LRL	Dirt	Good		2	Mcl12500 (12.5-10)	300	7
11/18/2022	R	8.0	LRL	Dirt	Fast		2	Mcl10000 (12.5-10)	750	5
11/6/2022	W	4.0	LRL	Dirt	Good	:49.40				
10/30/2022	W	5.0	LRL	Dirt	Fast	01:03.8				
10/23/2022	W	4.0	LRL	Dirt	Fast	:51.00				
10/9/2022	R	8.0	LRL	Dirt	Fast		2	Mcl10000 (12.5-10)	1250	4
9/25/2022	W	6.0	LRL	Dirt	Fast	01:17.6				
9/18/2022	W	5.0	LRL	Dirt	Fast	01:03.0				
9/11/2022	W	3.0	LRL	Dirt	Sloppy	:38.00				
8/31/2022	R	5.5	CNL	Turf	Firm		2	Mcl40000	1000	6
8/21/2022	W	5.0	LRL	Dirt	Fast	01:03.0				
8/14/2022	W	4.0	LRL	Dirt	Fast	:51.80				
8/7/2022	W	5.0	LRL	Dirt	Fast	01:03.0				
7/29/2022	W	4.0	LRL	Dirt	Fast	:49.40				
7/15/2022	W	4.0	LRL	Dirt	Fast	:51.40				
7/1/2022	R	5.0	LRL	Dirt	Fast		2	Mcl45000 (45-36)-N	300	7
6/24/2022	W	4.0	LRL	Dirt	Good	:50.40				
6/19/2022	W	4.0	LRL	Dirt	Fast	:49.40				
6/8/2022	W	5.0	ELL	Dirt	Fast	01:06.0				
6/1/2022	W	4.0	ELL	Dirt	Fast	:51.20				

Part 3: Case Horse's Event History

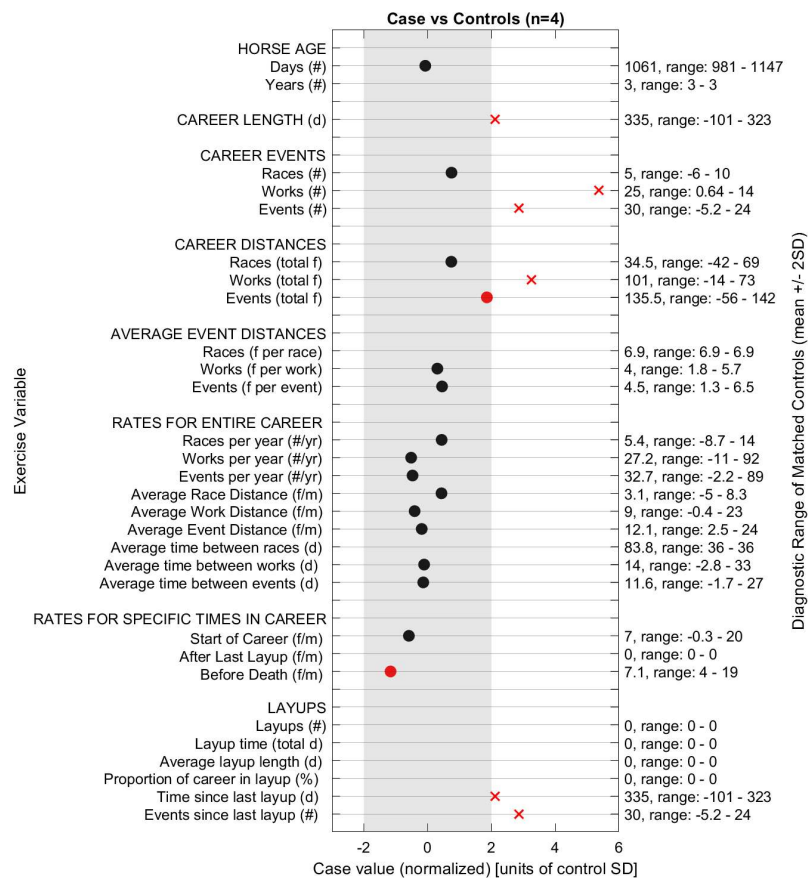
Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
5/12/2022	W	3.0	ELL	Dirt	Fast	:38.40				
5/3/2022	W	4.0	ELL	Dirt	Fast	:50.40				
4/27/2022	W	4.0	ELL	Dirt	Fast	:51.80				
4/5/2022	W	3.0	ELL	Dirt	Fast	:38.00				
3/23/2022	W	3.0	ELL	Dirt	Fast	:38.60				
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10/9/2022	R	8.0	LRL	Dirt	Fast		2	Mcl10000 (12.5-10)	1250	4
9/25/2022	W	6.0	LRL	Dirt	Fast	01:17.6				
9/18/2022	W	5.0	LRL	Dirt	Fast	01:03.0				
9/11/2022	W	3.0	LRL	Dirt	Sloppy	:38.00				
8/31/2022	R	5.5	CNL	Turf	Firm		2	Mcl40000	1000	6
8/21/2022	W	5.0	LRL	Dirt	Fast	01:03.0				
8/14/2022	W	4.0	LRL	Dirt	Fast	:51.80				
8/7/2022	W	5.0	LRL	Dirt	Fast	01:03.0				
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7/1/2022	R	5.0	LRL	Dirt	Fast		2	Mcl45000 (45-36)-N	300	7
6/24/2022	W	4.0	LRL	Dirt	Good	:50.40				
6/19/2022	W	4.0	LRL	Dirt	Fast	:49.40				

### Part 3: Case Horse's Event History

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Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
6/8/2022	W	5.0	ELL	Dirt	Fast	01:06.0				
6/1/2022	W	4.0	ELL	Dirt	Fast	:51.20				
5/12/2022	W	3.0	ELL	Dirt	Fast	:38.40				
5/3/2022	W	4.0	ELL	Dirt	Fast	:50.40				
4/27/2022	W	4.0	ELL	Dirt	Fast	:51.80				
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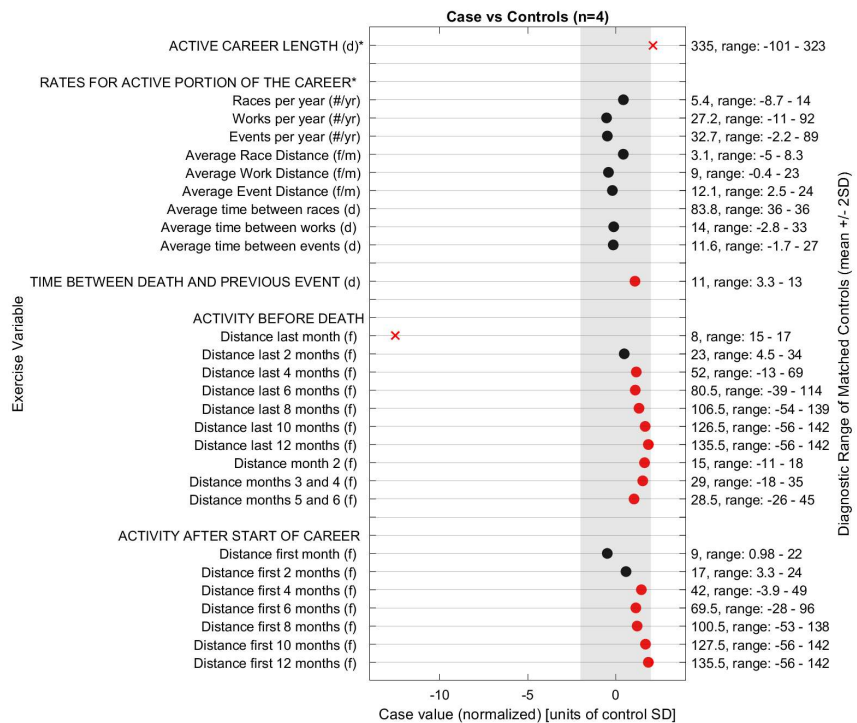


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## Part 4: Comparison of Exercise Variables between Case Horse and 4 Control Horses (3 year old, male, Thoroughbred)



Case Horse values are indicated by black or red symbols: circles indicate values considered normal for 95% of 3 year old, male, Thoroughbreds (n=4) (gray region) (black and red indicate within 1 and 2 SD, respectively, of mean value of controls), X's indicate values outside of the normal range. Two and 3 year old case horses are also matched to control horses by the quarter in which the case horse died (Jan-Mar, Apr-Jun, Jul-Sep, Oct-Dec). Variables that are not calculable are not plotted (e.g. time between races for a horse with zero events). f=furlongs; yr=year; m=month; d=days.

^Rates are calculated over 2 to 5 events.

\*Active Career Length is the career length excluding the time during layups.

# Exercise History Report (Full)

## Celtic Cousen



**UC DAVIS**

**VETERINARY MEDICINE**

*J. D. Wheat Veterinary Orthopedic  
Research Laboratory*

**Apr-27-2023**

## **Exercise History Report (Full)**

### **J.D. Wheat Veterinary Orthopedic Research Laboratory**

This report summarizes the high speed exercise history for Case Horse. There are four parts to this report:

Part 1 is a graph that depicts the races and officially recorded high speed workouts for Case Horse over the horse's career. The graph is useful for visually assessing features of a horse's career like: career length, periods of layup, and exercise consistency. If Case Horse had zero recorded high-speed exercise events, this graph is not produced. Event histories for three breed, sex, age, and event-matched control horses are also plotted.

Part 2 includes graphs which illustrate Case Horse's exercise history alongside that of Control Horses. These graphs are useful for visually comparing periods of layup and specific rates of exercise in the horses' exercise histories.

Part 3 is a chronological listing of races and officially timed works beginning with the most recent event (race or work).

Part 4 is a chart that allows comparison of exercise variables between Case Horse and other racehorses of similar age, sex, and breed that did not die at the same time from an injury. Similar to comparing the results of a blood test to a range of normal values, the values for Case Horse can be assessed in the context of a normal range for 95% of a sample of similar racehorses that did not die during the same time as Case Horse.

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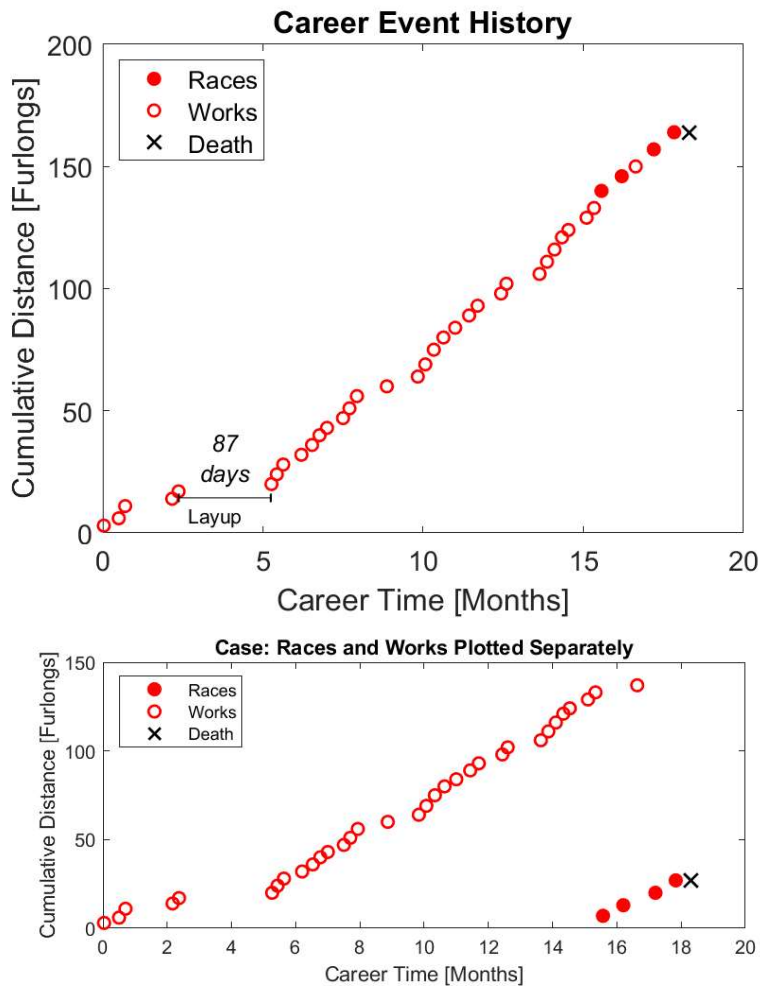
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Control 2 High Speed Exercise History .....	2
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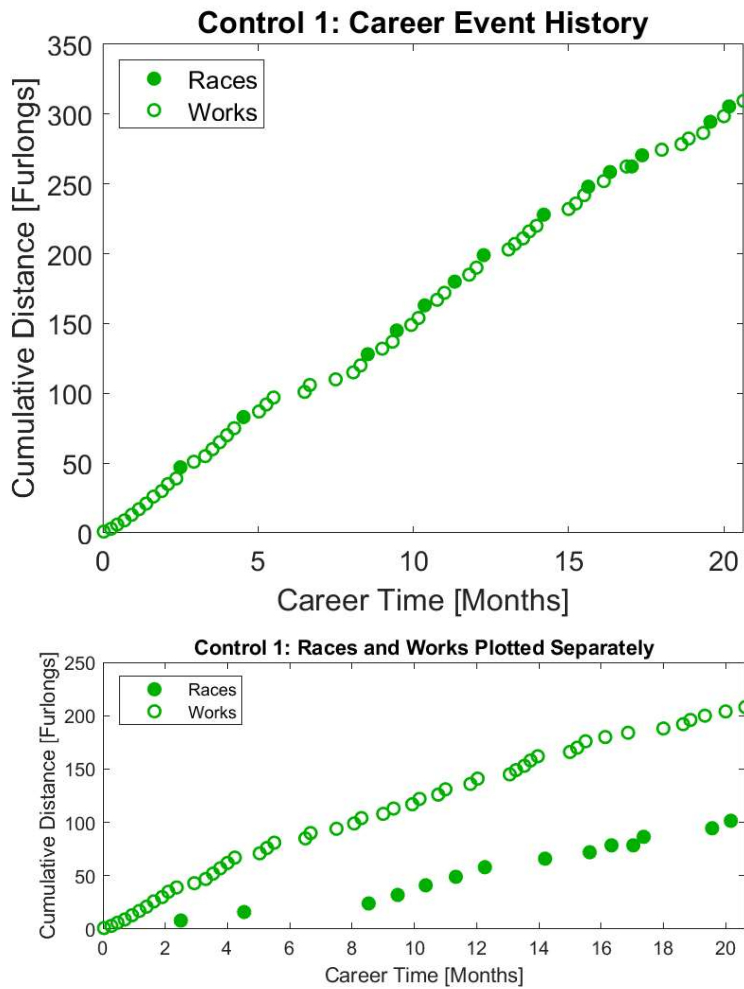
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Races (filled circles), officially timed high-speed works (open circles), layups (line with endcaps, periods of time greater than 60 days in length without a race or timed work), and time of death (X) are illustrated over time (Career Time in months). With each event (race or work), the number of furlongs the horse exercised in that event is added to the number of furlongs exercised in all previous events.

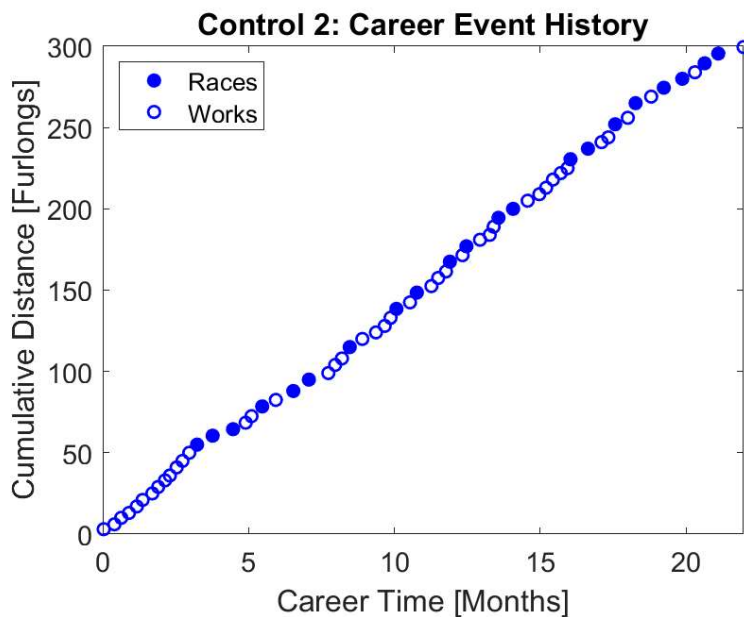
## Case Horse High Speed Exercise History



## Control 1 High Speed Exercise History

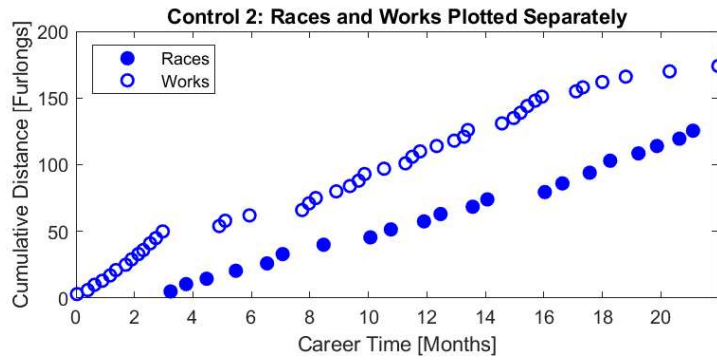


## Control 2 High Speed Exercise History

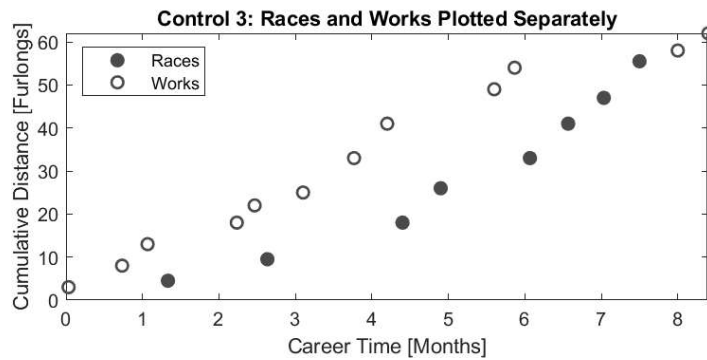
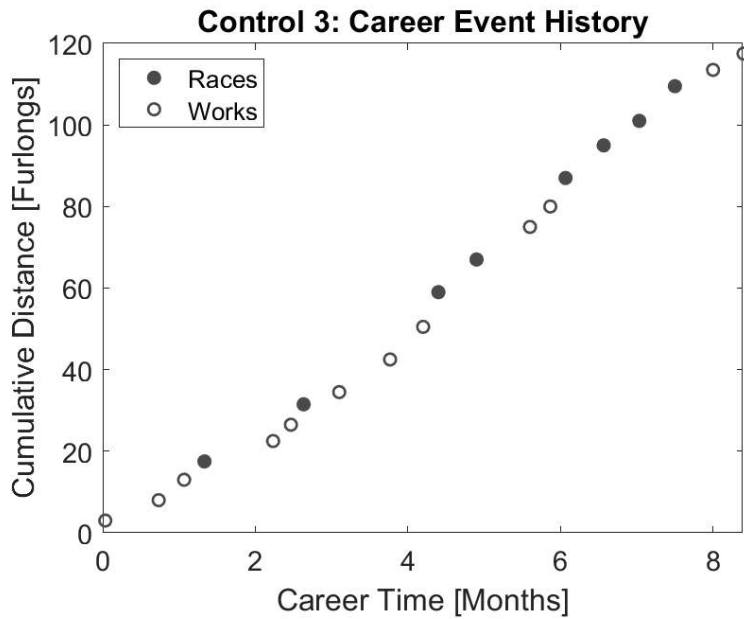


## Part 1: Graphical Representation of Individual High-Speed Exercise Histories

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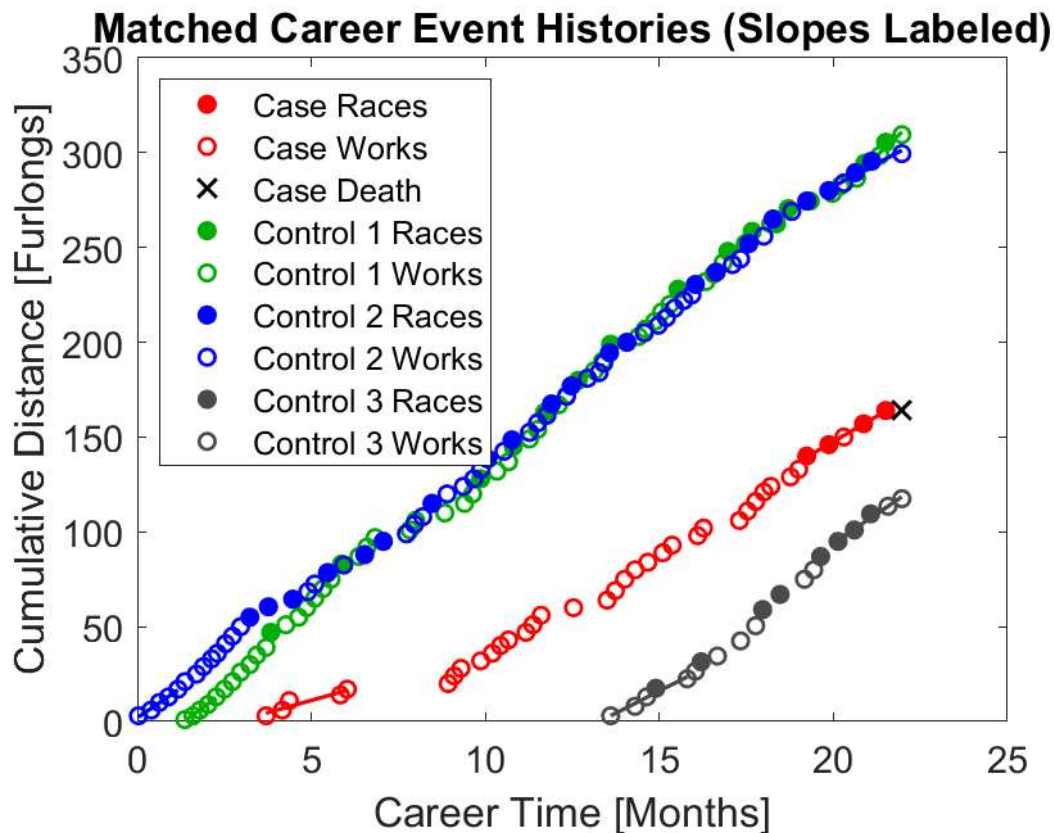


### Control 3 High Speed Exercise History

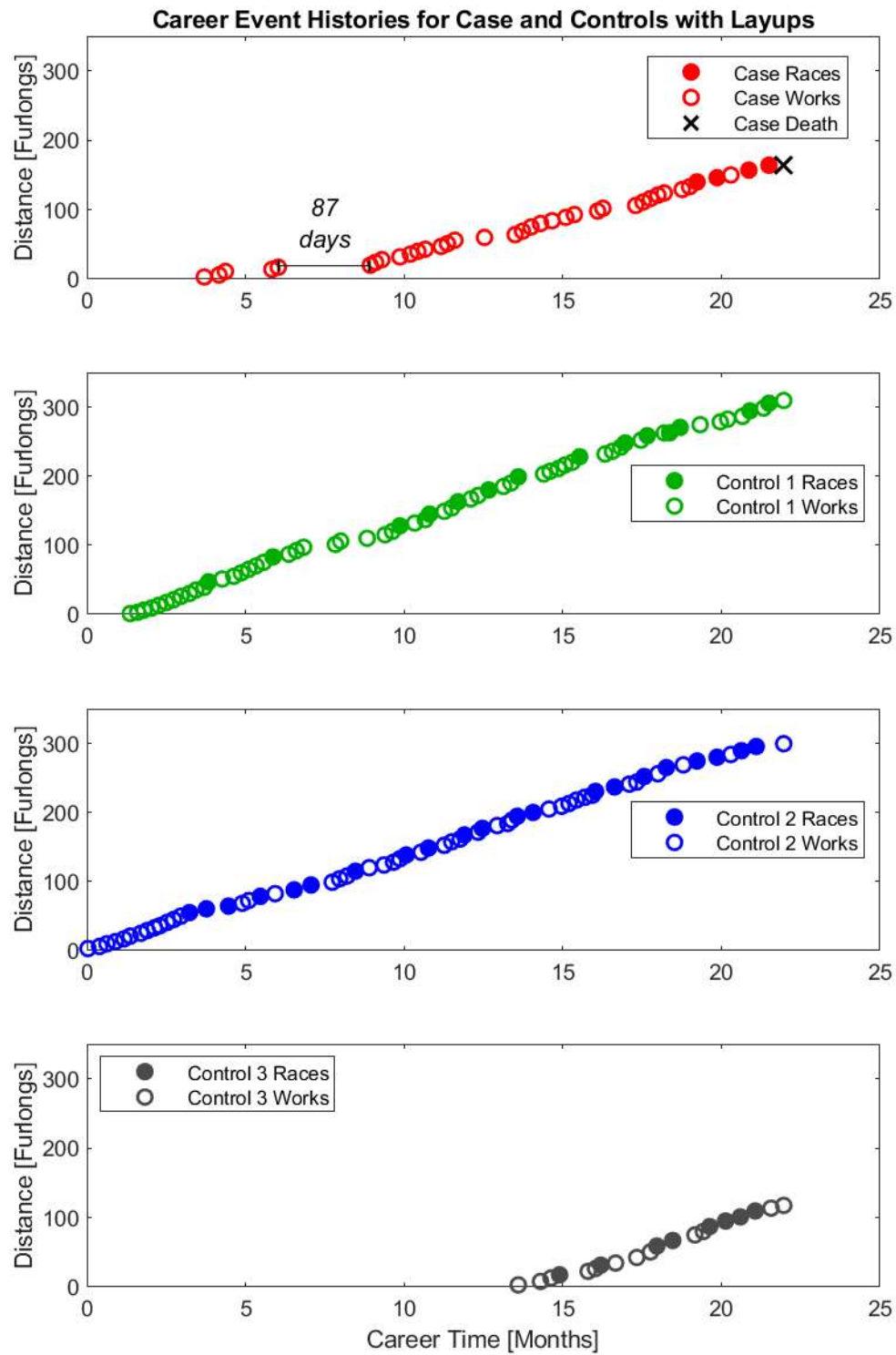


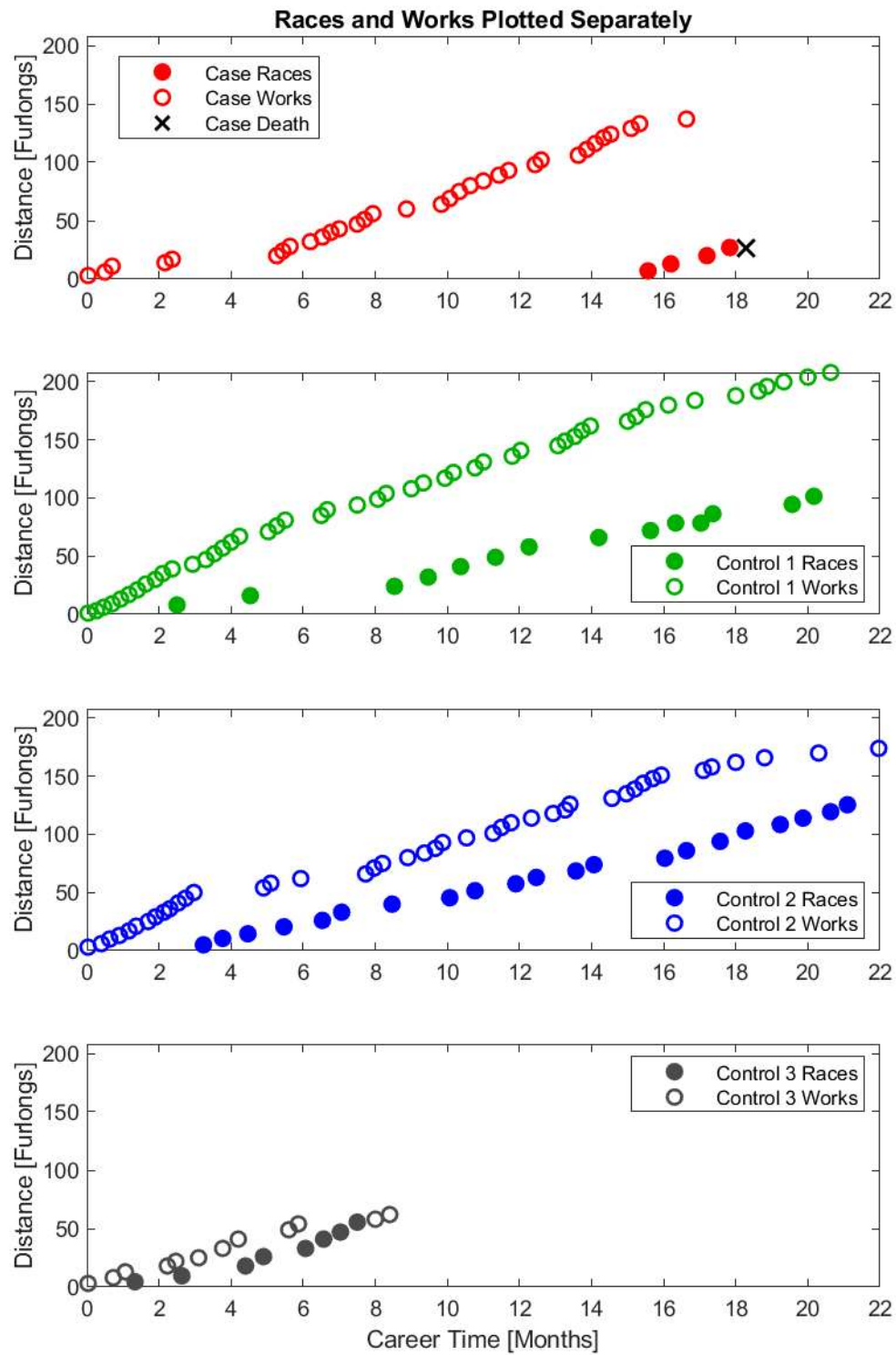
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## Part 2: Case and Control Horses Plotted Together



Case and Control Horses' exercise event histories are plotted on the same axes. The plots are aligned by the match date (equal to the date of death of Case Horse). Lines segments indicate specific rates of exercise at the start of career, end of career (for Case Horse), and match date (for Control Horses). Event rates are calculated as the slopes of the plots over 2 to 5 events not spanning a layup period, in units of furlongs per month.





### Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
1/27/2023	R	7.0	LRL	Dirt	Fast		45	Msw	11960	2
1/8/2023	R	7.0	LRL	Dirt	Fast		45	Mcl45000 (45-36)-N	5060	3
12/22/2022	W	4.0	LRL	Dirt	Muddy	48.40				
12/9/2022	R	6.0	LRL	Dirt	Good		35	Msw	11960	2
11/20/2022	R	7.0	LRL	Dirt	Fast		35	Msw	11960	2
11/13/2022	W	4.0	LRL	Dirt	Fast	:49.20				
11/6/2022	W	5.0	LRL	Dirt	Good	01:01.8				
10/20/2022	W	3.0	LRL	Dirt	Fast	:37.00				
10/14/2022	W	5.0	LRL	Dirt	Sloppy	01:04.0				
10/7/2022	W	5.0	LRL	Dirt	Fast	01:02.2				
9/30/2022	W	5.0	LRL	Dirt	Fast	01:02.0				
9/23/2022	W	4.0	LRL	Dirt	Fast	:50.00				
8/23/2022	W	4.0	ELL	Dirt	Fast	:49.60				
8/18/2022	W	5.0	ELL	Dirt	Fast	01:03.4				
7/27/2022	W	4.0	ELL	Dirt	Fast	:50.20				
7/19/2022	W	5.0	ELL	Dirt	Fast	01:04.6				
7/6/2022	W	4.0	ELL	Dirt	Fast	:50.60				
6/25/2022	W	5.0	ELL	Dirt	Fast	01:03.8				
6/16/2022	W	6.0	ELL	Dirt	Fast	01:16.0				
6/8/2022	W	5.0	ELL	Dirt	Fast	01:05.4				
6/1/2022	W	4.0	ELL	Dirt	Fast	:50.40				
5/3/2022	W	4.0	ELL	Dirt	Fast	:50.20				
4/5/2022	W	5.0	ELL	Dirt	Fast	01:06.2				
3/29/2022	W	4.0	ELL	Dirt	Fast	:51.40				
3/23/2022	W	4.0	ELL	Dirt	Fast	:51.20				
3/8/2022	W	3.0	ELL	Dirt	Fast	:37.60				
3/1/2022	W	4.0	ELL	Dirt	Fast	:52.40				
2/22/2022	W	4.0	ELL	Dirt	Fast	:51.60				
2/12/2022	W	4.0	ELL	Dirt	Fast	:52.40				
1/26/2022	W	4.0	ELL	Dirt	Fast	:51.00				

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
1/20/2022	W	4.0	ELL	Dirt	Fast	:51.60				
1/15/2022	W	3.0	ELL	Dirt	Fast	:38.00				
10/20/2021	W	3.0	ELL	Dirt	Fast	:38.60				
10/14/2021	W	3.0	ELL	Dirt	Fast	:38.40				
8/31/2021	W	5.0	ELL	Dirt	Fast	01:04.6				
8/25/2021	W	3.0	ELL	Dirt	Fast	:38.20				
8/11/2021	W	3.0	ELL	Dirt	Fast	:38.40				
Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
1/27/2023	R	7.0	LRL	Dirt	Fast		45	Msw	11960	2
1/8/2023	R	7.0	LRL	Dirt	Fast		45	Mcl45000 (45-36)-N	5060	3
12/22/2022	W	4.0	LRL	Dirt	Muddy	48.40				
12/9/2022	R	6.0	LRL	Dirt	Good		35	Msw	11960	2
11/20/2022	R	7.0	LRL	Dirt	Fast		35	Msw	11960	2
11/13/2022	W	4.0	LRL	Dirt	Fast	:49.20				
11/6/2022	W	5.0	LRL	Dirt	Good	01:01.8				
10/20/2022	W	3.0	LRL	Dirt	Fast	:37.00				
10/14/2022	W	5.0	LRL	Dirt	Sloppy	01:04.0				
10/7/2022	W	5.0	LRL	Dirt	Fast	01:02.2				
9/30/2022	W	5.0	LRL	Dirt	Fast	01:02.0				
9/23/2022	W	4.0	LRL	Dirt	Fast	:50.00				
8/23/2022	W	4.0	ELL	Dirt	Fast	:49.60				
8/18/2022	W	5.0	ELL	Dirt	Fast	01:03.4				
7/27/2022	W	4.0	ELL	Dirt	Fast	:50.20				
7/19/2022	W	5.0	ELL	Dirt	Fast	01:04.6				
7/6/2022	W	4.0	ELL	Dirt	Fast	:50.60				
6/25/2022	W	5.0	ELL	Dirt	Fast	01:03.8				
6/16/2022	W	6.0	ELL	Dirt	Fast	01:16.0				
6/8/2022	W	5.0	ELL	Dirt	Fast	01:05.4				
6/1/2022	W	4.0	ELL	Dirt	Fast	:50.40				
5/3/2022	W	4.0	ELL	Dirt	Fast	:50.20				
4/5/2022	W	5.0	ELL	Dirt	Fast	01:06.2				

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
3/29/2022	W	4.0	ELL	Dirt	Fast	:51.40				
3/23/2022	W	4.0	ELL	Dirt	Fast	:51.20				
3/8/2022	W	3.0	ELL	Dirt	Fast	:37.60				
3/1/2022	W	4.0	ELL	Dirt	Fast	:52.40				
2/22/2022	W	4.0	ELL	Dirt	Fast	:51.60				
2/12/2022	W	4.0	ELL	Dirt	Fast	:52.40				
1/26/2022	W	4.0	ELL	Dirt	Fast	:51.00				
1/20/2022	W	4.0	ELL	Dirt	Fast	:51.60				
1/15/2022	W	3.0	ELL	Dirt	Fast	:38.00				
10/20/2021	W	3.0	ELL	Dirt	Fast	:38.60				
10/14/2021	W	3.0	ELL	Dirt	Fast	:38.40				
8/31/2021	W	5.0	ELL	Dirt	Fast	01:04.6				
8/25/2021	W	3.0	ELL	Dirt	Fast	:38.20				
8/11/2021	W	3.0	ELL	Dirt	Fast	:38.40				
Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
1/27/2023	R	7.0	LRL	Dirt	Fast		45	Msw	11960	2
1/8/2023	R	7.0	LRL	Dirt	Fast		45	Mcl45000 (45-36)-N	5060	3
12/22/2022	W	4.0	LRL	Dirt	Muddy	48.40				
12/9/2022	R	6.0	LRL	Dirt	Good		35	Msw	11960	2
11/20/2022	R	7.0	LRL	Dirt	Fast		35	Msw	11960	2
11/13/2022	W	4.0	LRL	Dirt	Fast	:49.20				
11/6/2022	W	5.0	LRL	Dirt	Good	01:01.8				
10/20/2022	W	3.0	LRL	Dirt	Fast	:37.00				
10/14/2022	W	5.0	LRL	Dirt	Sloppy	01:04.0				
10/7/2022	W	5.0	LRL	Dirt	Fast	01:02.2				
9/30/2022	W	5.0	LRL	Dirt	Fast	01:02.0				
9/23/2022	W	4.0	LRL	Dirt	Fast	:50.00				
8/23/2022	W	4.0	ELL	Dirt	Fast	:49.60				
8/18/2022	W	5.0	ELL	Dirt	Fast	01:03.4				
7/27/2022	W	4.0	ELL	Dirt	Fast	:50.20				
7/19/2022	W	5.0	ELL	Dirt	Fast	01:04.6				

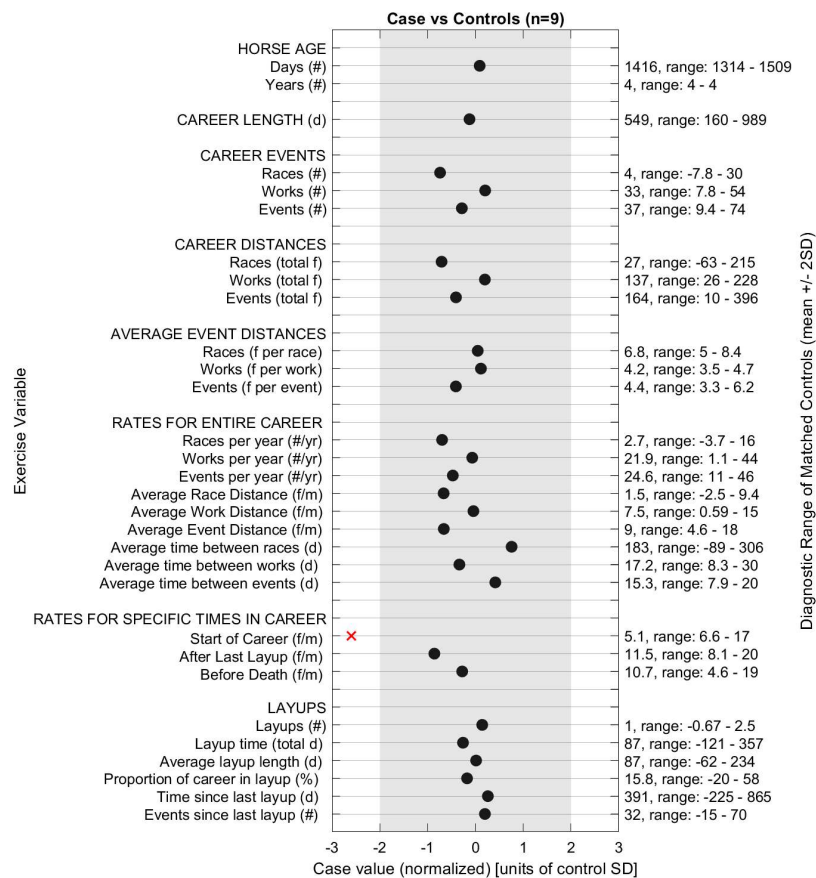
Part 3: Case Horse's Event History

Date	Race/Work	Furlongs	Track	Surface	Track Cond.	Time	Age/Sex	Race Class	Earnings	Finish
7/6/2022	W	4.0	ELL	Dirt	Fast	:50.60				
6/25/2022	W	5.0	ELL	Dirt	Fast	01:03.8				
6/16/2022	W	6.0	ELL	Dirt	Fast	01:16.0				
6/8/2022	W	5.0	ELL	Dirt	Fast	01:05.4				
6/1/2022	W	4.0	ELL	Dirt	Fast	:50.40				
5/3/2022	W	4.0	ELL	Dirt	Fast	:50.20				
4/5/2022	W	5.0	ELL	Dirt	Fast	01:06.2				
3/29/2022	W	4.0	ELL	Dirt	Fast	:51.40				
3/23/2022	W	4.0	ELL	Dirt	Fast	:51.20				
3/8/2022	W	3.0	ELL	Dirt	Fast	:37.60				
3/1/2022	W	4.0	ELL	Dirt	Fast	:52.40				
2/22/2022	W	4.0	ELL	Dirt	Fast	:51.60				
2/12/2022	W	4.0	ELL	Dirt	Fast	:52.40				
1/26/2022	W	4.0	ELL	Dirt	Fast	:51.00				
1/20/2022	W	4.0	ELL	Dirt	Fast	:51.60				
1/15/2022	W	3.0	ELL	Dirt	Fast	:38.00				
10/20/2021	W	3.0	ELL	Dirt	Fast	:38.60				
10/14/2021	W	3.0	ELL	Dirt	Fast	:38.40				
8/31/2021	W	5.0	ELL	Dirt	Fast	01:04.6				
8/25/2021	W	3.0	ELL	Dirt	Fast	:38.20				
8/11/2021	W	3.0	ELL	Dirt	Fast	:38.40				
Date	Race/Work	Furlongs	Track	Surface	Track Cond.	Time	Age/Sex	Race Class	Earnings	Finish
1/27/2023	R	7.0	LRL	Dirt	Fast		45	Msw	11960	2
1/8/2023	R	7.0	LRL	Dirt	Fast		45	Mcl45000 (45-36)-N	5060	3
12/22/2022	W	4.0	LRL	Dirt	Muddy	48.40				
12/9/2022	R	6.0	LRL	Dirt	Good		35	Msw	11960	2
11/20/2022	R	7.0	LRL	Dirt	Fast		35	Msw	11960	2
11/13/2022	W	4.0	LRL	Dirt	Fast	:49.20				
11/6/2022	W	5.0	LRL	Dirt	Good	01:01.8				
10/20/2022	W	3.0	LRL	Dirt	Fast	:37.00				
10/14/2022	W	5.0	LRL	Dirt	Sloppy	01:04.0				

### Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
10/7/2022	W	5.0	LRL	Dirt	Fast	01:02.2				
9/30/2022	W	5.0	LRL	Dirt	Fast	01:02.0				
9/23/2022	W	4.0	LRL	Dirt	Fast	:50.00				
8/23/2022	W	4.0	ELL	Dirt	Fast	:49.60				
8/18/2022	W	5.0	ELL	Dirt	Fast	01:03.4				
7/27/2022	W	4.0	ELL	Dirt	Fast	:50.20				
7/19/2022	W	5.0	ELL	Dirt	Fast	01:04.6				
7/6/2022	W	4.0	ELL	Dirt	Fast	:50.60				
6/25/2022	W	5.0	ELL	Dirt	Fast	01:03.8				
6/16/2022	W	6.0	ELL	Dirt	Fast	01:16.0				
6/8/2022	W	5.0	ELL	Dirt	Fast	01:05.4				
6/1/2022	W	4.0	ELL	Dirt	Fast	:50.40				
5/3/2022	W	4.0	ELL	Dirt	Fast	:50.20				
4/5/2022	W	5.0	ELL	Dirt	Fast	01:06.2				
3/29/2022	W	4.0	ELL	Dirt	Fast	:51.40				
3/23/2022	W	4.0	ELL	Dirt	Fast	:51.20				
3/8/2022	W	3.0	ELL	Dirt	Fast	:37.60				
3/1/2022	W	4.0	ELL	Dirt	Fast	:52.40				
2/22/2022	W	4.0	ELL	Dirt	Fast	:51.60				
2/12/2022	W	4.0	ELL	Dirt	Fast	:52.40				
1/26/2022	W	4.0	ELL	Dirt	Fast	:51.00				
1/20/2022	W	4.0	ELL	Dirt	Fast	:51.60				
1/15/2022	W	3.0	ELL	Dirt	Fast	:38.00				
10/20/2021	W	3.0	ELL	Dirt	Fast	:38.60				
10/14/2021	W	3.0	ELL	Dirt	Fast	:38.40				
8/31/2021	W	5.0	ELL	Dirt	Fast	01:04.6				
8/25/2021	W	3.0	ELL	Dirt	Fast	:38.20				
8/11/2021	W	3.0	ELL	Dirt	Fast	:38.40				

# Part 4: Comparison of Exercise Variables between Case Horse and 9 Control Horses (4 year old, male, Thoroughbred)

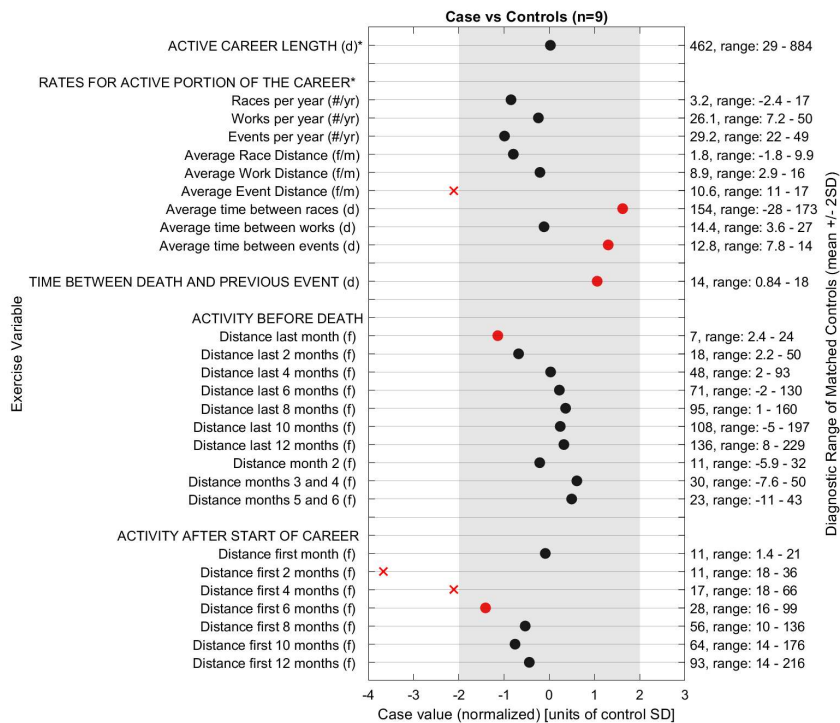


Case Horse values are indicated by black or red symbols: circles indicate values considered normal for 95% of 4 year old, male, Thoroughbreds (n=9) (gray region) (black and red indicate within 1 and 2 SD, respectively, of mean value of controls), X's indicate values outside of the normal range. Two and 3 year old case horses are also matched to control horses by the quarter in which the case horse died (Jan-Mar, Apr-Jun, Jul-Sep, Oct-Dec). Variables that are not calculable are not plotted (e.g. time between races for a horse with zero events). f=furlongs; yr=year; m=month; d=days.

^Rates are calculated over 2 to 5 events.

\*Active Career Length is the career length excluding the time during layups.

## Part 4: Comparison of Exercise Variables between Case Horse and 9 Control Horses (4 year old, male, Thoroughbred)



Case Horse values are indicated by black or red symbols: circles indicate values considered normal for 95% of 4 year old, male, Thoroughbreds (n=9) (gray region) (black and red indicate within 1 and 2 SD, respectively, of mean value of controls), X's indicate values outside of the normal range. Two and 3 year old case horses are also matched to control horses by the quarter in which the case horse died (Jan-Mar, Apr-Jun, Jul-Sep, Oct-Dec). Variables that are not calculable are not plotted (e.g. time between races for a horse with zero events). f=furlongs; yr=year; m=month; d=days.

^Rates are calculated over 2 to 5 events.

\*Active Career Length is the career length excluding the time during layups.

# Exercise History Report (Full)

## Forth



**UCDAVIS**

**VETERINARY MEDICINE**

*J. D. Wheat Veterinary Orthopedic  
Research Laboratory*

**Apr-27-2023**

## **Exercise History Report (Full)**

### **J.D. Wheat Veterinary Orthopedic Research Laboratory**

This report summarizes the high speed exercise history for Case Horse. There are four parts to this report:

Part 1 is a graph that depicts the races and officially recorded high speed workouts for Case Horse over the horse's career. The graph is useful for visually assessing features of a horse's career like: career length, periods of layup, and exercise consistency. If Case Horse had zero recorded high-speed exercise events, this graph is not produced. Event histories for three breed, sex, age, and event-matched control horses are also plotted.

Part 2 includes graphs which illustrate Case Horse's exercise history alongside that of Control Horses. These graphs are useful for visually comparing periods of layup and specific rates of exercise in the horses' exercise histories.

Part 3 is a chronological listing of races and officially timed works beginning with the most recent event (race or work).

Part 4 is a chart that allows comparison of exercise variables between Case Horse and other racehorses of similar age, sex, and breed that did not die at the same time from an injury. Similar to comparing the results of a blood test to a range of normal values, the values for Case Horse can be assessed in the context of a normal range for 95% of a sample of similar racehorses that did not die during the same time as Case Horse.

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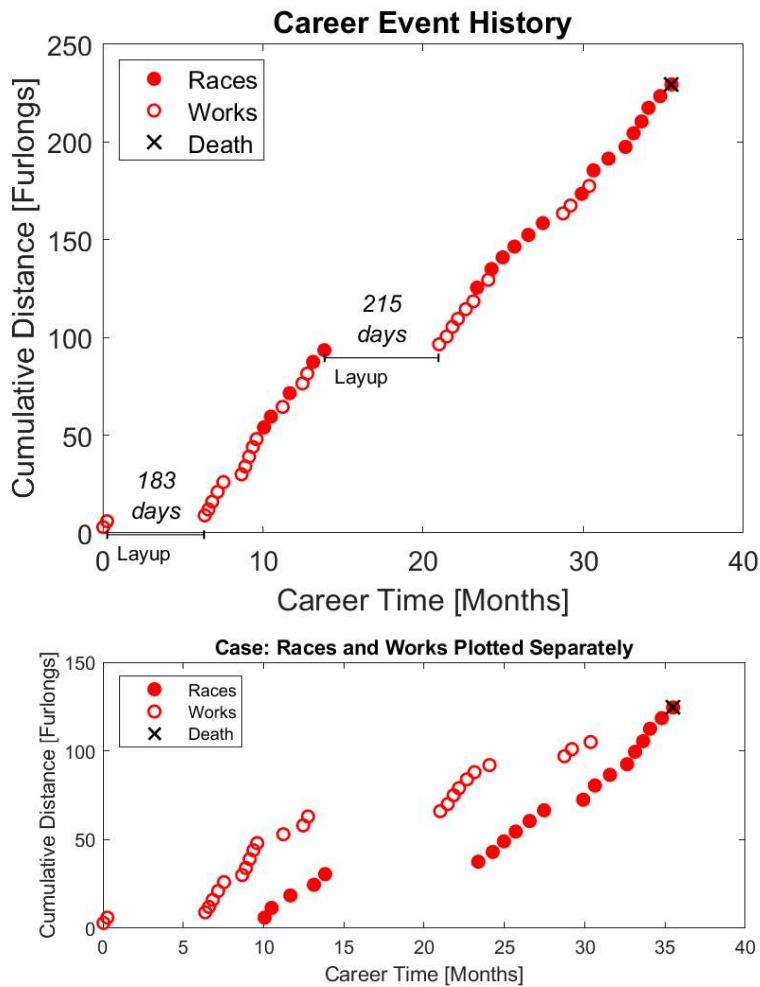
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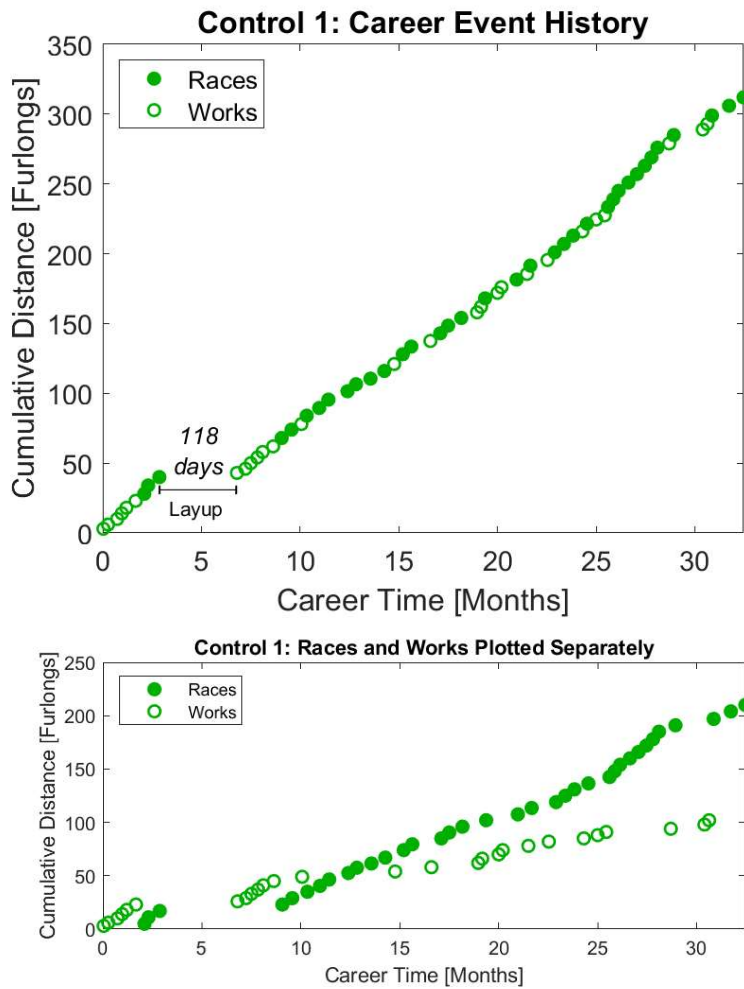
# Part 1: Graphical Representation of Individual High-Speed Exercise Histories

Races (filled circles), officially timed high-speed works (open circles), layups (line with endcaps, periods of time greater than 60 days in length without a race or timed work), and time of death (X) are illustrated over time (Career Time in months). With each event (race or work), the number of furlongs the horse exercised in that event is added to the number of furlongs exercised in all previous events.

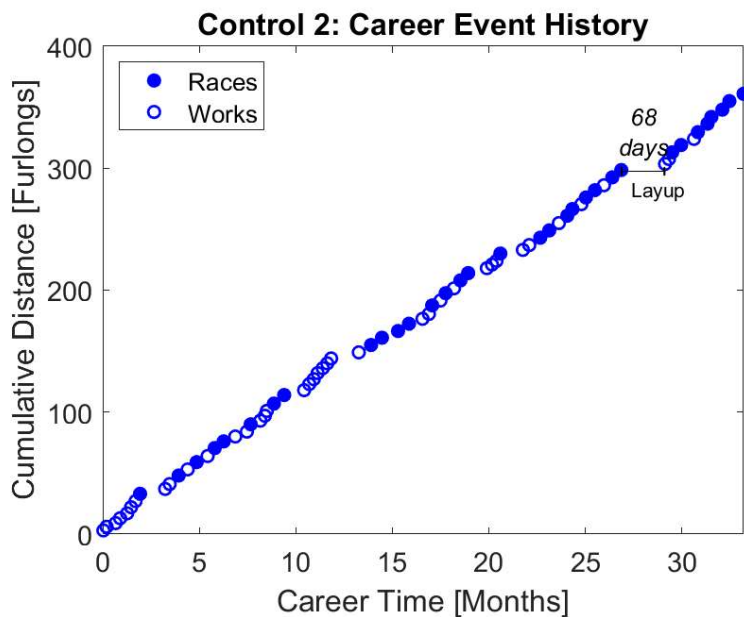
## Case Horse High Speed Exercise History



## Control 1 High Speed Exercise History

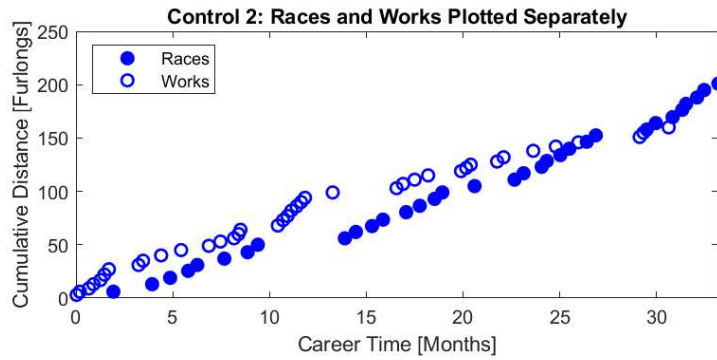


## Control 2 High Speed Exercise History

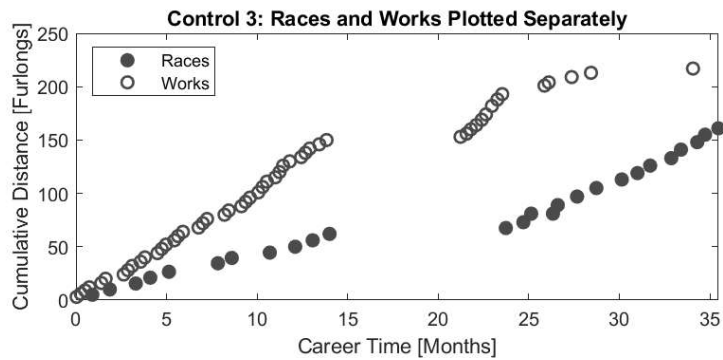
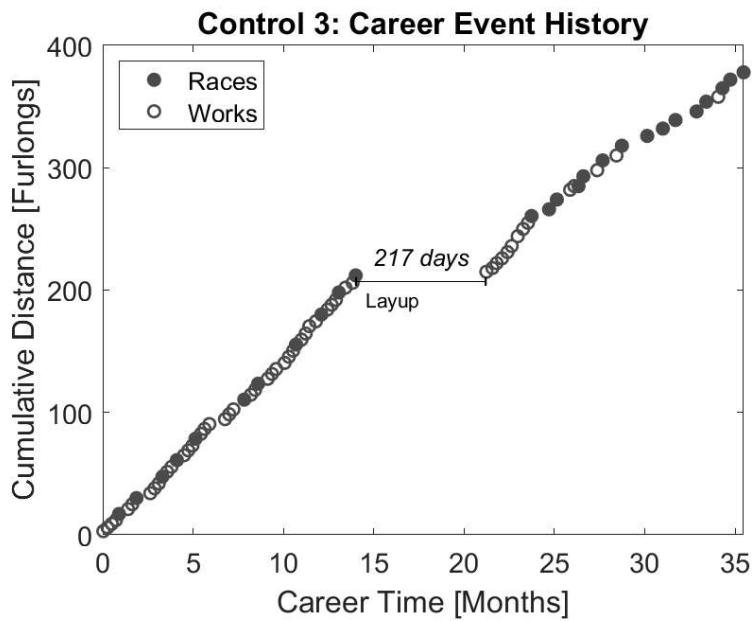


## Part 1: Graphical Representation of Individual High-Speed Exercise Histories

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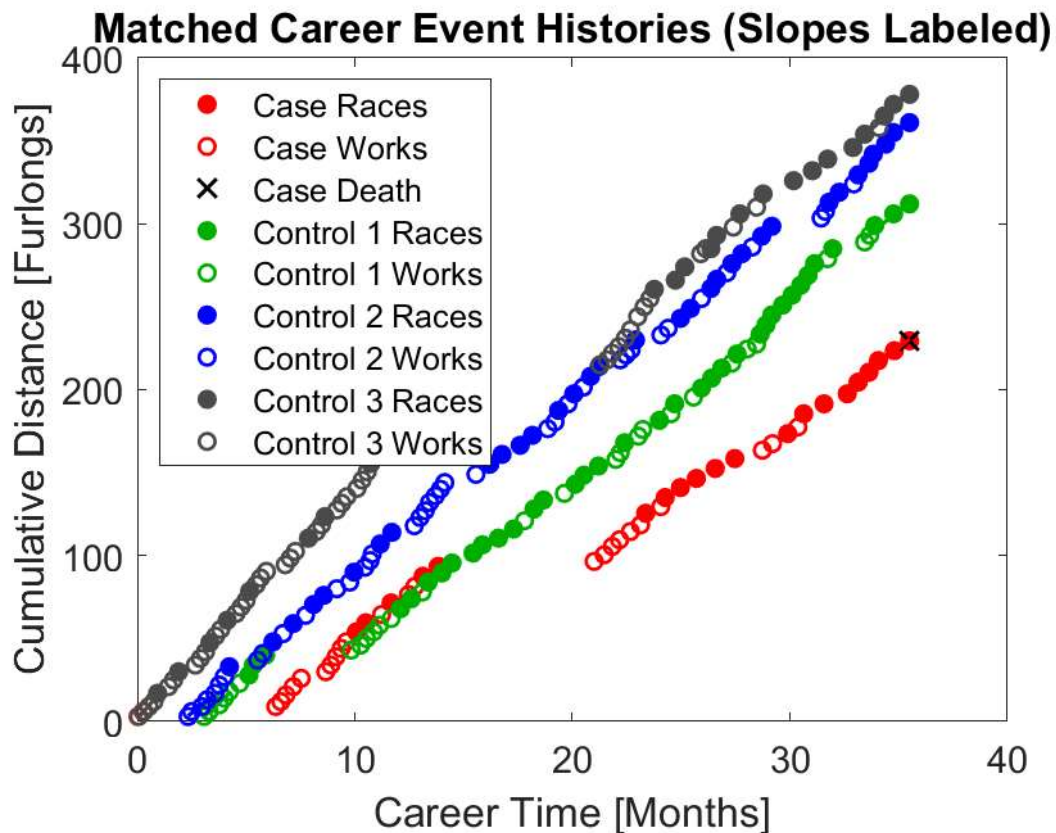


### Control 3 High Speed Exercise History

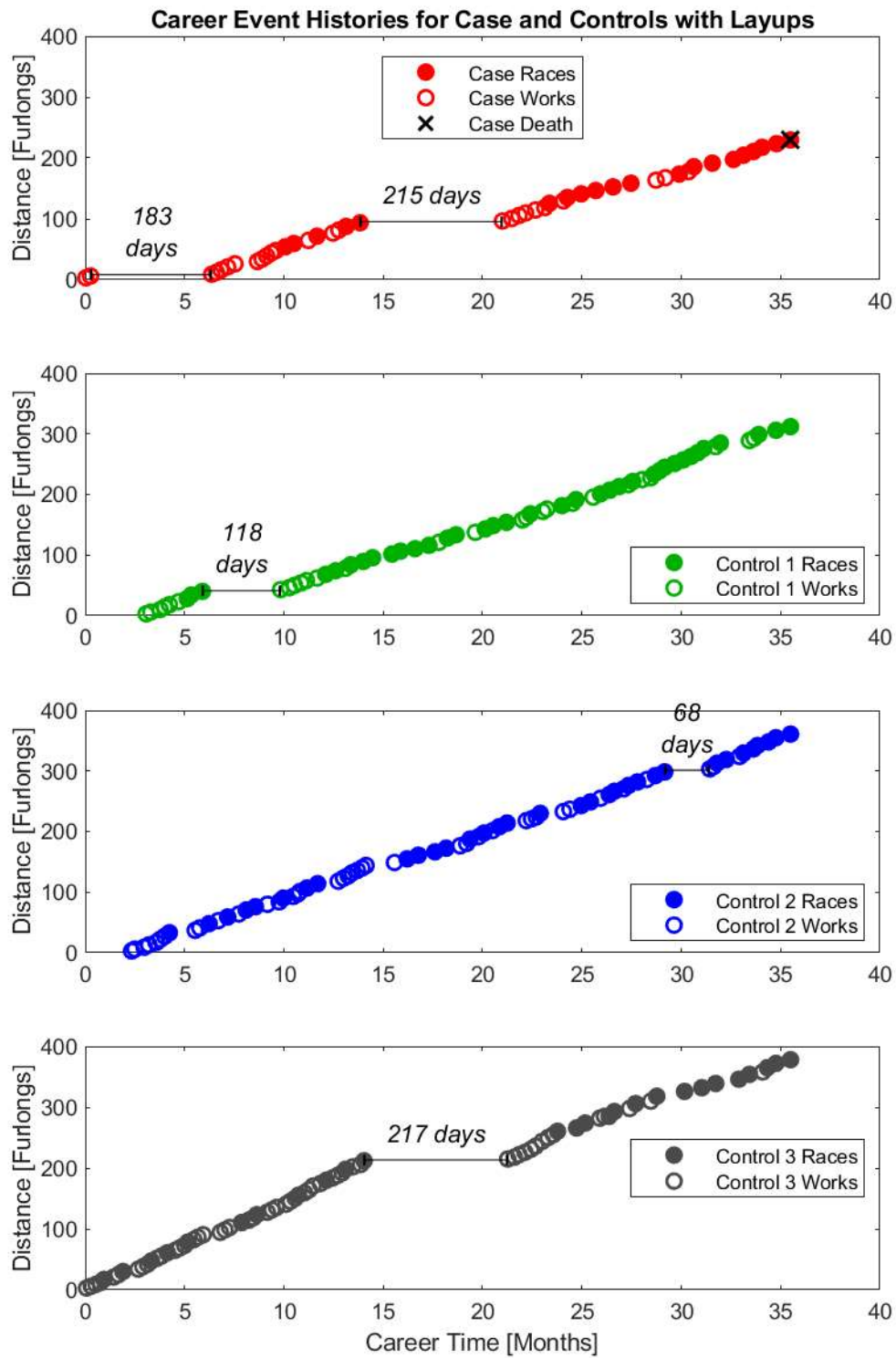


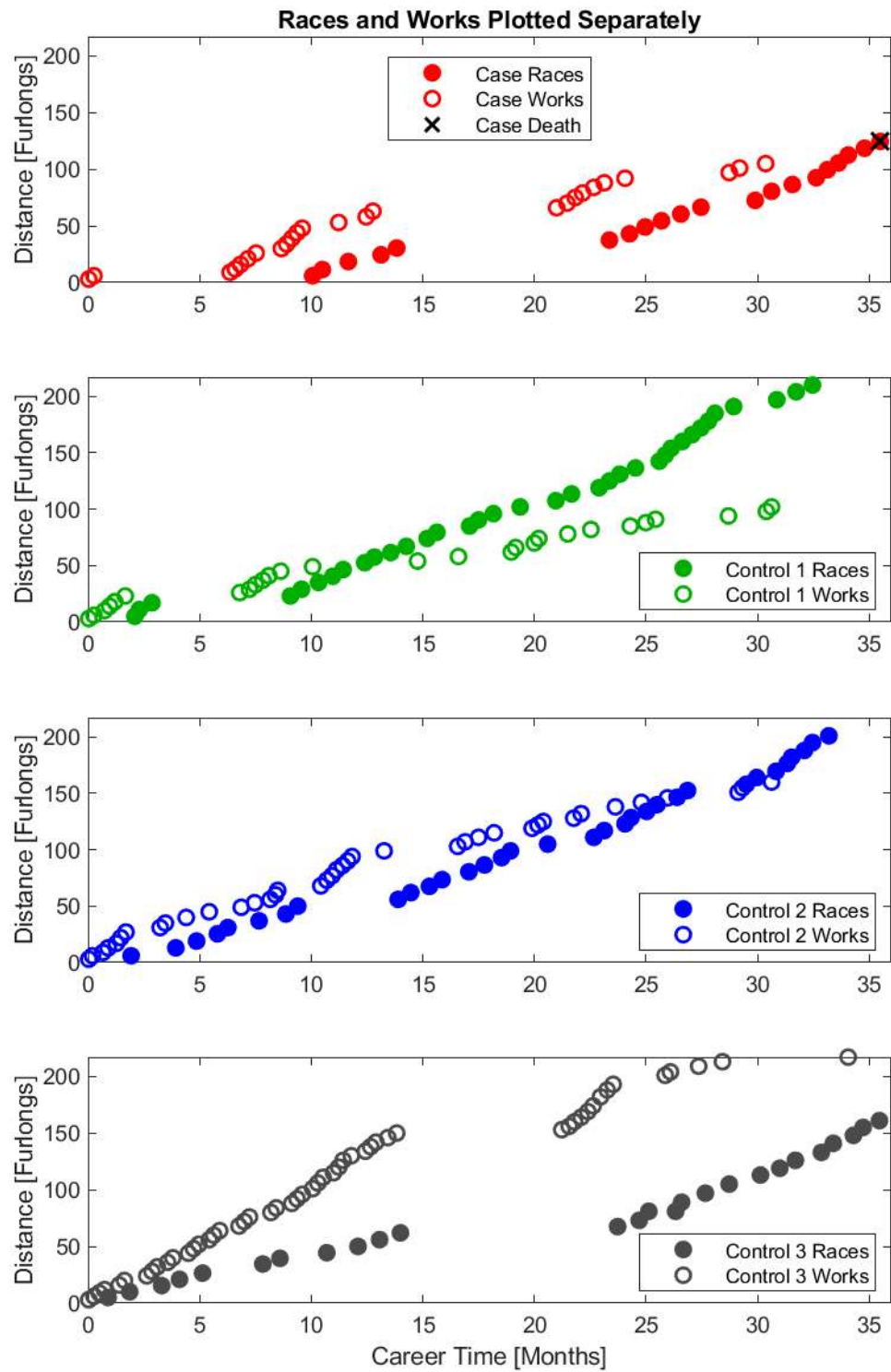
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## Part 2: Case and Control Horses Plotted Together



Case and Control Horses' exercise event histories are plotted on the same axes. The plots are aligned by the match date (equal to the date of death of Case Horse). Lines segments indicate specific rates of exercise at the start of career, end of career (for Case Horse), and match date (for Control Horses). Event rates are calculated as the slopes of the plots over 2 to 5 events not spanning a layup period, in units of furlongs per month.





### Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
3/25/2023	R	6.0	LRL	Dirt	Sloppy		4U	Clm5000	300	9
3/4/2023	R	6.0	LRL	Dirt	Fast		4U	SOC 12500/20000	640	6
2/10/2023	R	7.0	LRL	Dirt	Fast		4U	SOC 12500/20000	22080	1
1/28/2023	R	6.0	LRL	Dirt	Fast		4U	Clm20000 (25-20)nw3/L	24840	1
1/13/2023	R	7.0	LRL	Dirt	Muddy		4U	Clm20000 (25-20)nw3/L	1080	5
12/29/2022	R	6.0	LRL	Dirt	Fast		3U	Clm16000 (16-12.5)cnd-c	6440	2
11/27/2022	R	6.0	LRL	Dirt	Muddy		3U	Clm25000 (25-20)cnd	1080	5
10/30/2022	R	8.0	LRL	Dirt	Fast		3U	Clm40000 (40-32)cnd	880	6
10/22/2022	W	4.0	LRL	Dirt	Fast	:49.60				
10/8/2022	R	6.0	LRL	Dirt	Fast		3U	(R) Alw48900cnd	1440	5
9/17/2022	W	4.0	LRL	Dirt	Fast	:49.00				
9/3/2022	W	5.0	LRL	Dirt	Fast	01:02.0				
7/27/2022	R	6.0	DEL	Dirt	Fast		3U	SOC 25000 - N	1800	4
6/30/2022	R	6.0	DEL	Dirt	Fast		3U	Aoc16000nw1/ x-N	25200	1
6/4/2022	R	5.5	LRL	Turf	Firm		3U	SOC 25000 - N	300	9
5/13/2022	R	6.0	PIM	Dirt	Fast		3U	SOC 25000 - N	7360	2
4/22/2022	R	5.5	LRL	Dirt	Fast		3U	SOC 25000/25000	300	9
4/16/2022	W	4.0	LRL	Dirt	Fast	:50.00				
3/26/2022	R	7.0	LRL	Dirt	Fast		4U	(R) Alw44900cnd	300	9
3/19/2022	W	4.0	LRL	Dirt	Fast	:48.20				
3/5/2022	W	5.0	LRL	Dirt	Fast	01:01.0				
2/18/2022	W	4.0	LRL	Dirt	Fast	:50.00				
2/8/2022	W	5.0	LRL	Dirt	Fast	01:01.6				

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
1/28/2022	W	4.0	LRL	Dirt	Fast	:49.40				
1/14/2022	W	3.0	LRL	Dirt	Fast	:37.60				
6/13/2021	R	6.0	PIM	Dirt	Fast		35	Wmc40000 (40-32)-N	21632	1
5/23/2021	R	6.0	PIM	Dirt	Fast		35	Wmc40000 (40-35)-N	1320	5
5/12/2021	W	5.0	LRL	Turf	Good	01:04.0				
5/3/2021	W	5.0	PIM	Dirt	Fast	01:01.2				
4/9/2021	R	7.0	LRL	Dirt	Sloppy		3	Msw	5720	3
3/27/2021	W	5.0	LRL	Dirt	Fast	01:01.6				
3/5/2021	R	5.5	LRL	Dirt	Fast		3	Msw	2400	4
2/20/2021	R	6.0	LRL	Dirt	Fast		3	Msw	5720	3
2/6/2021	W	4.0	LRL	Dirt	Fast	:50.00				
1/30/2021	W	5.0	LRL	Dirt	Fast	01:02.8				
1/23/2021	W	5.0	LRL	Dirt	Fast	01:01.2				
1/16/2021	W	4.0	LRL	Dirt	Muddy	49.80				
1/9/2021	W	4.0	LRL	Dirt	Fast	:50.00				
12/6/2020	W	5.0	LRL	Dirt	Fast	01:02.2				
11/25/2020	W	5.0	LRL	Dirt	Fast	01:02.0				
11/15/2020	W	4.0	LRL	Dirt	Fast	:48.40				
11/8/2020	W	3.0	LRL	Dirt	Fast	:37.00				
11/1/2020	W	3.0	LRL	Dirt	Fast	:37.80				
5/2/2020	W	3.0	LRL	Dirt	Fast	:36.40				
4/25/2020	W	3.0	LRL	Dirt	Good	:37.60				
Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
3/25/2023	R	6.0	LRL	Dirt	Sloppy		4U	Clm5000	300	9
3/4/2023	R	6.0	LRL	Dirt	Fast		4U	SOC 12500/20000	640	6
2/10/2023	R	7.0	LRL	Dirt	Fast		4U	SOC 12500/20000	22080	1
1/28/2023	R	6.0	LRL	Dirt	Fast		4U	Clm20000 (25-20)nw3/L	24840	1

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
1/13/2023	R	7.0	LRL	Dirt	Muddy		4U	Clm20000 (25-20)nw3/L	1080	5
12/29/2022	R	6.0	LRL	Dirt	Fast		3U	Clm16000 (16-12.5)cnd-c	6440	2
11/27/2022	R	6.0	LRL	Dirt	Muddy		3U	Clm25000 (25-20)cnd	1080	5
10/30/2022	R	8.0	LRL	Dirt	Fast		3U	Clm40000 (40-32)cnd	880	6
10/22/2022	W	4.0	LRL	Dirt	Fast	:49.60				
10/8/2022	R	6.0	LRL	Dirt	Fast		3U	(R) Alw48900cnd	1440	5
9/17/2022	W	4.0	LRL	Dirt	Fast	:49.00				
9/3/2022	W	5.0	LRL	Dirt	Fast	01:02.0				
7/27/2022	R	6.0	DEL	Dirt	Fast		3U	SOC 25000 - N	1800	4
6/30/2022	R	6.0	DEL	Dirt	Fast		3U	Aoc16000nw1/ x-N	25200	1
6/4/2022	R	5.5	LRL	Turf	Firm		3U	SOC 25000 - N	300	9
5/13/2022	R	6.0	PIM	Dirt	Fast		3U	SOC 25000 - N	7360	2
4/22/2022	R	5.5	LRL	Dirt	Fast		3U	SOC 25000/25000	300	9
4/16/2022	W	4.0	LRL	Dirt	Fast	:50.00				
3/26/2022	R	7.0	LRL	Dirt	Fast		4U	(R) Alw44900cnd	300	9
3/19/2022	W	4.0	LRL	Dirt	Fast	:48.20				
3/5/2022	W	5.0	LRL	Dirt	Fast	01:01.0				
2/18/2022	W	4.0	LRL	Dirt	Fast	:50.00				
2/8/2022	W	5.0	LRL	Dirt	Fast	01:01.6				
1/28/2022	W	4.0	LRL	Dirt	Fast	:49.40				
1/14/2022	W	3.0	LRL	Dirt	Fast	:37.60				
6/13/2021	R	6.0	PIM	Dirt	Fast		35	Wmc40000 (40-32)-N	21632	1
5/23/2021	R	6.0	PIM	Dirt	Fast		35	Wmc40000 (40-35)-N	1320	5
5/12/2021	W	5.0	LRL	Turf	Good	01:04.0				
5/3/2021	W	5.0	PIM	Dirt	Fast	01:01.2				

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
4/9/2021	R	7.0	LRL	Dirt	Sloppy		3	Msw	5720	3
3/27/2021	W	5.0	LRL	Dirt	Fast	01:01.6				
3/5/2021	R	5.5	LRL	Dirt	Fast		3	Msw	2400	4
2/20/2021	R	6.0	LRL	Dirt	Fast		3	Msw	5720	3
2/6/2021	W	4.0	LRL	Dirt	Fast	:50.00				
1/30/2021	W	5.0	LRL	Dirt	Fast	01:02.8				
1/23/2021	W	5.0	LRL	Dirt	Fast	01:01.2				
1/16/2021	W	4.0	LRL	Dirt	Muddy	49.80				
1/9/2021	W	4.0	LRL	Dirt	Fast	:50.00				
12/6/2020	W	5.0	LRL	Dirt	Fast	01:02.2				
11/25/2020	W	5.0	LRL	Dirt	Fast	01:02.0				
11/15/2020	W	4.0	LRL	Dirt	Fast	:48.40				
11/8/2020	W	3.0	LRL	Dirt	Fast	:37.00				
11/1/2020	W	3.0	LRL	Dirt	Fast	:37.80				
5/2/2020	W	3.0	LRL	Dirt	Fast	:36.40				
4/25/2020	W	3.0	LRL	Dirt	Good	:37.60				
Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
3/25/2023	R	6.0	LRL	Dirt	Sloppy		4U	Clm5000	300	9
3/4/2023	R	6.0	LRL	Dirt	Fast		4U	SOC 12500/20000	640	6
2/10/2023	R	7.0	LRL	Dirt	Fast		4U	SOC 12500/20000	22080	1
1/28/2023	R	6.0	LRL	Dirt	Fast		4U	Clm20000 (25-20)nw3/L	24840	1
1/13/2023	R	7.0	LRL	Dirt	Muddy		4U	Clm20000 (25-20)nw3/L	1080	5
12/29/2022	R	6.0	LRL	Dirt	Fast		3U	Clm16000 (16-12.5)cnd-c	6440	2
11/27/2022	R	6.0	LRL	Dirt	Muddy		3U	Clm25000 (25-20)cnd	1080	5
10/30/2022	R	8.0	LRL	Dirt	Fast		3U	Clm40000 (40-32)cnd	880	6
10/22/2022	W	4.0	LRL	Dirt	Fast	:49.60				

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
10/8/2022	R	6.0	LRL	Dirt	Fast		3U	(R) Alw48900cnd	1440	5
9/17/2022	W	4.0	LRL	Dirt	Fast	:49.00				
9/3/2022	W	5.0	LRL	Dirt	Fast	01:02.0				
7/27/2022	R	6.0	DEL	Dirt	Fast		3U	SOC 25000 - N	1800	4
6/30/2022	R	6.0	DEL	Dirt	Fast		3U	Aoc16000nw1/ x-N	25200	1
6/4/2022	R	5.5	LRL	Turf	Firm		3U	SOC 25000 - N	300	9
5/13/2022	R	6.0	PIM	Dirt	Fast		3U	SOC 25000 - N	7360	2
4/22/2022	R	5.5	LRL	Dirt	Fast		3U	SOC 25000/25000	300	9
4/16/2022	W	4.0	LRL	Dirt	Fast	:50.00				
3/26/2022	R	7.0	LRL	Dirt	Fast		4U	(R) Alw44900cnd	300	9
3/19/2022	W	4.0	LRL	Dirt	Fast	:48.20				
3/5/2022	W	5.0	LRL	Dirt	Fast	01:01.0				
2/18/2022	W	4.0	LRL	Dirt	Fast	:50.00				
2/8/2022	W	5.0	LRL	Dirt	Fast	01:01.6				
1/28/2022	W	4.0	LRL	Dirt	Fast	:49.40				
1/14/2022	W	3.0	LRL	Dirt	Fast	:37.60				
6/13/2021	R	6.0	PIM	Dirt	Fast		35	Wmc40000 (40-32)-N	21632	1
5/23/2021	R	6.0	PIM	Dirt	Fast		35	Wmc40000 (40-35)-N	1320	5
5/12/2021	W	5.0	LRL	Turf	Good	01:04.0				
5/3/2021	W	5.0	PIM	Dirt	Fast	01:01.2				
4/9/2021	R	7.0	LRL	Dirt	Sloppy		3	Msw	5720	3
3/27/2021	W	5.0	LRL	Dirt	Fast	01:01.6				
3/5/2021	R	5.5	LRL	Dirt	Fast		3	Msw	2400	4
2/20/2021	R	6.0	LRL	Dirt	Fast		3	Msw	5720	3
2/6/2021	W	4.0	LRL	Dirt	Fast	:50.00				
1/30/2021	W	5.0	LRL	Dirt	Fast	01:02.8				
1/23/2021	W	5.0	LRL	Dirt	Fast	01:01.2				
1/16/2021	W	4.0	LRL	Dirt	Muddy	49.80				

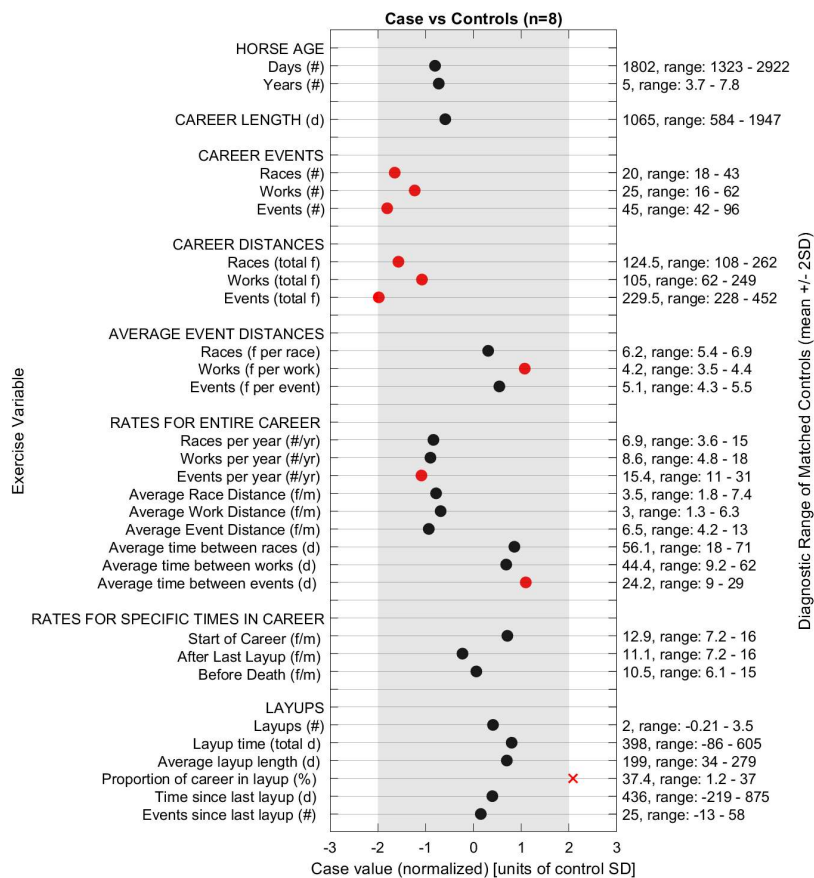
Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
1/9/2021	W	4.0	LRL	Dirt	Fast	:50.00				
12/6/2020	W	5.0	LRL	Dirt	Fast	01:02.2				
11/25/2020	W	5.0	LRL	Dirt	Fast	01:02.0				
11/15/2020	W	4.0	LRL	Dirt	Fast	:48.40				
11/8/2020	W	3.0	LRL	Dirt	Fast	:37.00				
11/1/2020	W	3.0	LRL	Dirt	Fast	:37.80				
5/2/2020	W	3.0	LRL	Dirt	Fast	:36.40				
4/25/2020	W	3.0	LRL	Dirt	Good	:37.60				
Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
3/25/2023	R	6.0	LRL	Dirt	Sloppy		4U	Clm5000	300	9
3/4/2023	R	6.0	LRL	Dirt	Fast		4U	SOC 12500/20000	640	6
2/10/2023	R	7.0	LRL	Dirt	Fast		4U	SOC 12500/20000	22080	1
1/28/2023	R	6.0	LRL	Dirt	Fast		4U	Clm20000 (25-20)nw3/L	24840	1
1/13/2023	R	7.0	LRL	Dirt	Muddy		4U	Clm20000 (25-20)nw3/L	1080	5
12/29/2022	R	6.0	LRL	Dirt	Fast		3U	Clm16000 (16-12.5)cnd-c	6440	2
11/27/2022	R	6.0	LRL	Dirt	Muddy		3U	Clm25000 (25-20)cnd	1080	5
10/30/2022	R	8.0	LRL	Dirt	Fast		3U	Clm40000 (40-32)cnd	880	6
10/22/2022	W	4.0	LRL	Dirt	Fast	:49.60				
10/8/2022	R	6.0	LRL	Dirt	Fast		3U	(R) Alw48900cnd	1440	5
9/17/2022	W	4.0	LRL	Dirt	Fast	:49.00				
9/3/2022	W	5.0	LRL	Dirt	Fast	01:02.0				
7/27/2022	R	6.0	DEL	Dirt	Fast		3U	SOC 25000 - N	1800	4
6/30/2022	R	6.0	DEL	Dirt	Fast		3U	Aoc16000nw1/ x-N	25200	1
6/4/2022	R	5.5	LRL	Turf	Firm		3U	SOC 25000 - N	300	9
5/13/2022	R	6.0	PIM	Dirt	Fast		3U	SOC 25000 - N	7360	2

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
4/22/2022	R	5.5	LRL	Dirt	Fast		3U	SOC 25000/25000	300	9
4/16/2022	W	4.0	LRL	Dirt	Fast	:50.00				
3/26/2022	R	7.0	LRL	Dirt	Fast		4U	(R) Alw44900cnd	300	9
3/19/2022	W	4.0	LRL	Dirt	Fast	:48.20				
3/5/2022	W	5.0	LRL	Dirt	Fast	01:01.0				
2/18/2022	W	4.0	LRL	Dirt	Fast	:50.00				
2/8/2022	W	5.0	LRL	Dirt	Fast	01:01.6				
1/28/2022	W	4.0	LRL	Dirt	Fast	:49.40				
1/14/2022	W	3.0	LRL	Dirt	Fast	:37.60				
6/13/2021	R	6.0	PIM	Dirt	Fast		35	Wmc40000 (40-32)-N	21632	1
5/23/2021	R	6.0	PIM	Dirt	Fast		35	Wmc40000 (40-35)-N	1320	5
5/12/2021	W	5.0	LRL	Turf	Good	01:04.0				
5/3/2021	W	5.0	PIM	Dirt	Fast	01:01.2				
4/9/2021	R	7.0	LRL	Dirt	Sloppy		3	Msw	5720	3
3/27/2021	W	5.0	LRL	Dirt	Fast	01:01.6				
3/5/2021	R	5.5	LRL	Dirt	Fast		3	Msw	2400	4
2/20/2021	R	6.0	LRL	Dirt	Fast		3	Msw	5720	3
2/6/2021	W	4.0	LRL	Dirt	Fast	:50.00				
1/30/2021	W	5.0	LRL	Dirt	Fast	01:02.8				
1/23/2021	W	5.0	LRL	Dirt	Fast	01:01.2				
1/16/2021	W	4.0	LRL	Dirt	Muddy	49.80				
1/9/2021	W	4.0	LRL	Dirt	Fast	:50.00				
12/6/2020	W	5.0	LRL	Dirt	Fast	01:02.2				
11/25/2020	W	5.0	LRL	Dirt	Fast	01:02.0				
11/15/2020	W	4.0	LRL	Dirt	Fast	:48.40				
11/8/2020	W	3.0	LRL	Dirt	Fast	:37.00				
11/1/2020	W	3.0	LRL	Dirt	Fast	:37.80				
5/2/2020	W	3.0	LRL	Dirt	Fast	:36.40				
4/25/2020	W	3.0	LRL	Dirt	Good	:37.60				

## Part 4: Comparison of Exercise Variables between Case Horse and 8 Control Horses (5+ year old, male, Thoroughbred)

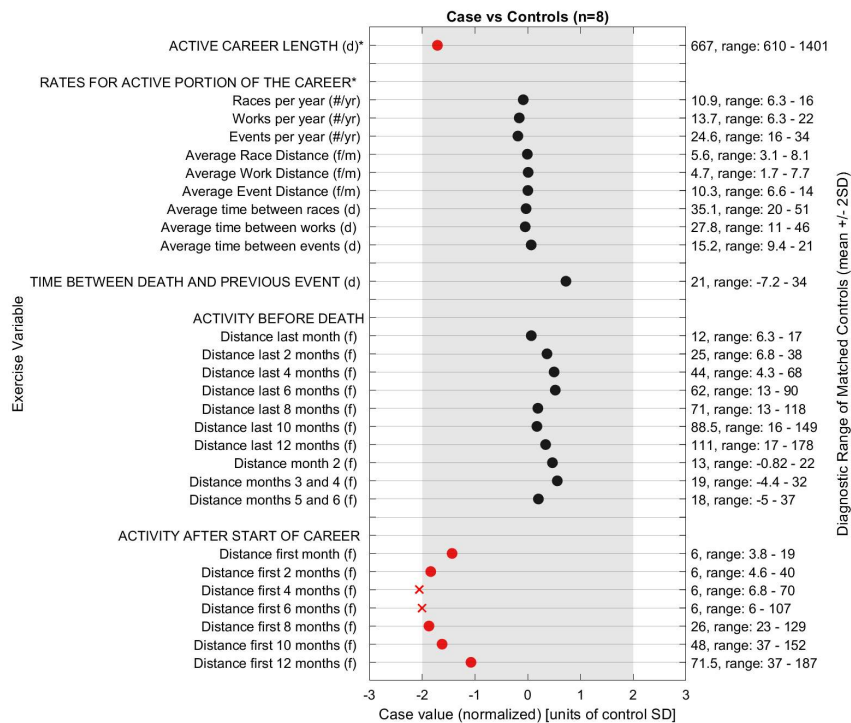


Case Horse values are indicated by black or red symbols: circles indicate values considered normal for 95% of 5+ year old, male, Thoroughbreds (n=8) (gray region) (black and red indicate within 1 and 2 SD, respectively, of mean value of controls), X's indicate values outside of the normal range. Two and 3 year old case horses are also matched to control horses by the quarter in which the case horse died (Jan-Mar, Apr-Jun, Jul-Sep, Oct-Dec). Variables that are not calculable are not plotted (e.g. time between races for a horse with zero events). f=furlongs; yr=year; m=month; d=days.

^Rates are calculated over 2 to 5 events.

\*Active Career Length is the career length excluding the time during layups.

## Part 4: Comparison of Exercise Variables between Case Horse and 8 Control Horses (5+ year old, male, Thoroughbred)



Case Horse values are indicated by black or red symbols: circles indicate values considered normal for 95% of 5+ year old, male, Thoroughbreds (n=8) (gray region) (black and red indicate within 1 and 2 SD, respectively, of mean value of controls), X's indicate values outside of the normal range. Two and 3 year old case horses are also matched to control horses by the quarter in which the case horse died (Jan-Mar, Apr-Jun, Jul-Sep, Oct-Dec). Variables that are not calculable are not plotted (e.g. time between races for a horse with zero events). f=furlongs; yr=year; m=month; d=days.

^Rates are calculated over 2 to 5 events.

\*Active Career Length is the career length excluding the time during layups.

# Exercise History Report (Full)

## Golden Pegasus



**UC DAVIS**

**VETERINARY MEDICINE**

*J. D. Wheat Veterinary Orthopedic  
Research Laboratory*

**Apr-27-2023**

## **Exercise History Report (Full)**

### **J.D. Wheat Veterinary Orthopedic Research Laboratory**

This report summarizes the high speed exercise history for Case Horse. There are four parts to this report:

Part 1 is a graph that depicts the races and officially recorded high speed workouts for Case Horse over the horse's career. The graph is useful for visually assessing features of a horse's career like: career length, periods of layup, and exercise consistency. If Case Horse had zero recorded high-speed exercise events, this graph is not produced. Event histories for three breed, sex, age, and event-matched control horses are also plotted.

Part 2 includes graphs which illustrate Case Horse's exercise history alongside that of Control Horses. These graphs are useful for visually comparing periods of layup and specific rates of exercise in the horses' exercise histories.

Part 3 is a chronological listing of races and officially timed works beginning with the most recent event (race or work).

Part 4 is a chart that allows comparison of exercise variables between Case Horse and other racehorses of similar age, sex, and breed that did not die at the same time from an injury. Similar to comparing the results of a blood test to a range of normal values, the values for Case Horse can be assessed in the context of a normal range for 95% of a sample of similar racehorses that did not die during the same time as Case Horse.

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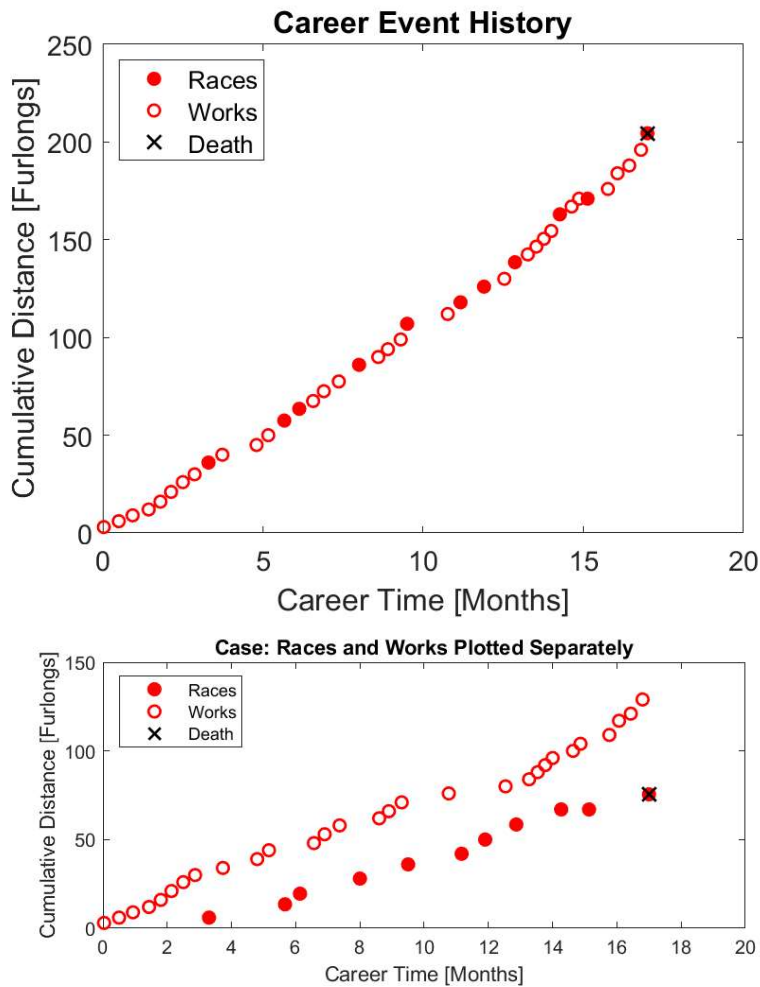
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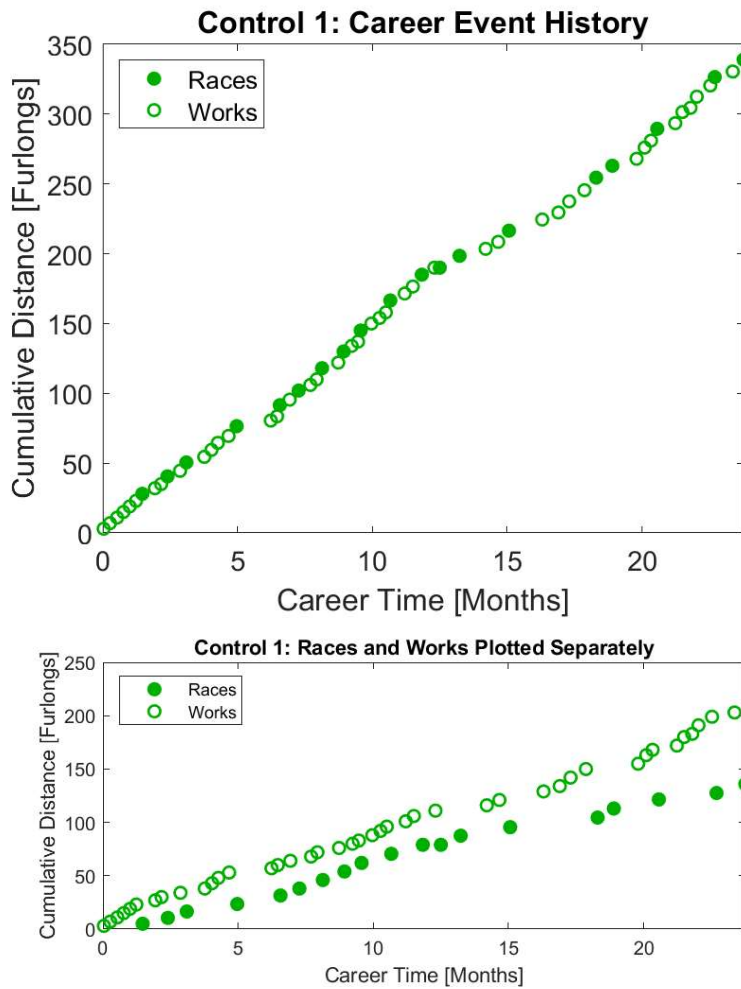
# Part 1: Graphical Representation of Individual High-Speed Exercise Histories

Races (filled circles), officially timed high-speed works (open circles), layups (line with endcaps, periods of time greater than 60 days in length without a race or timed work), and time of death (X) are illustrated over time (Career Time in months). With each event (race or work), the number of furlongs the horse exercised in that event is added to the number of furlongs exercised in all previous events.

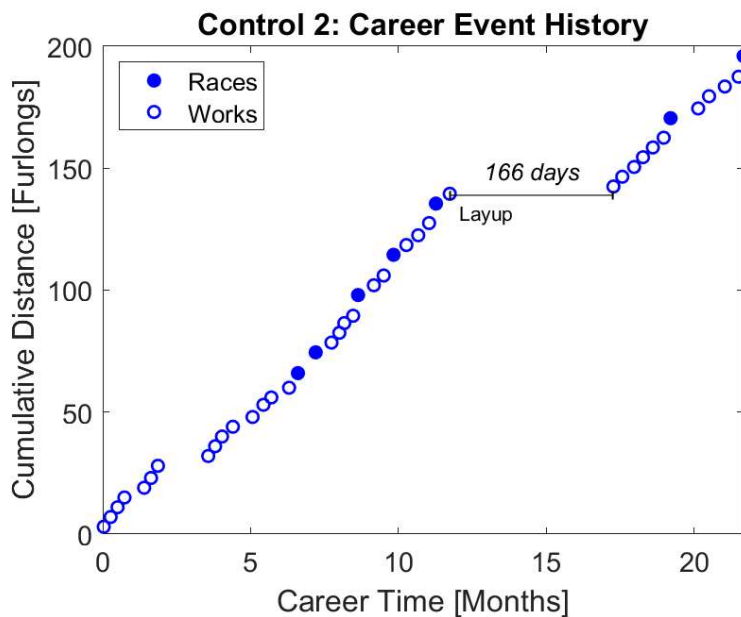
## Case Horse High Speed Exercise History



## Control 1 High Speed Exercise History

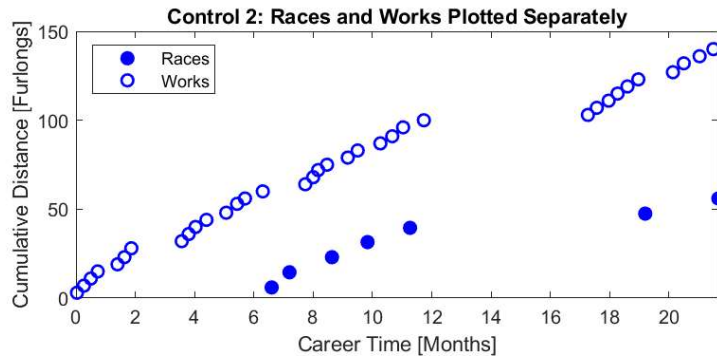


## Control 2 High Speed Exercise History

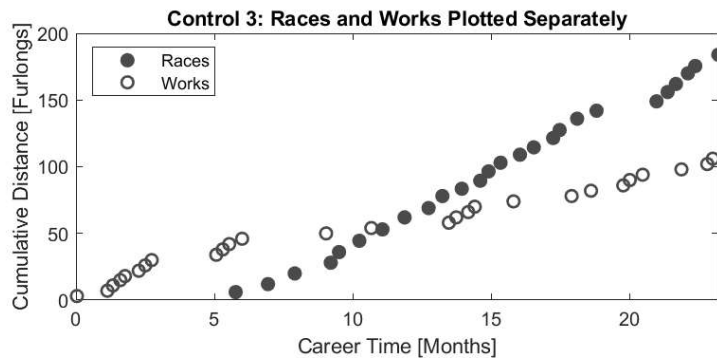


## Part 1: Graphical Representation of Individual High-Speed Exercise Histories

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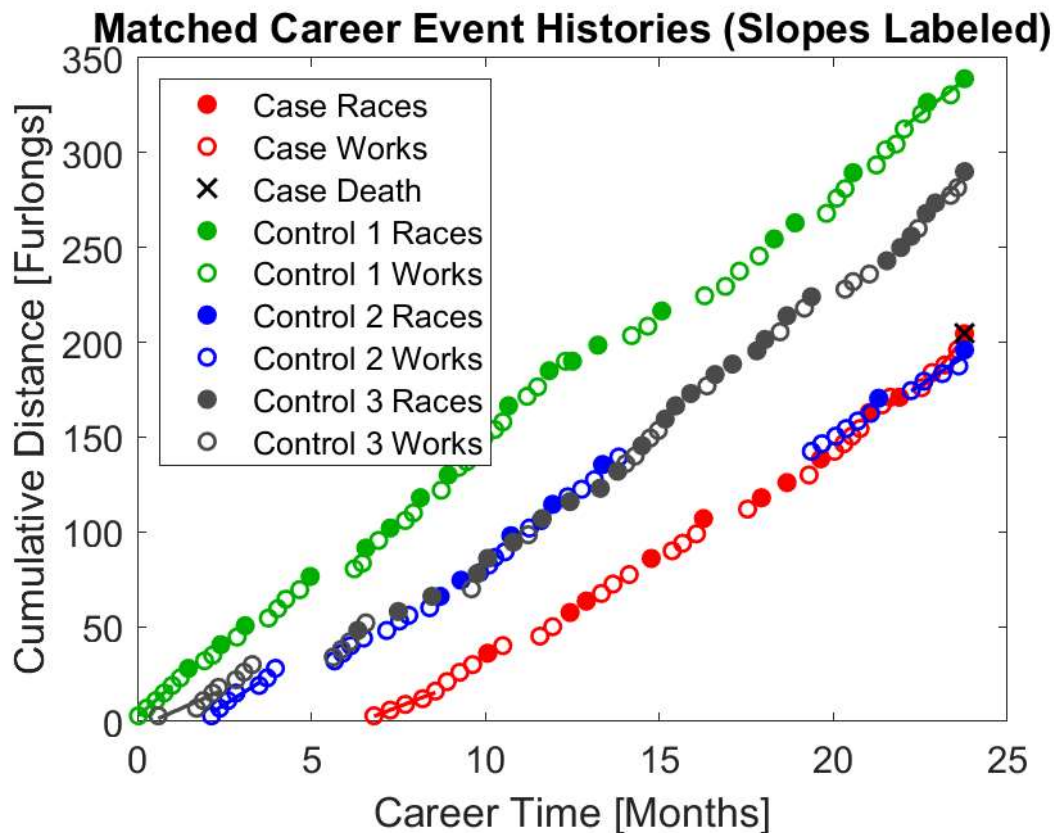


### Control 3 High Speed Exercise History

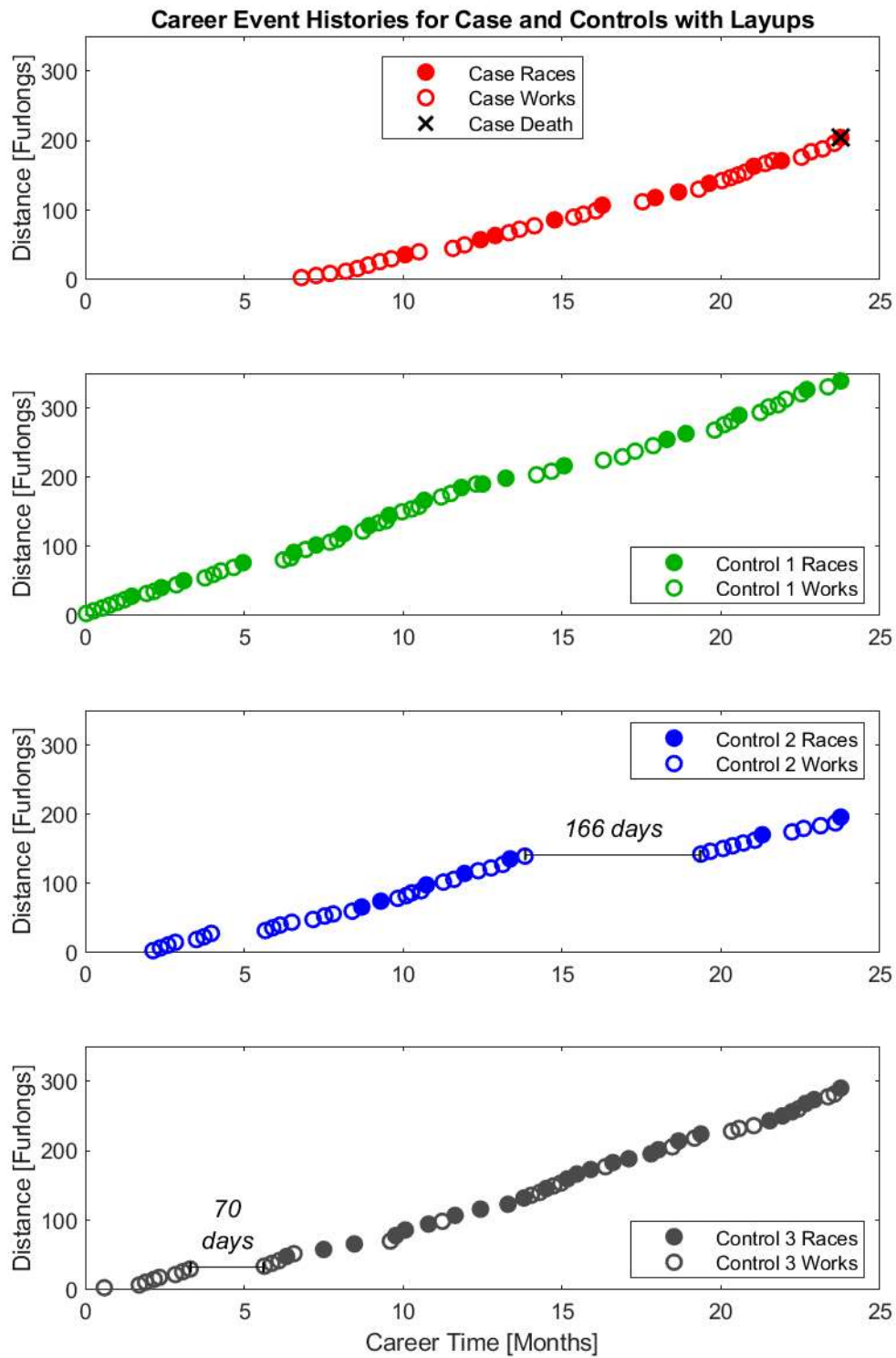


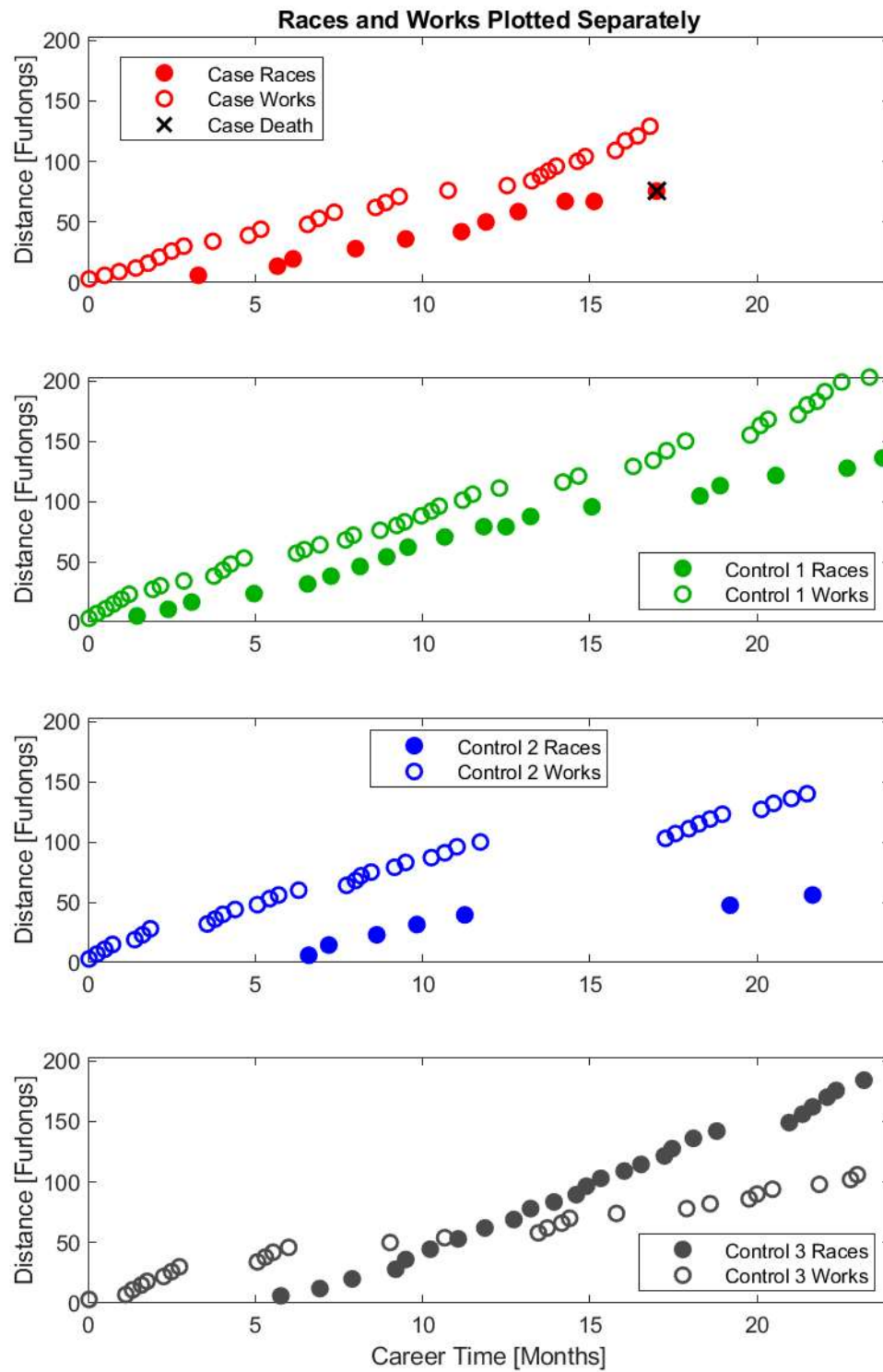
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## Part 2: Case and Control Horses Plotted Together



Case and Control Horses' exercise event histories are plotted on the same axes. The plots are aligned by the match date (equal to the date of death of Case Horse). Lines segments indicate specific rates of exercise at the start of career, end of career (for Case Horse), and match date (for Control Horses). Event rates are calculated as the slopes of the plots over 2 to 5 events not spanning a layup period, in units of furlongs per month.





## Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
4/20/2023	R	8.5	LRL	Dirt	Fast		3U	Clm40000 (40-32)cnd	880	6
4/14/2023	W	8.0	LRL	Dirt	Fast	01:49.0				
4/3/2023	W	4.0	LRL	Dirt	Fast	:49.20				
3/23/2023	W	8.0	LRL	Dirt	Fast	01:50.0				
3/14/2023	W	5.0	LRL	Dirt	Fast	01:03.2				
2/23/2023	R	0.0	FG	Dirt	Fast		4U	Clm15000nw3/ L-c	4200	2
2/15/2023	W	4.0	FG	Dirt	Fast	:49.60				
2/8/2023	W	4.0	FG	Dirt	Fast	:50.20				
1/28/2023	R	8.5	FG	Dirt	Fast		3U	Clm15000cnd	12000	1
1/20/2023	W	4.0	FG	Dirt	Fast	:50.20				
1/13/2023	W	4.0	FG	Dirt	Fast	:50.20				
1/6/2023	W	4.0	FG	Dirt	Fast	:48.80				
12/29/2022	W	4.0	FG	Dirt	Fast	:50.60				
12/17/2022	R	8.5	FG	Dirt	Fast		3U	Clm15000nw2/ L-c	4000	2
12/7/2022	W	4.0	FG	Dirt	Fast	:50.40				
11/18/2022	R	8.0	RP	Dirt	Fast		3U	Clm15000nw2/ L	432	5
10/27/2022	R	6.0	RP	Dirt	Fast		3U	Clm25000nw2/ L	1075	4
10/15/2022	W	5.0	RP	Dirt	Fast	01:03.0				
9/7/2022	R	8.0	RP	Dirt	Fast		35	Msw	19647	1
9/1/2022	W	5.0	RP	Dirt	Fast	01:05.2				
8/20/2022	W	4.0	RP	Dirt	Fast	:49.94				
8/11/2022	W	4.0	RP	Dirt	Fast	:47.93				
7/24/2022	R	8.5	LS	Dirt	Fast		3U	Msw	1938	4
7/5/2022	W	5.0	LAD	Dirt	Fast	01:05.0				
6/21/2022	W	5.0	LAD	Dirt	Fast	01:01.6				
6/11/2022	W	4.0	LAD	Dirt	Fast	:48.20				
5/29/2022	R	6.0	LAD	Dirt	Fast		3U	Msw	2200	3

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
5/15/2022	R	7.5	LAD	Turf	Firm		3U	Msw	0	9
4/30/2022	W	5.0	LAD	Dirt	Fast	01:02.8				
4/19/2022	W	5.0	LAD	Dirt	Fast	01:03.2				
3/18/2022	W	4.0	FG	Dirt	Fast	:49.60				
3/5/2022	R	6.0	FG	Dirt	Fast		3	Mcl30000 (30-25)	2750	3
2/20/2022	W	4.0	FG	Dirt	Fast	:50.80				
2/9/2022	W	5.0	LAD	Dirt	Fast	01:03.0				
1/29/2022	W	5.0	LAD	Dirt	Fast	01:02.8				
1/19/2022	W	4.0	LAD	Dirt	Fast	:49.80				
1/8/2022	W	3.0	LAD	Dirt	Fast	:39.20				
12/24/2021	W	3.0	LAD	Dirt	Fast	:39.60				
12/11/2021	W	3.0	LAD	Dirt	Fast	:37.40				
11/27/2021	W	3.0	LAD	Dirt	Fast	:38.40				
Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
4/20/2023	R	8.5	LRL	Dirt	Fast		3U	Clm40000 (40-32)cnd	880	6
4/14/2023	W	8.0	LRL	Dirt	Fast	01:49.0				
4/3/2023	W	4.0	LRL	Dirt	Fast	:49.20				
3/23/2023	W	8.0	LRL	Dirt	Fast	01:50.0				
3/14/2023	W	5.0	LRL	Dirt	Fast	01:03.2				
2/23/2023	R	0.0	FG	Dirt	Fast		4U	Clm15000nw3/ L-c	4200	2
2/15/2023	W	4.0	FG	Dirt	Fast	:49.60				
2/8/2023	W	4.0	FG	Dirt	Fast	:50.20				
1/28/2023	R	8.5	FG	Dirt	Fast		3U	Clm15000cnd	12000	1
1/20/2023	W	4.0	FG	Dirt	Fast	:50.20				
1/13/2023	W	4.0	FG	Dirt	Fast	:50.20				
1/6/2023	W	4.0	FG	Dirt	Fast	:48.80				
12/29/2022	W	4.0	FG	Dirt	Fast	:50.60				
12/17/2022	R	8.5	FG	Dirt	Fast		3U	Clm15000nw2/ L-c	4000	2
12/7/2022	W	4.0	FG	Dirt	Fast	:50.40				

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
11/18/2022	R	8.0	RP	Dirt	Fast		3U	Clm15000nw2/ L	432	5
10/27/2022	R	6.0	RP	Dirt	Fast		3U	Clm25000nw2/ L	1075	4
10/15/2022	W	5.0	RP	Dirt	Fast	01:03.0				
9/7/2022	R	8.0	RP	Dirt	Fast		35	Msw	19647	1
9/1/2022	W	5.0	RP	Dirt	Fast	01:05.2				
8/20/2022	W	4.0	RP	Dirt	Fast	:49.94				
8/11/2022	W	4.0	RP	Dirt	Fast	:47.93				
7/24/2022	R	8.5	LS	Dirt	Fast		3U	Msw	1938	4
7/5/2022	W	5.0	LAD	Dirt	Fast	01:05.0				
6/21/2022	W	5.0	LAD	Dirt	Fast	01:01.6				
6/11/2022	W	4.0	LAD	Dirt	Fast	:48.20				
5/29/2022	R	6.0	LAD	Dirt	Fast		3U	Msw	2200	3
5/15/2022	R	7.5	LAD	Turf	Firm		3U	Msw	0	9
4/30/2022	W	5.0	LAD	Dirt	Fast	01:02.8				
4/19/2022	W	5.0	LAD	Dirt	Fast	01:03.2				
3/18/2022	W	4.0	FG	Dirt	Fast	:49.60				
3/5/2022	R	6.0	FG	Dirt	Fast		3	Mcl30000 (30-25)	2750	3
2/20/2022	W	4.0	FG	Dirt	Fast	:50.80				
2/9/2022	W	5.0	LAD	Dirt	Fast	01:03.0				
1/29/2022	W	5.0	LAD	Dirt	Fast	01:02.8				
1/19/2022	W	4.0	LAD	Dirt	Fast	:49.80				
1/8/2022	W	3.0	LAD	Dirt	Fast	:39.20				
12/24/2021	W	3.0	LAD	Dirt	Fast	:39.60				
12/11/2021	W	3.0	LAD	Dirt	Fast	:37.40				
11/27/2021	W	3.0	LAD	Dirt	Fast	:38.40				
Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
4/20/2023	R	8.5	LRL	Dirt	Fast		3U	Clm40000 (40-32)cnd	880	6
4/14/2023	W	8.0	LRL	Dirt	Fast	01:49.0				
4/3/2023	W	4.0	LRL	Dirt	Fast	:49.20				

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
3/23/2023	W	8.0	LRL	Dirt	Fast	01:50.0				
3/14/2023	W	5.0	LRL	Dirt	Fast	01:03.2				
2/23/2023	R	0.0	FG	Dirt	Fast		4U	Clm15000nw3/ L-c	4200	2
2/15/2023	W	4.0	FG	Dirt	Fast	:49.60				
2/8/2023	W	4.0	FG	Dirt	Fast	:50.20				
1/28/2023	R	8.5	FG	Dirt	Fast		3U	Clm15000cnd	12000	1
1/20/2023	W	4.0	FG	Dirt	Fast	:50.20				
1/13/2023	W	4.0	FG	Dirt	Fast	:50.20				
1/6/2023	W	4.0	FG	Dirt	Fast	:48.80				
12/29/2022	W	4.0	FG	Dirt	Fast	:50.60				
12/17/2022	R	8.5	FG	Dirt	Fast		3U	Clm15000nw2/ L-c	4000	2
12/7/2022	W	4.0	FG	Dirt	Fast	:50.40				
11/18/2022	R	8.0	RP	Dirt	Fast		3U	Clm15000nw2/ L	432	5
10/27/2022	R	6.0	RP	Dirt	Fast		3U	Clm25000nw2/ L	1075	4
10/15/2022	W	5.0	RP	Dirt	Fast	01:03.0				
9/7/2022	R	8.0	RP	Dirt	Fast		35	Msw	19647	1
9/1/2022	W	5.0	RP	Dirt	Fast	01:05.2				
8/20/2022	W	4.0	RP	Dirt	Fast	:49.94				
8/11/2022	W	4.0	RP	Dirt	Fast	:47.93				
7/24/2022	R	8.5	LS	Dirt	Fast		3U	Msw	1938	4
7/5/2022	W	5.0	LAD	Dirt	Fast	01:05.0				
6/21/2022	W	5.0	LAD	Dirt	Fast	01:01.6				
6/11/2022	W	4.0	LAD	Dirt	Fast	:48.20				
5/29/2022	R	6.0	LAD	Dirt	Fast		3U	Msw	2200	3
5/15/2022	R	7.5	LAD	Turf	Firm		3U	Msw	0	9
4/30/2022	W	5.0	LAD	Dirt	Fast	01:02.8				
4/19/2022	W	5.0	LAD	Dirt	Fast	01:03.2				
3/18/2022	W	4.0	FG	Dirt	Fast	:49.60				
3/5/2022	R	6.0	FG	Dirt	Fast		3	Mcl30000 (30-25)	2750	3

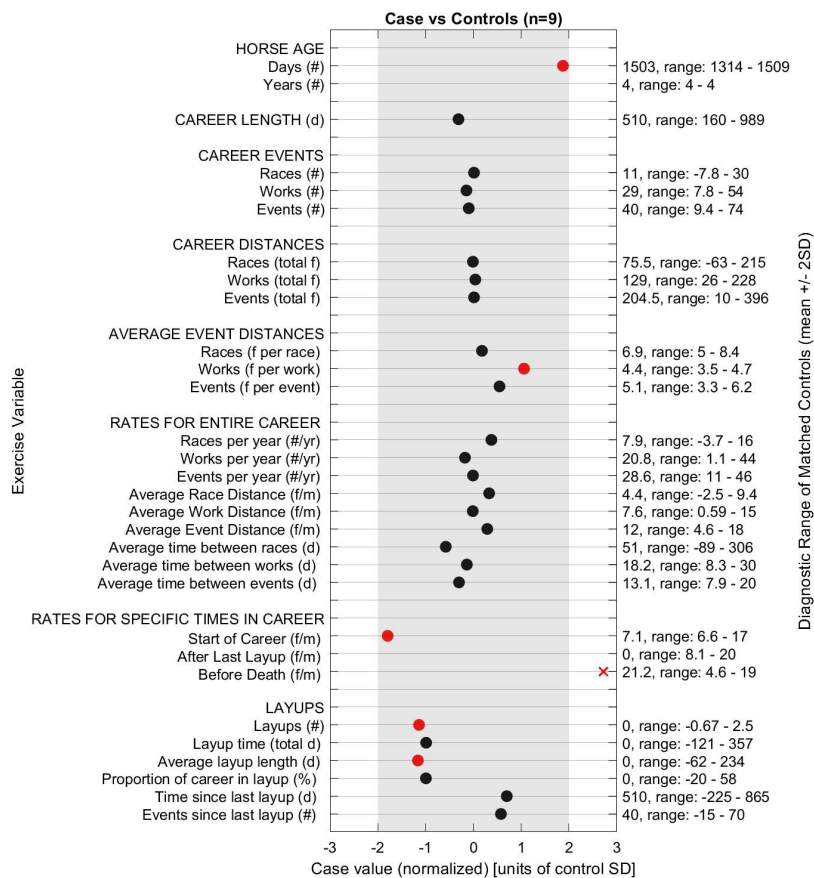
Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
2/20/2022	W	4.0	FG	Dirt	Fast	:50.80				
2/9/2022	W	5.0	LAD	Dirt	Fast	01:03.0				
1/29/2022	W	5.0	LAD	Dirt	Fast	01:02.8				
1/19/2022	W	4.0	LAD	Dirt	Fast	:49.80				
1/8/2022	W	3.0	LAD	Dirt	Fast	:39.20				
12/24/2021	W	3.0	LAD	Dirt	Fast	:39.60				
12/11/2021	W	3.0	LAD	Dirt	Fast	:37.40				
11/27/2021	W	3.0	LAD	Dirt	Fast	:38.40				
Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
4/20/2023	R	8.5	LRL	Dirt	Fast		3U	Clm40000 (40-32)cnd	880	6
4/14/2023	W	8.0	LRL	Dirt	Fast	01:49.0				
4/3/2023	W	4.0	LRL	Dirt	Fast	:49.20				
3/23/2023	W	8.0	LRL	Dirt	Fast	01:50.0				
3/14/2023	W	5.0	LRL	Dirt	Fast	01:03.2				
2/23/2023	R	0.0	FG	Dirt	Fast		4U	Clm15000nw3/ L-c	4200	2
2/15/2023	W	4.0	FG	Dirt	Fast	:49.60				
2/8/2023	W	4.0	FG	Dirt	Fast	:50.20				
1/28/2023	R	8.5	FG	Dirt	Fast		3U	Clm15000cnd	12000	1
1/20/2023	W	4.0	FG	Dirt	Fast	:50.20				
1/13/2023	W	4.0	FG	Dirt	Fast	:50.20				
1/6/2023	W	4.0	FG	Dirt	Fast	:48.80				
12/29/2022	W	4.0	FG	Dirt	Fast	:50.60				
12/17/2022	R	8.5	FG	Dirt	Fast		3U	Clm15000nw2/ L-c	4000	2
12/7/2022	W	4.0	FG	Dirt	Fast	:50.40				
11/18/2022	R	8.0	RP	Dirt	Fast		3U	Clm15000nw2/ L	432	5
10/27/2022	R	6.0	RP	Dirt	Fast		3U	Clm25000nw2/ L	1075	4
10/15/2022	W	5.0	RP	Dirt	Fast	01:03.0				
9/7/2022	R	8.0	RP	Dirt	Fast		35	Msw	19647	1

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
9/1/2022	W	5.0	RP	Dirt	Fast	01:05.2				
8/20/2022	W	4.0	RP	Dirt	Fast	:49.94				
8/11/2022	W	4.0	RP	Dirt	Fast	:47.93				
7/24/2022	R	8.5	LS	Dirt	Fast		3U	Msw	1938	4
7/5/2022	W	5.0	LAD	Dirt	Fast	01:05.0				
6/21/2022	W	5.0	LAD	Dirt	Fast	01:01.6				
6/11/2022	W	4.0	LAD	Dirt	Fast	:48.20				
5/29/2022	R	6.0	LAD	Dirt	Fast		3U	Msw	2200	3
5/15/2022	R	7.5	LAD	Turf	Firm		3U	Msw	0	9
4/30/2022	W	5.0	LAD	Dirt	Fast	01:02.8				
4/19/2022	W	5.0	LAD	Dirt	Fast	01:03.2				
3/18/2022	W	4.0	FG	Dirt	Fast	:49.60				
3/5/2022	R	6.0	FG	Dirt	Fast		3	Mcl30000 (30-25)	2750	3
2/20/2022	W	4.0	FG	Dirt	Fast	:50.80				
2/9/2022	W	5.0	LAD	Dirt	Fast	01:03.0				
1/29/2022	W	5.0	LAD	Dirt	Fast	01:02.8				
1/19/2022	W	4.0	LAD	Dirt	Fast	:49.80				
1/8/2022	W	3.0	LAD	Dirt	Fast	:39.20				
12/24/2021	W	3.0	LAD	Dirt	Fast	:39.60				
12/11/2021	W	3.0	LAD	Dirt	Fast	:37.40				
11/27/2021	W	3.0	LAD	Dirt	Fast	:38.40				

## Part 4: Comparison of Exercise Variables between Case Horse and 9 Control Horses (4 year old, male, Thoroughbred)

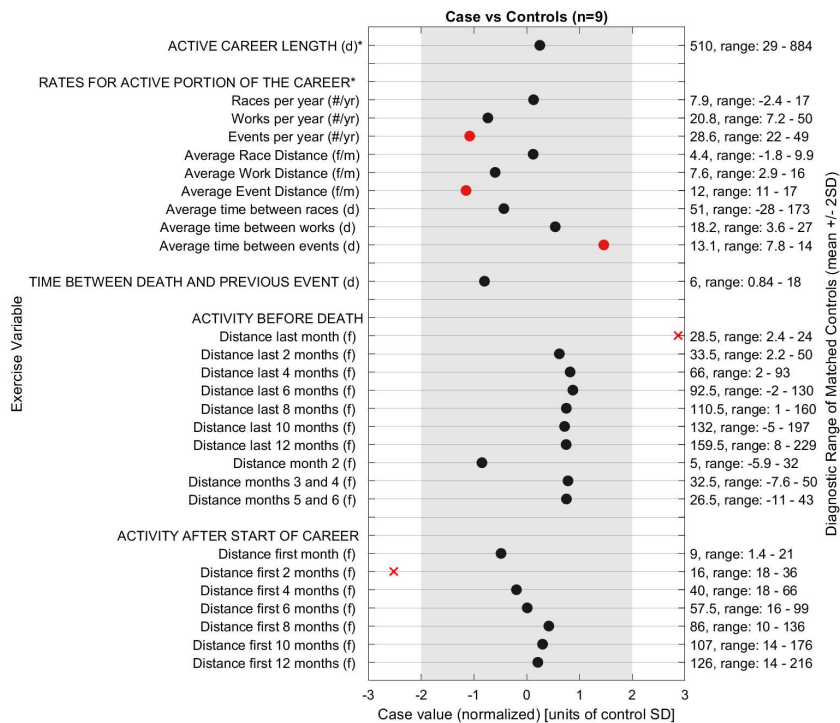


Case Horse values are indicated by black or red symbols: circles indicate values considered normal for 95% of 4 year old, male, Thoroughbreds (n=9) (gray region) (black and red indicate within 1 and 2 SD, respectively, of mean value of controls), X's indicate values outside of the normal range. Two and 3 year old case horses are also matched to control horses by the quarter in which the case horse died (Jan-Mar, Apr-Jun, Jul-Sep, Oct-Dec). Variables that are not calculable are not plotted (e.g. time between races for a horse with zero events). f=furlongs; yr=year; m=month; d=days.

^Rates are calculated over 2 to 5 events.

\*Active Career Length is the career length excluding the time during layups.

## Part 4: Comparison of Exercise Variables between Case Horse and 9 Control Horses (4 year old, male, Thoroughbred)



Case Horse values are indicated by black or red symbols: circles indicate values considered normal for 95% of 4 year old, male, Thoroughbreds (n=9) (gray region) (black and red indicate within 1 and 2 SD, respectively, of mean value of controls), X's indicate values outside of the normal range. Two and 3 year old case horses are also matched to control horses by the quarter in which the case horse died (Jan-Mar, Apr-Jun, Jul-Sep, Oct-Dec). Variables that are not calculable are not plotted (e.g. time between races for a horse with zero events). f=furlongs; yr=year; m=month; d=days.

^Rates are calculated over 2 to 5 events.

\*Active Career Length is the career length excluding the time during layups.

# Exercise History Report (Full)

## Lady Macho



**UC DAVIS**

**VETERINARY MEDICINE**

*J. D. Wheat Veterinary Orthopedic  
Research Laboratory*

**Apr-27-2023**

## **Exercise History Report (Full)**

### **J.D. Wheat Veterinary Orthopedic Research Laboratory**

This report summarizes the high speed exercise history for Case Horse. There are four parts to this report:

Part 1 is a graph that depicts the races and officially recorded high speed workouts for Case Horse over the horse's career. The graph is useful for visually assessing features of a horse's career like: career length, periods of layup, and exercise consistency. If Case Horse had zero recorded high-speed exercise events, this graph is not produced. Event histories for three breed, sex, age, and event-matched control horses are also plotted.

Part 2 includes graphs which illustrate Case Horse's exercise history alongside that of Control Horses. These graphs are useful for visually comparing periods of layup and specific rates of exercise in the horses' exercise histories.

Part 3 is a chronological listing of races and officially timed works beginning with the most recent event (race or work).

Part 4 is a chart that allows comparison of exercise variables between Case Horse and other racehorses of similar age, sex, and breed that did not die at the same time from an injury. Similar to comparing the results of a blood test to a range of normal values, the values for Case Horse can be assessed in the context of a normal range for 95% of a sample of similar racehorses that did not die during the same time as Case Horse.

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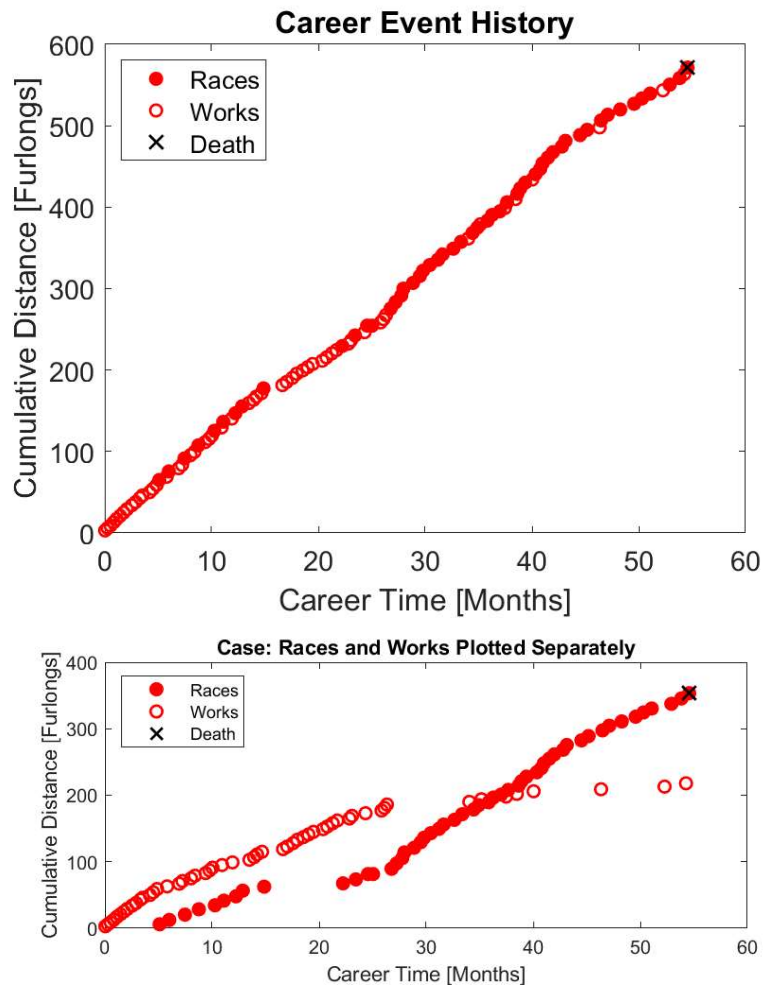
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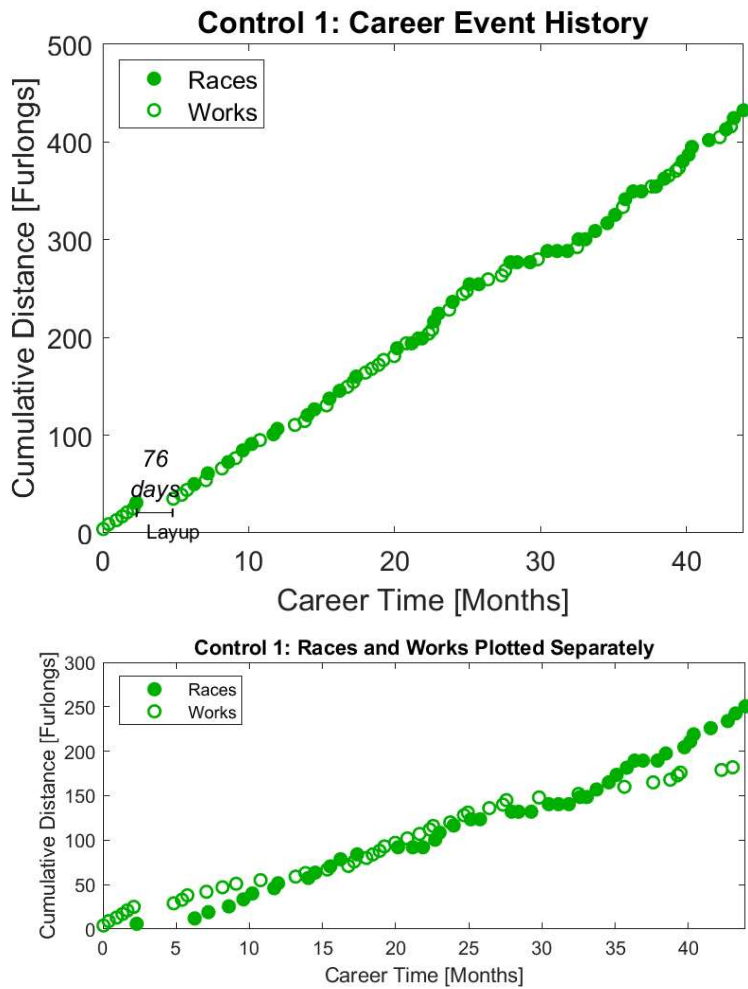
## Part 1: Graphical Representation of Individual High-Speed Exercise Histories

Races (filled circles), officially timed high-speed works (open circles), layups (line with endcaps, periods of time greater than 60 days in length without a race or timed work), and time of death (X) are illustrated over time (Career Time in months). With each event (race or work), the number of furlongs the horse exercised in that event is added to the number of furlongs exercised in all previous events.

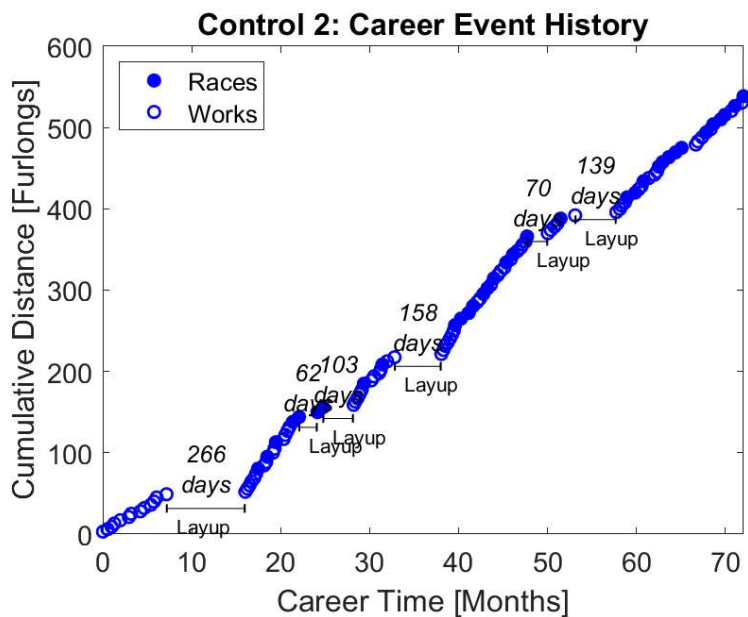
### Case Horse High Speed Exercise History



## Control 1 High Speed Exercise History

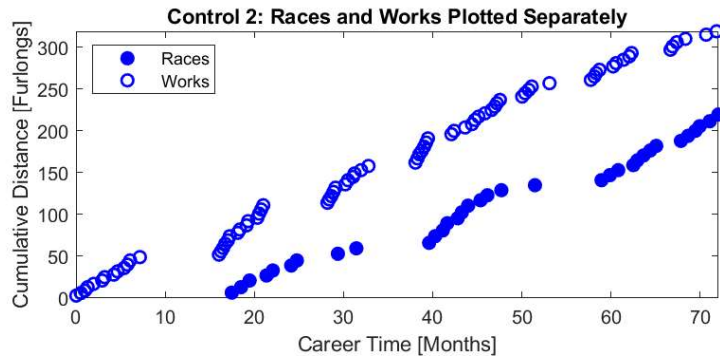


## Control 2 High Speed Exercise History

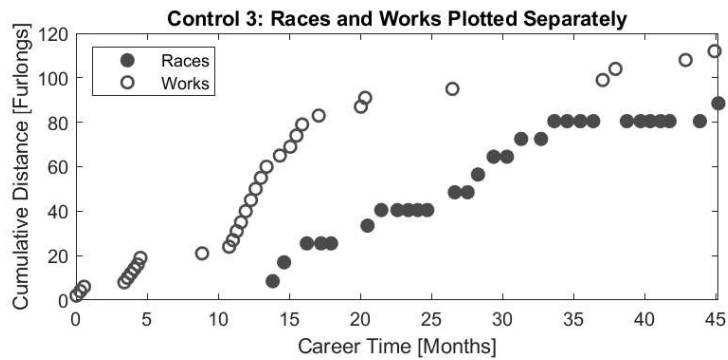
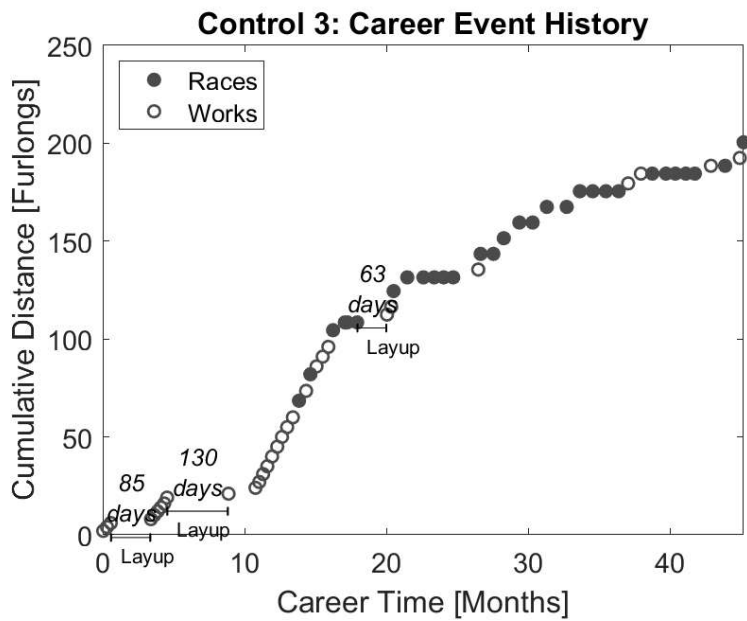


## Part 1: Graphical Representation of Individual High-Speed Exercise Histories

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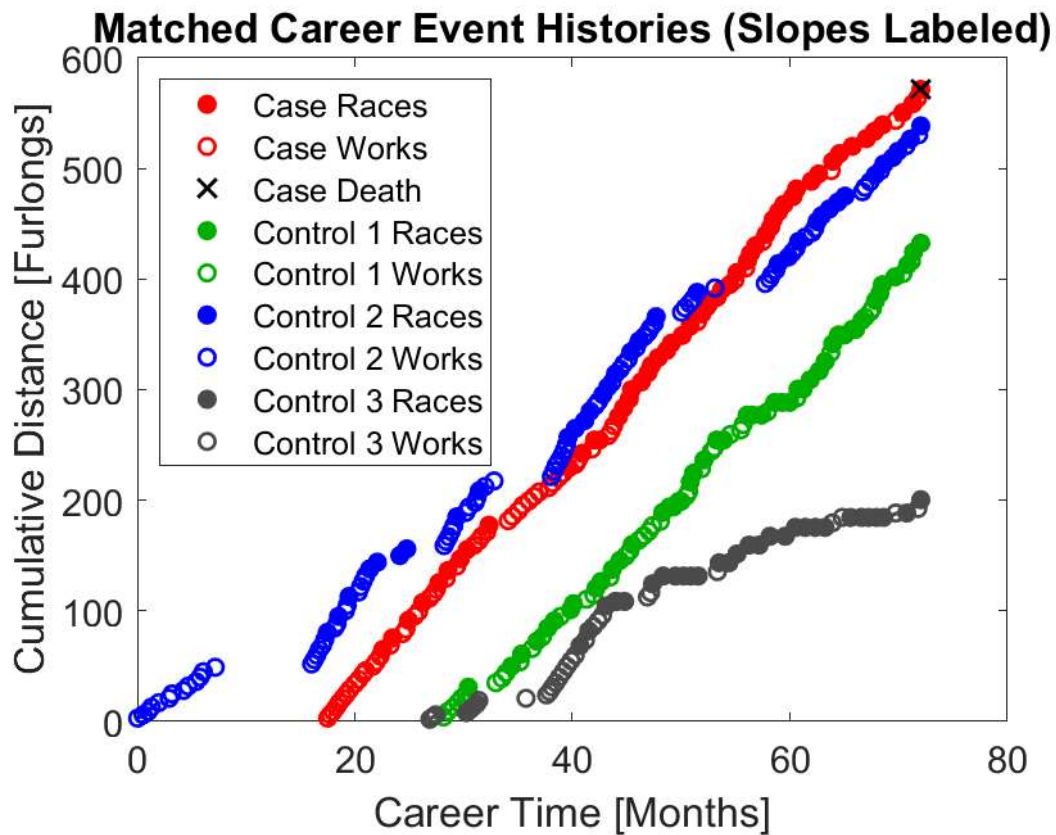


### Control 3 High Speed Exercise History

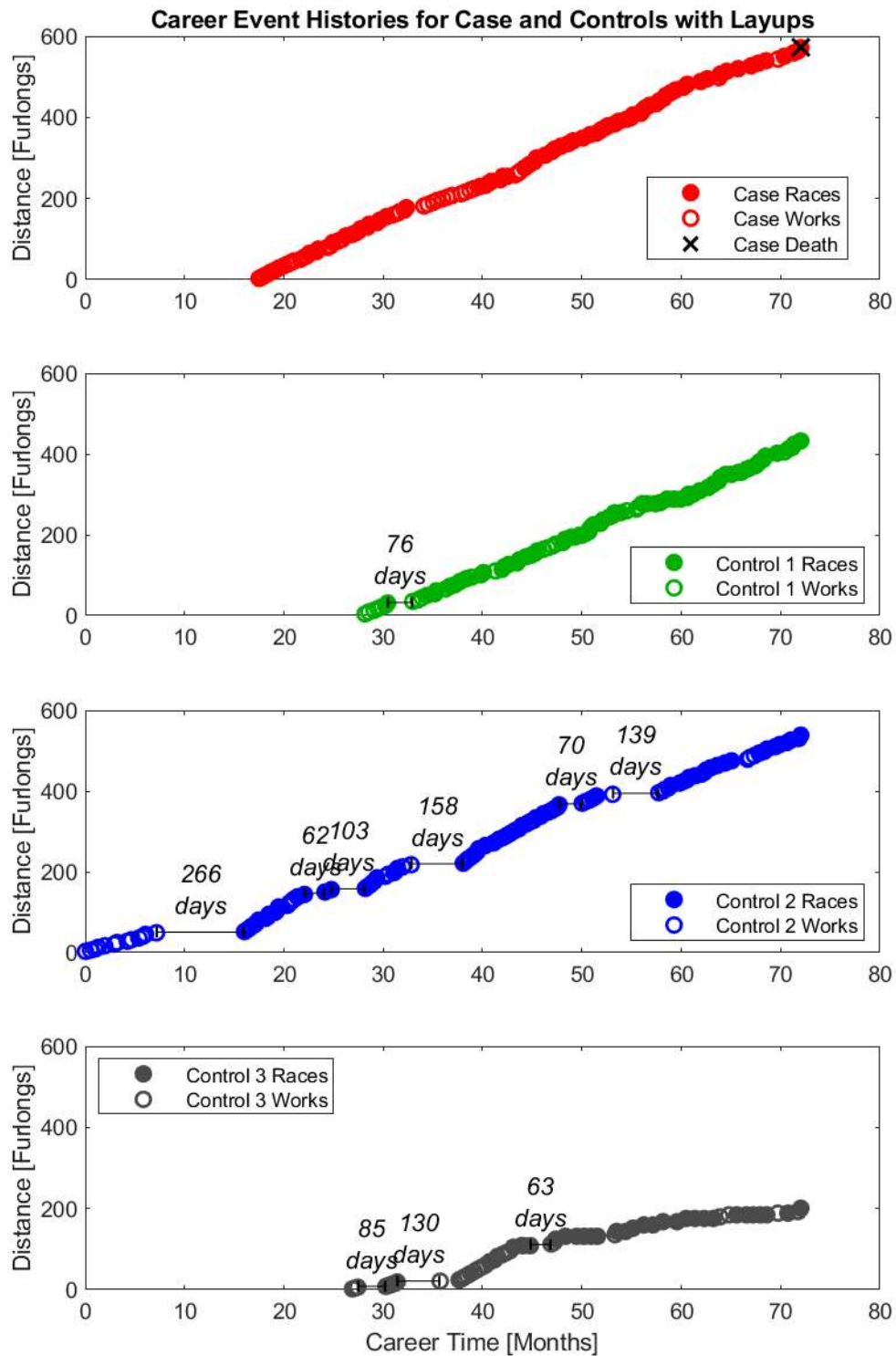


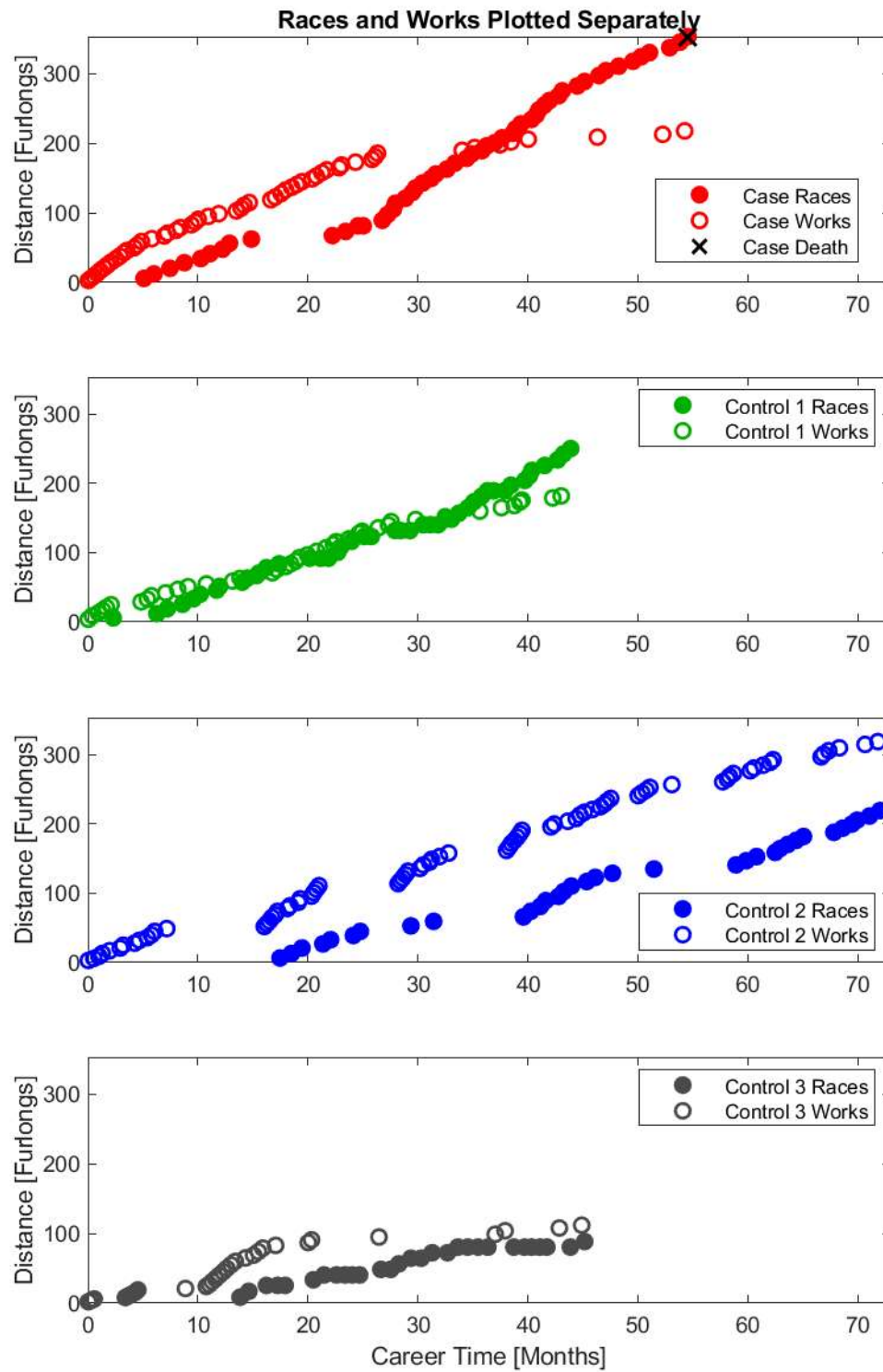
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## Part 2: Case and Control Horses Plotted Together



Case and Control Horses' exercise event histories are plotted on the same axes. The plots are aligned by the match date (equal to the date of death of Case Horse). Lines segments indicate specific rates of exercise at the start of career, end of career (for Case Horse), and match date (for Control Horses). Event rates are calculated as the slopes of the plots over 2 to 5 events not spanning a layup period, in units of furlongs per month.





### Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
3/18/2023	R	8.0	LRL	Dirt	Fast		4U / FM	Str5000cnd	650	5
3/9/2023	W	5.0	LRL	Dirt	Fast	01:02.6				
2/24/2023	R	8.0	LRL	Dirt	Fast		4U / FM	SOC 8000/12500	1300	4
1/27/2023	R	7.0	LRL	Dirt	Fast		4U / FM	Aoc32000 (40-32)nw2/x	1160	6
1/8/2023	W	4.0	LRL	Dirt	Fast	:51.00				
12/3/2022	R	6.0	LRL	Dirt	Sloppy		3U / FM	Str5000	520	6
11/10/2022	R	6.5	CT	Dirt	Fast		3U / FM	Str5000	190	7
10/19/2022	R	7.0	CT	Dirt	Fast		3U / FM	Str5000	2355	3
9/10/2022	R	6.5	CT	Dirt	Fast		3U / FM	Str5000	4655	2
8/6/2022	R	7.0	CT	Dirt	Fast		3U / FM	Aoc15000nw1/ x	1540	4
7/18/2022	R	8.5	CNL	Turf	Firm		3U / FM	Aoc75000cnd- N	1000	9
7/14/2022	W	3.0	CT	Dirt	Fast	:39.00				
6/9/2022	R	6.5	CT	Dirt	Fast		3U / FM	Aoc25000cnd- N	1089	5
5/20/2022	R	7.0	CT	Dirt	Fast		3U / FM	Aoc25000cnd	7260	2
4/9/2022	R	7.0	CT	Dirt	Good		4U / FM	Clm5000 (5-4.5)cnd-c	10059	1
3/30/2022	R	7.0	CT	Dirt	Fast		3U / FM	Aoc25000cnd	726	6
3/5/2022	R	6.5	CT	Dirt	Fast		4U / FM	Aoc15000nw1/ x	1350	4
2/19/2022	R	7.0	CT	Dirt	Fast		4U / FM	Clm6250cnd-c	1587	3
2/4/2022	R	7.0	CT	Dirt	Sloppy		4U / FM	Str5000	1032	4

### Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
1/28/2022	R	6.5	CT	Dirt	Fast		4U / FM	Clm6250cnd	3174	2
1/15/2022	R	6.5	CT	Dirt	Fast		4U / FM	SOC 5000 - N	652	5
1/6/2022	W	4.0	CT	Dirt	Fast	:48.80				
12/17/2021	R	7.0	CT	Dirt	Fast		3U / FM	Str5000cnd	2064	3
12/3/2021	R	6.5	CT	Dirt	Fast		3U / FM	Clm5000 (5-4.5)nw1/6mx- c	8424	1
11/25/2021	R	6.5	CT	Dirt	Fast		3U / FM	Str5000cnd	2064	3
11/20/2021	W	4.0	CT	Dirt	Fast	:49.80				
10/27/2021	R	7.0	CT	Dirt	Fast		3U / FM	Aoc25000cnd- N	130	7
10/21/2021	W	4.0	CT	Dirt	Fast	:49.00				
10/7/2021	R	4.5	CT	Dirt	Fast		3U / FM	Aoc15000nw1/ x-c	806	5
9/15/2021	R	7.0	CT	Dirt	Sloppy		3U / FM	Aoc25000cnd	6600	2
9/2/2021	R	4.5	CT	Dirt	Fast		3U / FM	Aoc15000nw1/ x	5400	2
8/13/2021	W	4.0	CT	Dirt	Fast	:48.20				
8/5/2021	R	6.5	CT	Dirt	Fast		3U / FM	Aoc25000cnd- N	986	5
7/22/2021	R	7.0	CT	Dirt	Fast		3U / FM	Clm6250cnd-c	3174	2
7/10/2021	W	4.0	CT	Dirt	Fast	:50.20				
6/20/2021	R	8.5	PIM	Turf	Firm		3U / FM	Clm10000 (12.5-10)	840	6
5/29/2021	R	7.0	CT	Dirt	Muddy		3U / FM	Aoc15000nw1/ x	2700	3
4/29/2021	R	6.5	CT	Dirt	Fast		3U / FM	Aoc15000nw1/ x	5375	2
4/16/2021	R	6.5	CT	Dirt	Fast		3U / FM	Aoc25000cnd	3000	3

### Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
3/24/2021	R	7.0	CT	Dirt	Good		3U / FM	SOC 5000 - N	3975	2
3/5/2021	R	6.5	CT	Dirt	Fast		4U / FM	SOC 5000 - N	2000	3
2/24/2021	R	8.5	CT	Dirt	Fast		3U / FM	Alw29000nw1/ x	17325	1
2/5/2021	R	7.0	CT	Dirt	Fast		3U / FM	Clm5000 (5-4.5)nw4/L/x	7725	1
1/9/2021	R	8.5	CT	Dirt	Fast		3U / FM	Clm5000 (5-4.5)nw3/L/x	7425	1
1/3/2021	R	8.0	LRL	Dirt	Sloppy		4U / FM	Clm5000nw3/ L	3150	2
12/18/2020	R	8.0	LRL	Dirt	Muddy		3U / FM	Clm5000nw2/ L	8550	1
12/4/2020	R	8.0	LRL	Dirt	Fast		3U / FM	Clm10000 (10-8)nw2/L	1080	4
11/21/2020	W	5.0	LRL	Dirt	Fast	01:01.6				
11/14/2020	W	4.0	LRL	Dirt	Fast	:49.80				
11/6/2020	W	4.0	LRL	Dirt	Fast	:48.60				
10/13/2020	R	0.0	FL	Dirt	Good		3U / FM	Alw21000nw2/ L	4200	2
9/29/2020	R	8.0	FL	Dirt	Good		3U / FM	Alw21000nw2/ L	4200	2
9/22/2020	W	4.0	FL	Dirt	Fast	:51.00				
8/26/2020	R	6.0	SAR	Dirt	Fast		3U / FM	Clm25000nw2/ L	1720	5
8/15/2020	W	4.0	SAR	Dirt	Fast	:49.09				
8/8/2020	W	3.0	SAR	Dirt	Fast	:38.03				
7/21/2020	R	5.0	FL	Dirt	Fast		3U / FM	(S) Alw19000nw1/ b/x	380	5
7/5/2020	W	4.0	BEL	Dirt training	Fast	:49.44				
6/22/2020	W	5.0	BEL	Dirt training	Fast	01:04.0				

### Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
6/7/2020	W	4.0	BEL	Dirt training	Fast	:49.92				
5/26/2020	W	4.0	BEL	Dirt training	Fast	:49.37				
4/29/2020	W	4.0	BEL	Dirt training	Fast	:49.54				
4/15/2020	W	4.0	BEL	Dirt training	Fast	:52.16				
4/1/2020	W	4.0	BEL	Dirt training	Fast	:49.45				
3/15/2020	W	5.0	BEL	Dirt training	Fast	01:03.0				
3/3/2020	W	5.0	BEL	Dirt training	Fast	01:02.5				
2/16/2020	W	4.0	BEL	Dirt training	Fast	:50.70				
2/4/2020	W	4.0	BEL	Dirt training	Fast	:49.00				
12/13/2019	R	6.0	AQU	Dirt	Good		3U / FM	Clm40000nw2/ L	5418	3
12/7/2019	W	4.0	BEL	Dirt training	Fast	:51.11				
11/23/2019	W	4.0	BEL	Dirt training	Fast	:51.14				
11/15/2019	W	4.0	BEL	Dirt training	Fast	:50.07				
11/2/2019	W	4.0	BEL	Dirt training	Fast	:48.71				
10/14/2019	R	8.5	BEL	Dirt	Fast		3U / FM	(S) Alw66000nw1\$/ x	2772	5
9/25/2019	R	6.5	BEL	Dirt	Fast		3U / FM	(S) Msw	34100	1
9/15/2019	W	4.0	BEL	Dirt training	Fast	:48.82				
8/22/2019	R	7.0	SAR	Dirt	Fast		3U / FM	(S) Msw	4680	4

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
8/17/2019	W	4.0	SAR	Dirt	Fast	:49.46				
7/28/2019	R	6.0	SAR	Dirt	Fast		3U / FM	(S) Msw	4680	4
7/21/2019	W	4.0	SAR	Dirt	Fast	:48.06				
7/13/2019	W	4.0	SAR	Dirt	Fast	:49.00				
7/2/2019	W	4.0	BEL	Dirt training	Fast	:50.55				
6/13/2019	R	8.0	BEL	Dirt	Sloppy		3U / FM	(S) Msw	12400	2
6/2/2019	W	4.0	BEL	Dirt training	Fast	:49.25				
5/22/2019	W	4.0	BEL	Dirt training	Fast	:50.55				
5/5/2019	R	8.0	BEL	Dirt	Sloppy		3U / FM	(S) Msw	12400	2
4/28/2019	W	4.0	BEL	Dirt training	Fast	:50.87				
4/19/2019	W	4.0	BEL	Dirt training	Fast	:48.85				
3/22/2019	R	6.5	AQU	Dirt	Sloppy		3 /F	(S) Msw	3600	4
3/16/2019	W	4.0	BEL	Dirt training	Fast	:48.25				
2/23/2019	R	6.0	AQU	Dirt	Fast		3 /F	(S) Msw	3600	4
2/16/2019	W	5.0	BEL	Dirt training	Fast	01:03.2				
2/5/2019	W	4.0	BEL	Dirt training	Fast	:51.24				
1/27/2019	W	4.0	BEL	Dirt training	Fast	:50.24				
1/7/2019	W	3.0	BEL	Dirt training	Fast	:39.59				
12/31/2018	W	5.0	BEL	Dirt training	Fast	01:02.7				
12/19/2018	W	4.0	BEL	Dirt training	Fast	:50.25				

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
12/8/2018	W	5.0	BEL	Dirt training	Fast	01:04.7				
11/24/2018	W	4.0	BEL	Dirt training	Fast	:51.22				
11/15/2018	W	4.0	BEL	Dirt training	Fast	:50.26				
11/5/2018	W	4.0	BEL	Dirt training	Fast	:49.55				
10/26/2018	W	4.0	BEL	Dirt training	Fast	:49.91				
10/18/2018	W	4.0	BEL	Dirt training	Fast	:49.78				
10/9/2018	W	3.0	BEL	Dirt training	Fast	:36.56				
10/1/2018	W	3.0	BEL	Dirt training	Fast	:37.05				
9/24/2018	W	3.0	BEL	Dirt training	Fast	:38.55				
Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
3/18/2023	R	8.0	LRL	Dirt	Fast		4U / FM	Str5000cnd	650	5
3/9/2023	W	5.0	LRL	Dirt	Fast	01:02.6				
2/24/2023	R	8.0	LRL	Dirt	Fast		4U / FM	SOC 8000/12500	1300	4
1/27/2023	R	7.0	LRL	Dirt	Fast		4U / FM	Aoc32000 (40-32)nw2/x	1160	6
1/8/2023	W	4.0	LRL	Dirt	Fast	:51.00				
12/3/2022	R	6.0	LRL	Dirt	Sloppy		3U / FM	Str5000	520	6
11/10/2022	R	6.5	CT	Dirt	Fast		3U / FM	Str5000	190	7
10/19/2022	R	7.0	CT	Dirt	Fast		3U / FM	Str5000	2355	3
9/10/2022	R	6.5	CT	Dirt	Fast		3U / FM	Str5000	4655	2

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
8/6/2022	R	7.0	CT	Dirt	Fast		3U / FM	Aoc15000nw1/ x	1540	4
7/18/2022	R	8.5	CNL	Turf	Firm		3U / FM	Aoc75000cnd- N	1000	9
7/14/2022	W	3.0	CT	Dirt	Fast	:39.00				
6/9/2022	R	6.5	CT	Dirt	Fast		3U / FM	Aoc25000cnd- N	1089	5
5/20/2022	R	7.0	CT	Dirt	Fast		3U / FM	Aoc25000cnd	7260	2
4/9/2022	R	7.0	CT	Dirt	Good		4U / FM	Clm5000 (5-4.5)cnd-c	10059	1
3/30/2022	R	7.0	CT	Dirt	Fast		3U / FM	Aoc25000cnd	726	6
3/5/2022	R	6.5	CT	Dirt	Fast		4U / FM	Aoc15000nw1/ x	1350	4
2/19/2022	R	7.0	CT	Dirt	Fast		4U / FM	Clm6250cnd-c	1587	3
2/4/2022	R	7.0	CT	Dirt	Sloppy		4U / FM	Str5000	1032	4
1/28/2022	R	6.5	CT	Dirt	Fast		4U / FM	Clm6250cnd	3174	2
1/15/2022	R	6.5	CT	Dirt	Fast		4U / FM	SOC 5000 - N	652	5
1/6/2022	W	4.0	CT	Dirt	Fast	:48.80				
12/17/2021	R	7.0	CT	Dirt	Fast		3U / FM	Str5000cnd	2064	3
12/3/2021	R	6.5	CT	Dirt	Fast		3U / FM	Clm5000 (5-4.5)nw1/6mx- c	8424	1
11/25/2021	R	6.5	CT	Dirt	Fast		3U / FM	Str5000cnd	2064	3
11/20/2021	W	4.0	CT	Dirt	Fast	:49.80				
10/27/2021	R	7.0	CT	Dirt	Fast		3U / FM	Aoc25000cnd- N	130	7
10/21/2021	W	4.0	CT	Dirt	Fast	:49.00				

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
10/7/2021	R	4.5	CT	Dirt	Fast		3U / FM	Aoc15000nw1/ x-c	806	5
9/15/2021	R	7.0	CT	Dirt	Sloppy		3U / FM	Aoc25000cnd	6600	2
9/2/2021	R	4.5	CT	Dirt	Fast		3U / FM	Aoc15000nw1/ x	5400	2
8/13/2021	W	4.0	CT	Dirt	Fast	:48.20				
8/5/2021	R	6.5	CT	Dirt	Fast		3U / FM	Aoc25000cnd- N	986	5
7/22/2021	R	7.0	CT	Dirt	Fast		3U / FM	Clm6250cnd-c	3174	2
7/10/2021	W	4.0	CT	Dirt	Fast	:50.20				
6/20/2021	R	8.5	PIM	Turf	Firm		3U / FM	Clm10000 (12.5-10)	840	6
5/29/2021	R	7.0	CT	Dirt	Muddy		3U / FM	Aoc15000nw1/ x	2700	3
4/29/2021	R	6.5	CT	Dirt	Fast		3U / FM	Aoc15000nw1/ x	5375	2
4/16/2021	R	6.5	CT	Dirt	Fast		3U / FM	Aoc25000cnd	3000	3
3/24/2021	R	7.0	CT	Dirt	Good		3U / FM	SOC 5000 - N	3975	2
3/5/2021	R	6.5	CT	Dirt	Fast		4U / FM	SOC 5000 - N	2000	3
2/24/2021	R	8.5	CT	Dirt	Fast		3U / FM	Alw29000nw1/ x	17325	1
2/5/2021	R	7.0	CT	Dirt	Fast		3U / FM	Clm5000 (5-4.5)nw4/L/x	7725	1
1/9/2021	R	8.5	CT	Dirt	Fast		3U / FM	Clm5000 (5-4.5)nw3/L/x	7425	1
1/3/2021	R	8.0	LRL	Dirt	Sloppy		4U / FM	Clm5000nw3/ L	3150	2
12/18/2020	R	8.0	LRL	Dirt	Muddy		3U / FM	Clm5000nw2/ L	8550	1
12/4/2020	R	8.0	LRL	Dirt	Fast		3U / FM	Clm10000 (10-8)nw2/L	1080	4

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
11/21/2020	W	5.0	LRL	Dirt	Fast	01:01.6				
11/14/2020	W	4.0	LRL	Dirt	Fast	:49.80				
11/6/2020	W	4.0	LRL	Dirt	Fast	:48.60				
10/13/2020	R	0.0	FL	Dirt	Good		3U / FM	Alw21000nw2/ L	4200	2
9/29/2020	R	8.0	FL	Dirt	Good		3U / FM	Alw21000nw2/ L	4200	2
9/22/2020	W	4.0	FL	Dirt	Fast	:51.00				
8/26/2020	R	6.0	SAR	Dirt	Fast		3U / FM	Clm25000nw2/ L	1720	5
8/15/2020	W	4.0	SAR	Dirt	Fast	:49.09				
8/8/2020	W	3.0	SAR	Dirt	Fast	:38.03				
7/21/2020	R	5.0	FL	Dirt	Fast		3U / FM	(S) Alw19000nw1/ b/x	380	5
7/5/2020	W	4.0	BEL	Dirt training	Fast	:49.44				
6/22/2020	W	5.0	BEL	Dirt training	Fast	01:04.0				
6/7/2020	W	4.0	BEL	Dirt training	Fast	:49.92				
5/26/2020	W	4.0	BEL	Dirt training	Fast	:49.37				
4/29/2020	W	4.0	BEL	Dirt training	Fast	:49.54				
4/15/2020	W	4.0	BEL	Dirt training	Fast	:52.16				
4/1/2020	W	4.0	BEL	Dirt training	Fast	:49.45				
3/15/2020	W	5.0	BEL	Dirt training	Fast	01:03.0				
3/3/2020	W	5.0	BEL	Dirt training	Fast	01:02.5				
2/16/2020	W	4.0	BEL	Dirt training	Fast	:50.70				

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
2/4/2020	W	4.0	BEL	Dirt training	Fast	:49.00				
12/13/2019	R	6.0	AQU	Dirt	Good		3U / FM	Clm40000nw2/ L	5418	3
12/7/2019	W	4.0	BEL	Dirt training	Fast	:51.11				
11/23/2019	W	4.0	BEL	Dirt training	Fast	:51.14				
11/15/2019	W	4.0	BEL	Dirt training	Fast	:50.07				
11/2/2019	W	4.0	BEL	Dirt training	Fast	:48.71				
10/14/2019	R	8.5	BEL	Dirt	Fast		3U / FM	(S) Alw66000nw1\$/ x	2772	5
9/25/2019	R	6.5	BEL	Dirt	Fast		3U / FM	(S) Msw	34100	1
9/15/2019	W	4.0	BEL	Dirt training	Fast	:48.82				
8/22/2019	R	7.0	SAR	Dirt	Fast		3U / FM	(S) Msw	4680	4
8/17/2019	W	4.0	SAR	Dirt	Fast	:49.46				
7/28/2019	R	6.0	SAR	Dirt	Fast		3U / FM	(S) Msw	4680	4
7/21/2019	W	4.0	SAR	Dirt	Fast	:48.06				
7/13/2019	W	4.0	SAR	Dirt	Fast	:49.00				
7/2/2019	W	4.0	BEL	Dirt training	Fast	:50.55				
6/13/2019	R	8.0	BEL	Dirt	Sloppy		3U / FM	(S) Msw	12400	2
6/2/2019	W	4.0	BEL	Dirt training	Fast	:49.25				
5/22/2019	W	4.0	BEL	Dirt training	Fast	:50.55				
5/5/2019	R	8.0	BEL	Dirt	Sloppy		3U / FM	(S) Msw	12400	2

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
4/28/2019	W	4.0	BEL	Dirt training	Fast	:50.87				
4/19/2019	W	4.0	BEL	Dirt training	Fast	:48.85				
3/22/2019	R	6.5	AQU	Dirt	Sloppy		3 /F	(S) Msw	3600	4
3/16/2019	W	4.0	BEL	Dirt training	Fast	:48.25				
2/23/2019	R	6.0	AQU	Dirt	Fast		3 /F	(S) Msw	3600	4
2/16/2019	W	5.0	BEL	Dirt training	Fast	01:03.2				
2/5/2019	W	4.0	BEL	Dirt training	Fast	:51.24				
1/27/2019	W	4.0	BEL	Dirt training	Fast	:50.24				
1/7/2019	W	3.0	BEL	Dirt training	Fast	:39.59				
12/31/2018	W	5.0	BEL	Dirt training	Fast	01:02.7				
12/19/2018	W	4.0	BEL	Dirt training	Fast	:50.25				
12/8/2018	W	5.0	BEL	Dirt training	Fast	01:04.7				
11/24/2018	W	4.0	BEL	Dirt training	Fast	:51.22				
11/15/2018	W	4.0	BEL	Dirt training	Fast	:50.26				
11/5/2018	W	4.0	BEL	Dirt training	Fast	:49.55				
10/26/2018	W	4.0	BEL	Dirt training	Fast	:49.91				
10/18/2018	W	4.0	BEL	Dirt training	Fast	:49.78				
10/9/2018	W	3.0	BEL	Dirt training	Fast	:36.56				
10/1/2018	W	3.0	BEL	Dirt training	Fast	:37.05				

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
9/24/2018	W	3.0	BEL	Dirt training	Fast	:38.55				
Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
3/18/2023	R	8.0	LRL	Dirt	Fast		4U / FM	Str5000cnd	650	5
3/9/2023	W	5.0	LRL	Dirt	Fast	01:02.6				
2/24/2023	R	8.0	LRL	Dirt	Fast		4U / FM	SOC 8000/12500	1300	4
1/27/2023	R	7.0	LRL	Dirt	Fast		4U / FM	Aoc32000 (40-32)nw2/x	1160	6
1/8/2023	W	4.0	LRL	Dirt	Fast	:51.00				
12/3/2022	R	6.0	LRL	Dirt	Sloppy		3U / FM	Str5000	520	6
11/10/2022	R	6.5	CT	Dirt	Fast		3U / FM	Str5000	190	7
10/19/2022	R	7.0	CT	Dirt	Fast		3U / FM	Str5000	2355	3
9/10/2022	R	6.5	CT	Dirt	Fast		3U / FM	Str5000	4655	2
8/6/2022	R	7.0	CT	Dirt	Fast		3U / FM	Aoc15000nw1/ x	1540	4
7/18/2022	R	8.5	CNL	Turf	Firm		3U / FM	Aoc75000cnd- N	1000	9
7/14/2022	W	3.0	CT	Dirt	Fast	:39.00				
6/9/2022	R	6.5	CT	Dirt	Fast		3U / FM	Aoc25000cnd- N	1089	5
5/20/2022	R	7.0	CT	Dirt	Fast		3U / FM	Aoc25000cnd	7260	2
4/9/2022	R	7.0	CT	Dirt	Good		4U / FM	Clm5000 (5-4.5)cnd-c	10059	1
3/30/2022	R	7.0	CT	Dirt	Fast		3U / FM	Aoc25000cnd	726	6
3/5/2022	R	6.5	CT	Dirt	Fast		4U / FM	Aoc15000nw1/ x	1350	4

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
2/19/2022	R	7.0	CT	Dirt	Fast		4U / FM	Clm6250cnd-c	1587	3
2/4/2022	R	7.0	CT	Dirt	Sloppy		4U / FM	Str5000	1032	4
1/28/2022	R	6.5	CT	Dirt	Fast		4U / FM	Clm6250cnd	3174	2
1/15/2022	R	6.5	CT	Dirt	Fast		4U / FM	SOC 5000 - N	652	5
1/6/2022	W	4.0	CT	Dirt	Fast	:48.80				
12/17/2021	R	7.0	CT	Dirt	Fast		3U / FM	Str5000cnd	2064	3
12/3/2021	R	6.5	CT	Dirt	Fast		3U / FM	Clm5000 (5-4.5)nw1/6mx- c	8424	1
11/25/2021	R	6.5	CT	Dirt	Fast		3U / FM	Str5000cnd	2064	3
11/20/2021	W	4.0	CT	Dirt	Fast	:49.80				
10/27/2021	R	7.0	CT	Dirt	Fast		3U / FM	Aoc25000cnd- N	130	7
10/21/2021	W	4.0	CT	Dirt	Fast	:49.00				
10/7/2021	R	4.5	CT	Dirt	Fast		3U / FM	Aoc15000nw1/ x-c	806	5
9/15/2021	R	7.0	CT	Dirt	Sloppy		3U / FM	Aoc25000cnd	6600	2
9/2/2021	R	4.5	CT	Dirt	Fast		3U / FM	Aoc15000nw1/ x	5400	2
8/13/2021	W	4.0	CT	Dirt	Fast	:48.20				
8/5/2021	R	6.5	CT	Dirt	Fast		3U / FM	Aoc25000cnd- N	986	5
7/22/2021	R	7.0	CT	Dirt	Fast		3U / FM	Clm6250cnd-c	3174	2
7/10/2021	W	4.0	CT	Dirt	Fast	:50.20				
6/20/2021	R	8.5	PIM	Turf	Firm		3U / FM	Clm10000 (12.5-10)	840	6
5/29/2021	R	7.0	CT	Dirt	Muddy		3U / FM	Aoc15000nw1/ x	2700	3

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
4/29/2021	R	6.5	CT	Dirt	Fast		3U / FM	Aoc15000nw1/ x	5375	2
4/16/2021	R	6.5	CT	Dirt	Fast		3U / FM	Aoc25000cnd	3000	3
3/24/2021	R	7.0	CT	Dirt	Good		3U / FM	SOC 5000 - N	3975	2
3/5/2021	R	6.5	CT	Dirt	Fast		4U / FM	SOC 5000 - N	2000	3
2/24/2021	R	8.5	CT	Dirt	Fast		3U / FM	Alw29000nw1/ x	17325	1
2/5/2021	R	7.0	CT	Dirt	Fast		3U / FM	Clm5000 (5-4.5)nw4/L/x	7725	1
1/9/2021	R	8.5	CT	Dirt	Fast		3U / FM	Clm5000 (5-4.5)nw3/L/x	7425	1
1/3/2021	R	8.0	LRL	Dirt	Sloppy		4U / FM	Clm5000nw3/ L	3150	2
12/18/2020	R	8.0	LRL	Dirt	Muddy		3U / FM	Clm5000nw2/ L	8550	1
12/4/2020	R	8.0	LRL	Dirt	Fast		3U / FM	Clm10000 (10-8)nw2/L	1080	4
11/21/2020	W	5.0	LRL	Dirt	Fast	01:01.6				
11/14/2020	W	4.0	LRL	Dirt	Fast	:49.80				
11/6/2020	W	4.0	LRL	Dirt	Fast	:48.60				
10/13/2020	R	0.0	FL	Dirt	Good		3U / FM	Alw21000nw2/ L	4200	2
9/29/2020	R	8.0	FL	Dirt	Good		3U / FM	Alw21000nw2/ L	4200	2
9/22/2020	W	4.0	FL	Dirt	Fast	:51.00				
8/26/2020	R	6.0	SAR	Dirt	Fast		3U / FM	Clm25000nw2/ L	1720	5
8/15/2020	W	4.0	SAR	Dirt	Fast	:49.09				
8/8/2020	W	3.0	SAR	Dirt	Fast	:38.03				
7/21/2020	R	5.0	FL	Dirt	Fast		3U / FM	(S) Alw19000nw1/ b/x	380	5

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
7/5/2020	W	4.0	BEL	Dirt training	Fast	:49.44				
6/22/2020	W	5.0	BEL	Dirt training	Fast	01:04.0				
6/7/2020	W	4.0	BEL	Dirt training	Fast	:49.92				
5/26/2020	W	4.0	BEL	Dirt training	Fast	:49.37				
4/29/2020	W	4.0	BEL	Dirt training	Fast	:49.54				
4/15/2020	W	4.0	BEL	Dirt training	Fast	:52.16				
4/1/2020	W	4.0	BEL	Dirt training	Fast	:49.45				
3/15/2020	W	5.0	BEL	Dirt training	Fast	01:03.0				
3/3/2020	W	5.0	BEL	Dirt training	Fast	01:02.5				
2/16/2020	W	4.0	BEL	Dirt training	Fast	:50.70				
2/4/2020	W	4.0	BEL	Dirt training	Fast	:49.00				
12/13/2019	R	6.0	AQU	Dirt	Good		3U / FM	Clm40000nw2/ L	5418	3
12/7/2019	W	4.0	BEL	Dirt training	Fast	:51.11				
11/23/2019	W	4.0	BEL	Dirt training	Fast	:51.14				
11/15/2019	W	4.0	BEL	Dirt training	Fast	:50.07				
11/2/2019	W	4.0	BEL	Dirt training	Fast	:48.71				
10/14/2019	R	8.5	BEL	Dirt	Fast		3U / FM	(S) Alw66000nw1\$/ x	2772	5
9/25/2019	R	6.5	BEL	Dirt	Fast		3U / FM	(S) Msw	34100	1

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
9/15/2019	W	4.0	BEL	Dirt training	Fast	:48.82				
8/22/2019	R	7.0	SAR	Dirt	Fast		3U / FM	(S) Msw	4680	4
8/17/2019	W	4.0	SAR	Dirt	Fast	:49.46				
7/28/2019	R	6.0	SAR	Dirt	Fast		3U / FM	(S) Msw	4680	4
7/21/2019	W	4.0	SAR	Dirt	Fast	:48.06				
7/13/2019	W	4.0	SAR	Dirt	Fast	:49.00				
7/2/2019	W	4.0	BEL	Dirt training	Fast	:50.55				
6/13/2019	R	8.0	BEL	Dirt	Sloppy		3U / FM	(S) Msw	12400	2
6/2/2019	W	4.0	BEL	Dirt training	Fast	:49.25				
5/22/2019	W	4.0	BEL	Dirt training	Fast	:50.55				
5/5/2019	R	8.0	BEL	Dirt	Sloppy		3U / FM	(S) Msw	12400	2
4/28/2019	W	4.0	BEL	Dirt training	Fast	:50.87				
4/19/2019	W	4.0	BEL	Dirt training	Fast	:48.85				
3/22/2019	R	6.5	AQU	Dirt	Sloppy		3 /F	(S) Msw	3600	4
3/16/2019	W	4.0	BEL	Dirt training	Fast	:48.25				
2/23/2019	R	6.0	AQU	Dirt	Fast		3 /F	(S) Msw	3600	4
2/16/2019	W	5.0	BEL	Dirt training	Fast	01:03.2				
2/5/2019	W	4.0	BEL	Dirt training	Fast	:51.24				
1/27/2019	W	4.0	BEL	Dirt training	Fast	:50.24				
1/7/2019	W	3.0	BEL	Dirt training	Fast	:39.59				

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
12/31/2018	W	5.0	BEL	Dirt training	Fast	01:02.7				
12/19/2018	W	4.0	BEL	Dirt training	Fast	:50.25				
12/8/2018	W	5.0	BEL	Dirt training	Fast	01:04.7				
11/24/2018	W	4.0	BEL	Dirt training	Fast	:51.22				
11/15/2018	W	4.0	BEL	Dirt training	Fast	:50.26				
11/5/2018	W	4.0	BEL	Dirt training	Fast	:49.55				
10/26/2018	W	4.0	BEL	Dirt training	Fast	:49.91				
10/18/2018	W	4.0	BEL	Dirt training	Fast	:49.78				
10/9/2018	W	3.0	BEL	Dirt training	Fast	:36.56				
10/1/2018	W	3.0	BEL	Dirt training	Fast	:37.05				
9/24/2018	W	3.0	BEL	Dirt training	Fast	:38.55				
Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
3/18/2023	R	8.0	LRL	Dirt	Fast		4U / FM	Str5000cnd	650	5
3/9/2023	W	5.0	LRL	Dirt	Fast	01:02.6				
2/24/2023	R	8.0	LRL	Dirt	Fast		4U / FM	SOC 8000/12500	1300	4
1/27/2023	R	7.0	LRL	Dirt	Fast		4U / FM	Aoc32000 (40-32)nw2/x	1160	6
1/8/2023	W	4.0	LRL	Dirt	Fast	:51.00				
12/3/2022	R	6.0	LRL	Dirt	Sloppy		3U / FM	Str5000	520	6
11/10/2022	R	6.5	CT	Dirt	Fast		3U / FM	Str5000	190	7

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
10/19/2022	R	7.0	CT	Dirt	Fast		3U / FM	Str5000	2355	3
9/10/2022	R	6.5	CT	Dirt	Fast		3U / FM	Str5000	4655	2
8/6/2022	R	7.0	CT	Dirt	Fast		3U / FM	Aoc15000nw1/ x	1540	4
7/18/2022	R	8.5	CNL	Turf	Firm		3U / FM	Aoc75000cnd- N	1000	9
7/14/2022	W	3.0	CT	Dirt	Fast	:39.00				
6/9/2022	R	6.5	CT	Dirt	Fast		3U / FM	Aoc25000cnd- N	1089	5
5/20/2022	R	7.0	CT	Dirt	Fast		3U / FM	Aoc25000cnd	7260	2
4/9/2022	R	7.0	CT	Dirt	Good		4U / FM	Clm5000 (5-4.5)cnd-c	10059	1
3/30/2022	R	7.0	CT	Dirt	Fast		3U / FM	Aoc25000cnd	726	6
3/5/2022	R	6.5	CT	Dirt	Fast		4U / FM	Aoc15000nw1/ x	1350	4
2/19/2022	R	7.0	CT	Dirt	Fast		4U / FM	Clm6250cnd-c	1587	3
2/4/2022	R	7.0	CT	Dirt	Sloppy		4U / FM	Str5000	1032	4
1/28/2022	R	6.5	CT	Dirt	Fast		4U / FM	Clm6250cnd	3174	2
1/15/2022	R	6.5	CT	Dirt	Fast		4U / FM	SOC 5000 - N	652	5
1/6/2022	W	4.0	CT	Dirt	Fast	:48.80				
12/17/2021	R	7.0	CT	Dirt	Fast		3U / FM	Str5000cnd	2064	3
12/3/2021	R	6.5	CT	Dirt	Fast		3U / FM	Clm5000 (5-4.5)nw1/6mx- c	8424	1
11/25/2021	R	6.5	CT	Dirt	Fast		3U / FM	Str5000cnd	2064	3
11/20/2021	W	4.0	CT	Dirt	Fast	:49.80				

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
10/27/2021	R	7.0	CT	Dirt	Fast		3U / FM	Aoc25000cnd- N	130	7
10/21/2021	W	4.0	CT	Dirt	Fast	:49.00				
10/7/2021	R	4.5	CT	Dirt	Fast		3U / FM	Aoc15000nw1/ x-c	806	5
9/15/2021	R	7.0	CT	Dirt	Sloppy		3U / FM	Aoc25000cnd	6600	2
9/2/2021	R	4.5	CT	Dirt	Fast		3U / FM	Aoc15000nw1/ x	5400	2
8/13/2021	W	4.0	CT	Dirt	Fast	:48.20				
8/5/2021	R	6.5	CT	Dirt	Fast		3U / FM	Aoc25000cnd- N	986	5
7/22/2021	R	7.0	CT	Dirt	Fast		3U / FM	Clm6250cnd-c	3174	2
7/10/2021	W	4.0	CT	Dirt	Fast	:50.20				
6/20/2021	R	8.5	PIM	Turf	Firm		3U / FM	Clm10000 (12.5-10)	840	6
5/29/2021	R	7.0	CT	Dirt	Muddy		3U / FM	Aoc15000nw1/ x	2700	3
4/29/2021	R	6.5	CT	Dirt	Fast		3U / FM	Aoc15000nw1/ x	5375	2
4/16/2021	R	6.5	CT	Dirt	Fast		3U / FM	Aoc25000cnd	3000	3
3/24/2021	R	7.0	CT	Dirt	Good		3U / FM	SOC 5000 - N	3975	2
3/5/2021	R	6.5	CT	Dirt	Fast		4U / FM	SOC 5000 - N	2000	3
2/24/2021	R	8.5	CT	Dirt	Fast		3U / FM	Alw29000nw1/ x	17325	1
2/5/2021	R	7.0	CT	Dirt	Fast		3U / FM	Clm5000 (5-4.5)nw4/L/x	7725	1
1/9/2021	R	8.5	CT	Dirt	Fast		3U / FM	Clm5000 (5-4.5)nw3/L/x	7425	1
1/3/2021	R	8.0	LRL	Dirt	Sloppy		4U / FM	Clm5000nw3/ L	3150	2

### Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
12/18/2020	R	8.0	LRL	Dirt	Muddy		3U / FM	Clm5000nw2/ L	8550	1
12/4/2020	R	8.0	LRL	Dirt	Fast		3U / FM	Clm10000 (10-8)nw2/L	1080	4
11/21/2020	W	5.0	LRL	Dirt	Fast	01:01.6				
11/14/2020	W	4.0	LRL	Dirt	Fast	:49.80				
11/6/2020	W	4.0	LRL	Dirt	Fast	:48.60				
10/13/2020	R	0.0	FL	Dirt	Good		3U / FM	Alw21000nw2/ L	4200	2
9/29/2020	R	8.0	FL	Dirt	Good		3U / FM	Alw21000nw2/ L	4200	2
9/22/2020	W	4.0	FL	Dirt	Fast	:51.00				
8/26/2020	R	6.0	SAR	Dirt	Fast		3U / FM	Clm25000nw2/ L	1720	5
8/15/2020	W	4.0	SAR	Dirt	Fast	:49.09				
8/8/2020	W	3.0	SAR	Dirt	Fast	:38.03				
7/21/2020	R	5.0	FL	Dirt	Fast		3U / FM	(S) Alw19000nw1/ b/x	380	5
7/5/2020	W	4.0	BEL	Dirt training	Fast	:49.44				
6/22/2020	W	5.0	BEL	Dirt training	Fast	01:04.0				
6/7/2020	W	4.0	BEL	Dirt training	Fast	:49.92				
5/26/2020	W	4.0	BEL	Dirt training	Fast	:49.37				
4/29/2020	W	4.0	BEL	Dirt training	Fast	:49.54				
4/15/2020	W	4.0	BEL	Dirt training	Fast	:52.16				
4/1/2020	W	4.0	BEL	Dirt training	Fast	:49.45				
3/15/2020	W	5.0	BEL	Dirt training	Fast	01:03.0				

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
3/3/2020	W	5.0	BEL	Dirt training	Fast	01:02.5				
2/16/2020	W	4.0	BEL	Dirt training	Fast	:50.70				
2/4/2020	W	4.0	BEL	Dirt training	Fast	:49.00				
12/13/2019	R	6.0	AQU	Dirt	Good		3U / FM	Clm40000nw2/ L	5418	3
12/7/2019	W	4.0	BEL	Dirt training	Fast	:51.11				
11/23/2019	W	4.0	BEL	Dirt training	Fast	:51.14				
11/15/2019	W	4.0	BEL	Dirt training	Fast	:50.07				
11/2/2019	W	4.0	BEL	Dirt training	Fast	:48.71				
10/14/2019	R	8.5	BEL	Dirt	Fast		3U / FM	(S) Alw66000nw1\$/ x	2772	5
9/25/2019	R	6.5	BEL	Dirt	Fast		3U / FM	(S) Msw	34100	1
9/15/2019	W	4.0	BEL	Dirt training	Fast	:48.82				
8/22/2019	R	7.0	SAR	Dirt	Fast		3U / FM	(S) Msw	4680	4
8/17/2019	W	4.0	SAR	Dirt	Fast	:49.46				
7/28/2019	R	6.0	SAR	Dirt	Fast		3U / FM	(S) Msw	4680	4
7/21/2019	W	4.0	SAR	Dirt	Fast	:48.06				
7/13/2019	W	4.0	SAR	Dirt	Fast	:49.00				
7/2/2019	W	4.0	BEL	Dirt training	Fast	:50.55				
6/13/2019	R	8.0	BEL	Dirt	Sloppy		3U / FM	(S) Msw	12400	2
6/2/2019	W	4.0	BEL	Dirt training	Fast	:49.25				

Part 3: Case Horse's Event History

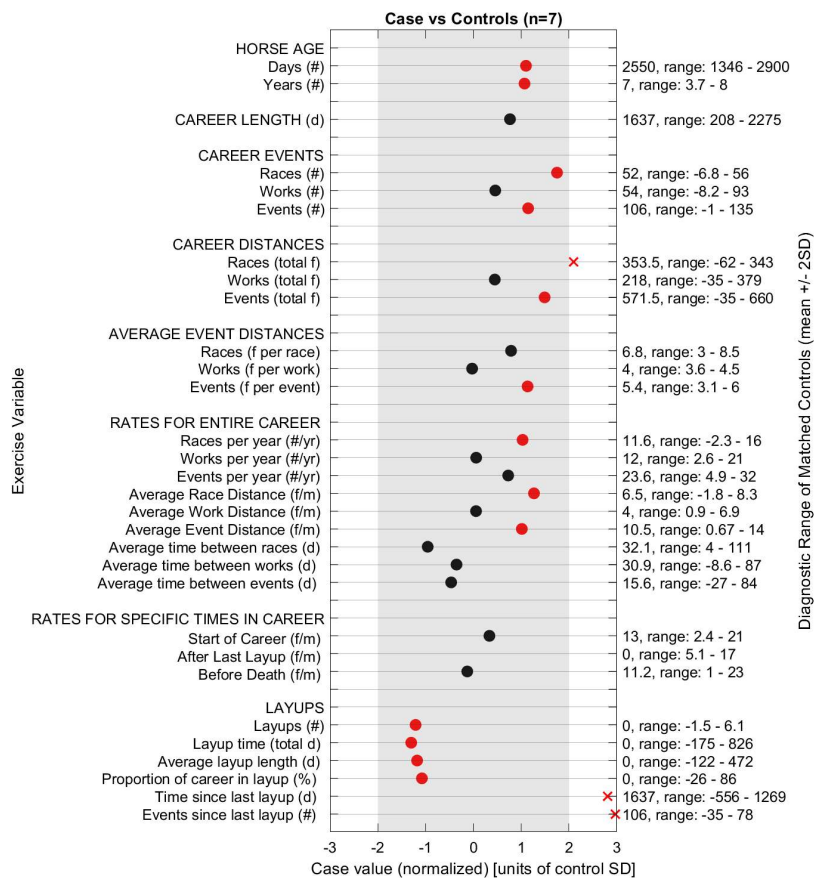
Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
5/22/2019	W	4.0	BEL	Dirt training	Fast	:50.55				
5/5/2019	R	8.0	BEL	Dirt	Sloppy		3U / FM	(S) Msw	12400	2
4/28/2019	W	4.0	BEL	Dirt training	Fast	:50.87				
4/19/2019	W	4.0	BEL	Dirt training	Fast	:48.85				
3/22/2019	R	6.5	AQU	Dirt	Sloppy		3 /F	(S) Msw	3600	4
3/16/2019	W	4.0	BEL	Dirt training	Fast	:48.25				
2/23/2019	R	6.0	AQU	Dirt	Fast		3 /F	(S) Msw	3600	4
2/16/2019	W	5.0	BEL	Dirt training	Fast	01:03.2				
2/5/2019	W	4.0	BEL	Dirt training	Fast	:51.24				
1/27/2019	W	4.0	BEL	Dirt training	Fast	:50.24				
1/7/2019	W	3.0	BEL	Dirt training	Fast	:39.59				
12/31/2018	W	5.0	BEL	Dirt training	Fast	01:02.7				
12/19/2018	W	4.0	BEL	Dirt training	Fast	:50.25				
12/8/2018	W	5.0	BEL	Dirt training	Fast	01:04.7				
11/24/2018	W	4.0	BEL	Dirt training	Fast	:51.22				
11/15/2018	W	4.0	BEL	Dirt training	Fast	:50.26				
11/5/2018	W	4.0	BEL	Dirt training	Fast	:49.55				
10/26/2018	W	4.0	BEL	Dirt training	Fast	:49.91				
10/18/2018	W	4.0	BEL	Dirt training	Fast	:49.78				

### Part 3: Case Horse's Event History

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<b>Date</b>	<b>Race/ Work</b>	<b>Fur- longs</b>	<b>Track</b>	<b>Surface</b>	<b>Track Cond.</b>	<b>Time</b>	<b>Age/ Sex</b>	<b>Race Class</b>	<b>Earn- ings</b>	<b>Finish</b>
10/9/2018	W	3.0	BEL	Dirt training	Fast	:36.56				
10/1/2018	W	3.0	BEL	Dirt training	Fast	:37.05				
9/24/2018	W	3.0	BEL	Dirt training	Fast	:38.55				

## Part 4: Comparison of Exercise Variables between Case Horse and 7 Control Horses (5+ year old, female, Thoroughbred)

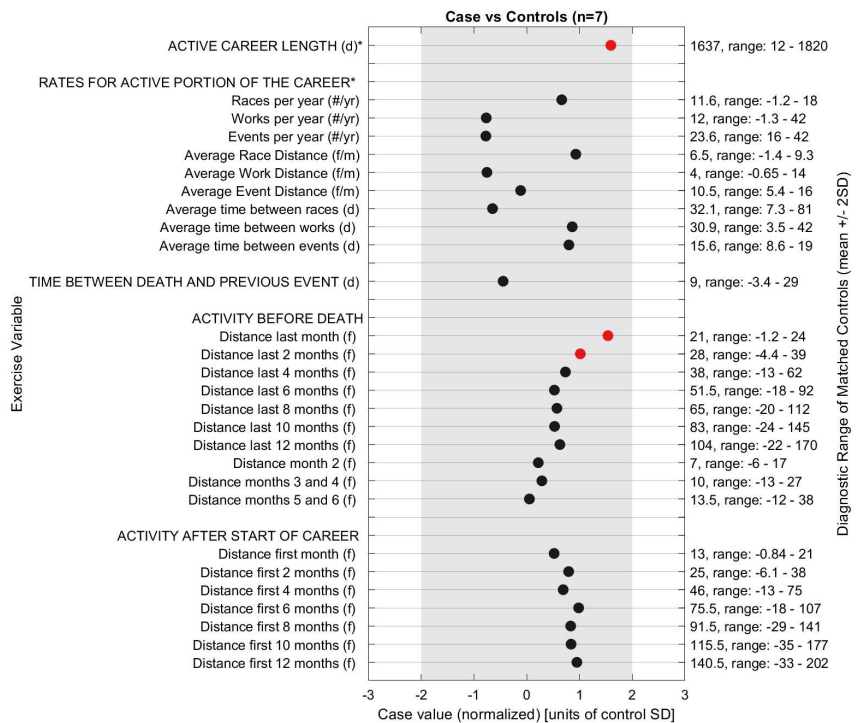


Case Horse values are indicated by black or red symbols: circles indicate values considered normal for 95% of 5+ year old, female, Thoroughbreds (n=7) (gray region) (black and red indicate within 1 and 2 SD, respectively, of mean value of controls), X's indicate values outside of the normal range. Two and 3 year old case horses are also matched to control horses by the quarter in which the case horse died (Jan-Mar, Apr-Jun, Jul-Sep, Oct-Dec). Variables that are not calculable are not plotted (e.g. time between races for a horse with zero events). f=furlongs; yr=year; m=month; d=days.

^Rates are calculated over 2 to 5 events.

\*Active Career Length is the career length excluding the time during layups.

## Part 4: Comparison of Exercise Variables between Case Horse and 7 Control Horses (5+ year old, female, Thoroughbred)



Case Horse values are indicated by black or red symbols: circles indicate values considered normal for 95% of 5+ year old, female, Thoroughbreds (n=7) (gray region) (black and red indicate within 1 and 2 SD, respectively, of mean value of controls), X's indicate values outside of the normal range. Two and 3 year old case horses are also matched to control horses by the quarter in which the case horse died (Jan-Mar, Apr-Jun, Jul-Sep, Oct-Dec). Variables that are not calculable are not plotted (e.g. time between races for a horse with zero events). f=furlongs; yr=year; m=month; d=days.

^Rates are calculated over 2 to 5 events.

\*Active Career Length is the career length excluding the time during layups.

# Exercise History Report (Full)

## Notion Street



**UCDAVIS**

**VETERINARY MEDICINE**

*J. D. Wheat Veterinary Orthopedic  
Research Laboratory*

**Apr-27-2023**

## **Exercise History Report (Full)**

### **J.D. Wheat Veterinary Orthopedic Research Laboratory**

This report summarizes the high speed exercise history for Case Horse. There are four parts to this report:

Part 1 is a graph that depicts the races and officially recorded high speed workouts for Case Horse over the horse's career. The graph is useful for visually assessing features of a horse's career like: career length, periods of layup, and exercise consistency. If Case Horse had zero recorded high-speed exercise events, this graph is not produced. Event histories for three breed, sex, age, and event-matched control horses are also plotted.

Part 2 includes graphs which illustrate Case Horse's exercise history alongside that of Control Horses. These graphs are useful for visually comparing periods of layup and specific rates of exercise in the horses' exercise histories.

Part 3 is a chronological listing of races and officially timed works beginning with the most recent event (race or work).

Part 4 is a chart that allows comparison of exercise variables between Case Horse and other racehorses of similar age, sex, and breed that did not die at the same time from an injury. Similar to comparing the results of a blood test to a range of normal values, the values for Case Horse can be assessed in the context of a normal range for 95% of a sample of similar racehorses that did not die during the same time as Case Horse.

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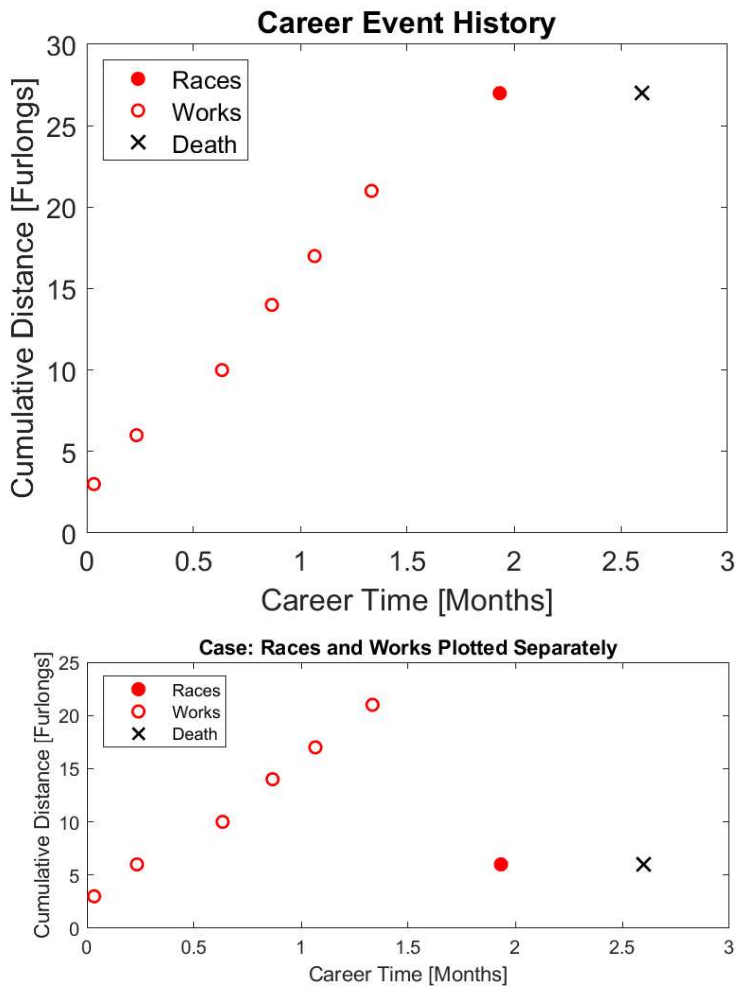
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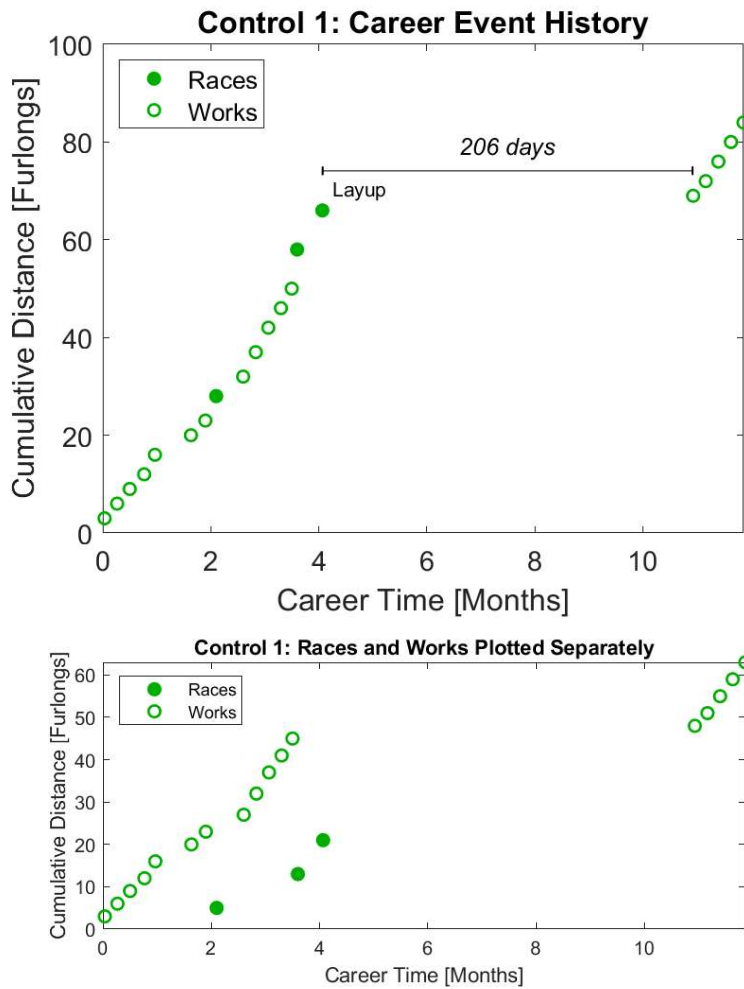
# Part 1: Graphical Representation of Individual High-Speed Exercise Histories

Races (filled circles), officially timed high-speed works (open circles), layups (line with endcaps, periods of time greater than 60 days in length without a race or timed work), and time of death (X) are illustrated over time (Career Time in months). With each event (race or work), the number of furlongs the horse exercised in that event is added to the number of furlongs exercised in all previous events.

## Case Horse High Speed Exercise History

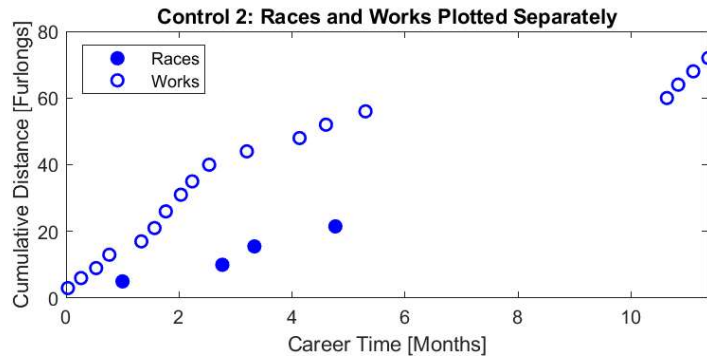


## Control 1 High Speed Exercise History

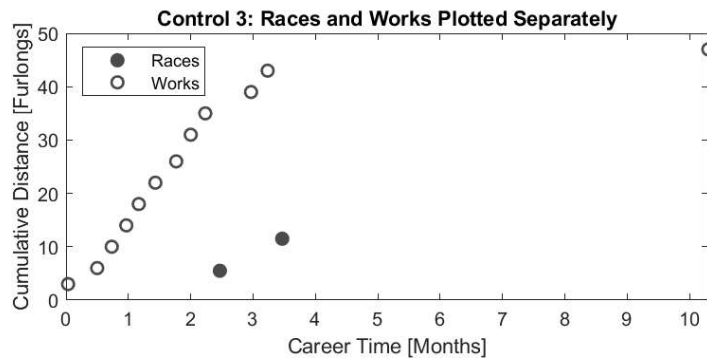
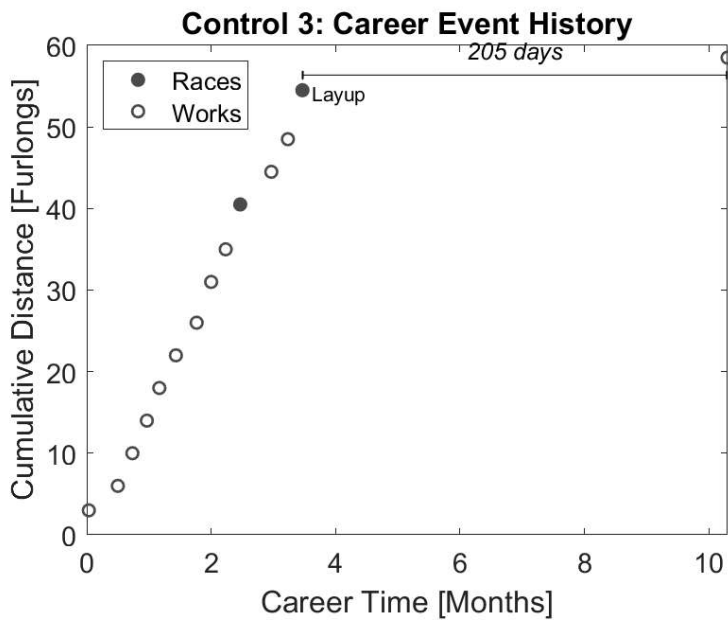


## Part 1: Graphical Representation of Individual High-Speed Exercise Histories

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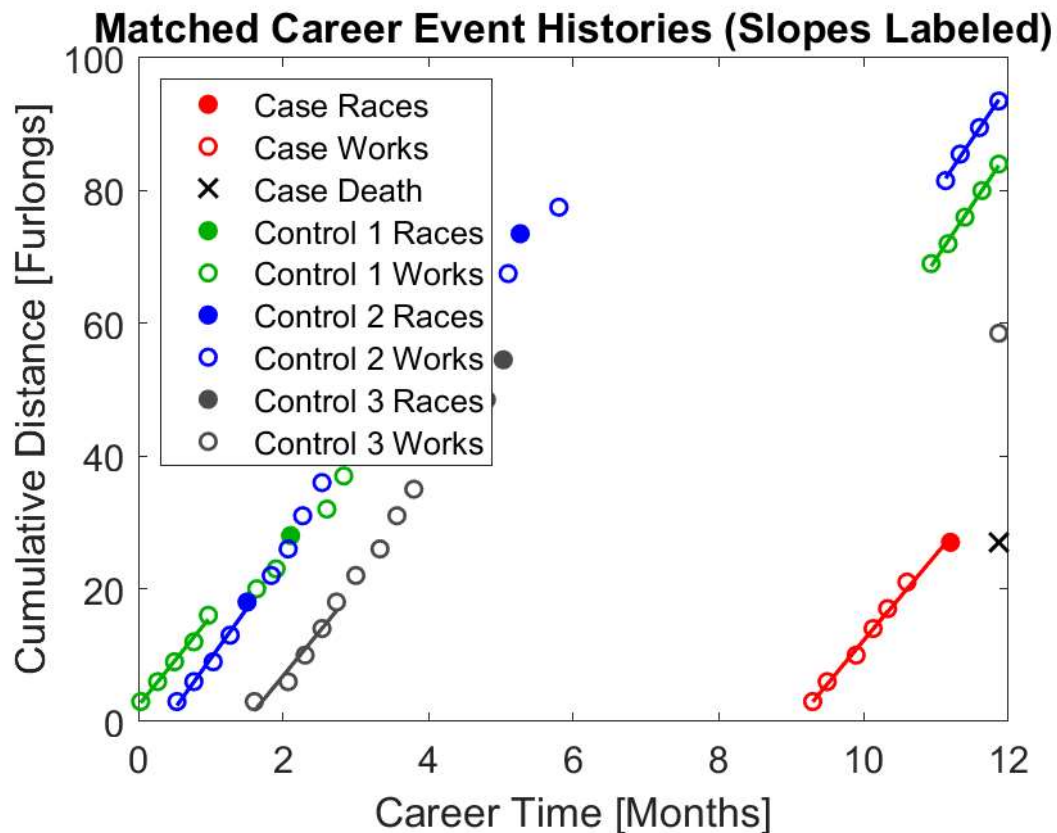


### Control 3 High Speed Exercise History

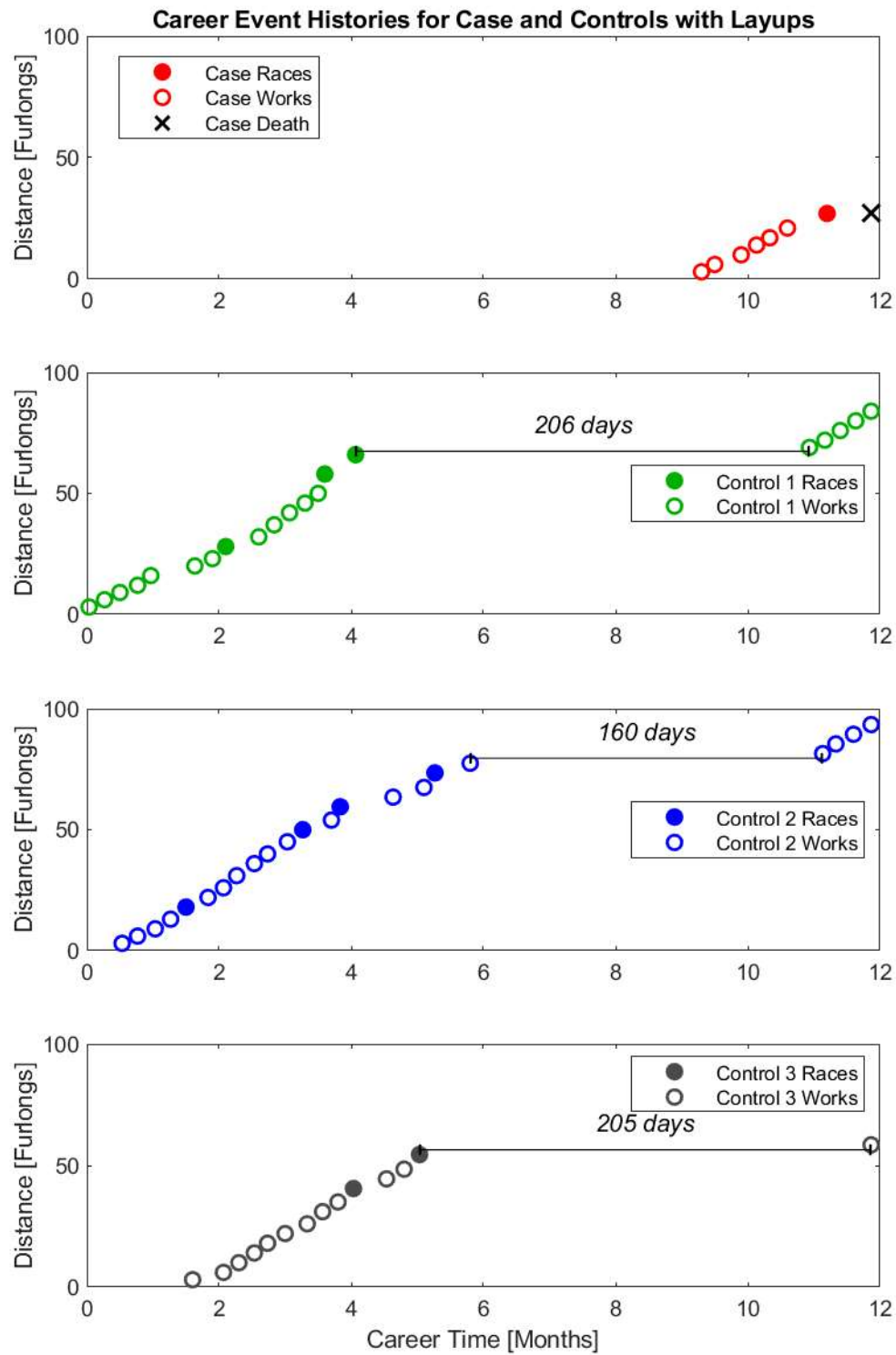


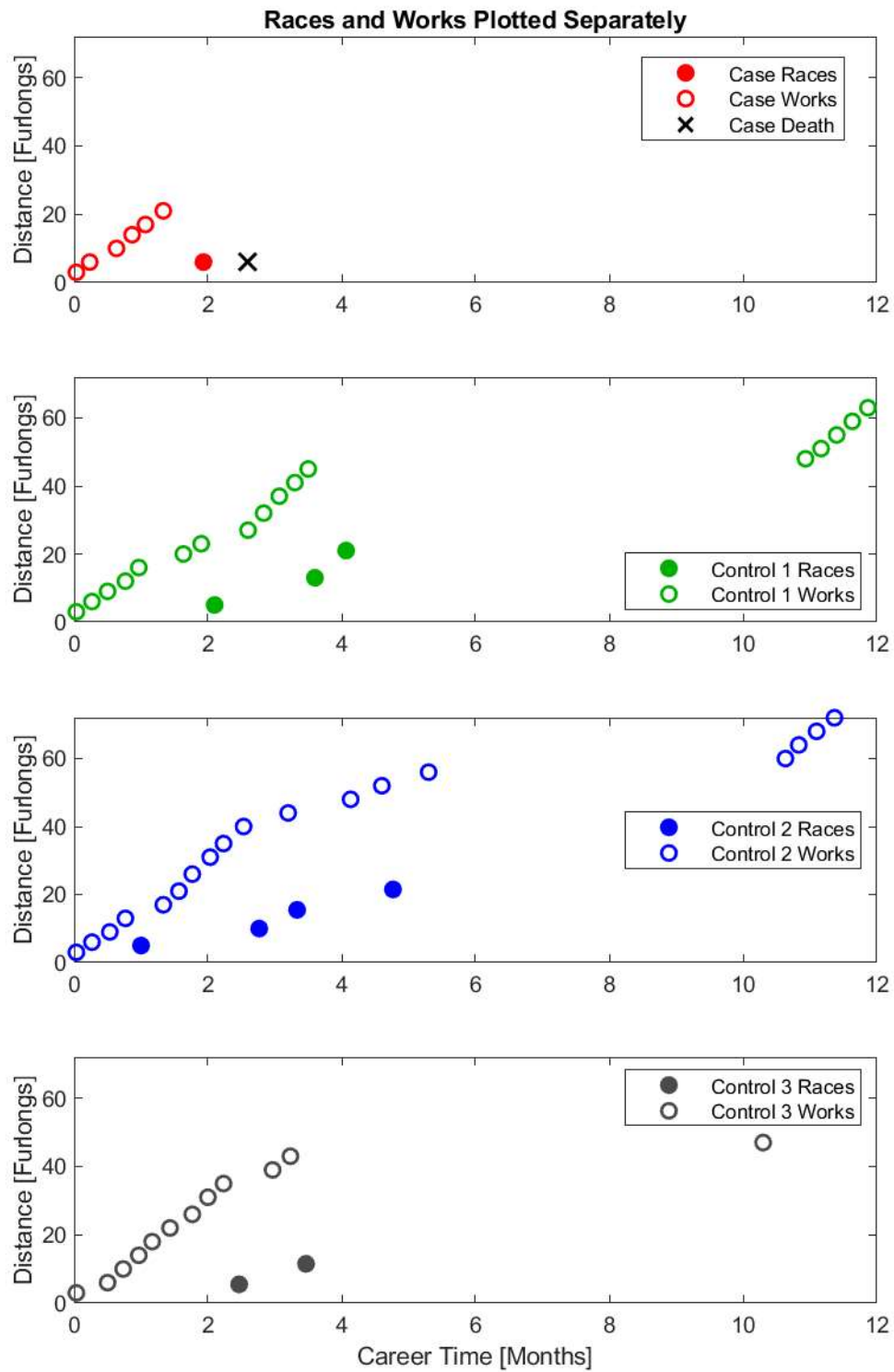
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## Part 2: Case and Control Horses Plotted Together



Case and Control Horses' exercise event histories are plotted on the same axes. The plots are aligned by the match date (equal to the date of death of Case Horse). Lines segments indicate specific rates of exercise at the start of career, end of career (for Case Horse), and match date (for Control Horses). Event rates are calculated as the slopes of the plots over 2 to 5 events not spanning a layup period, in units of furlongs per month.



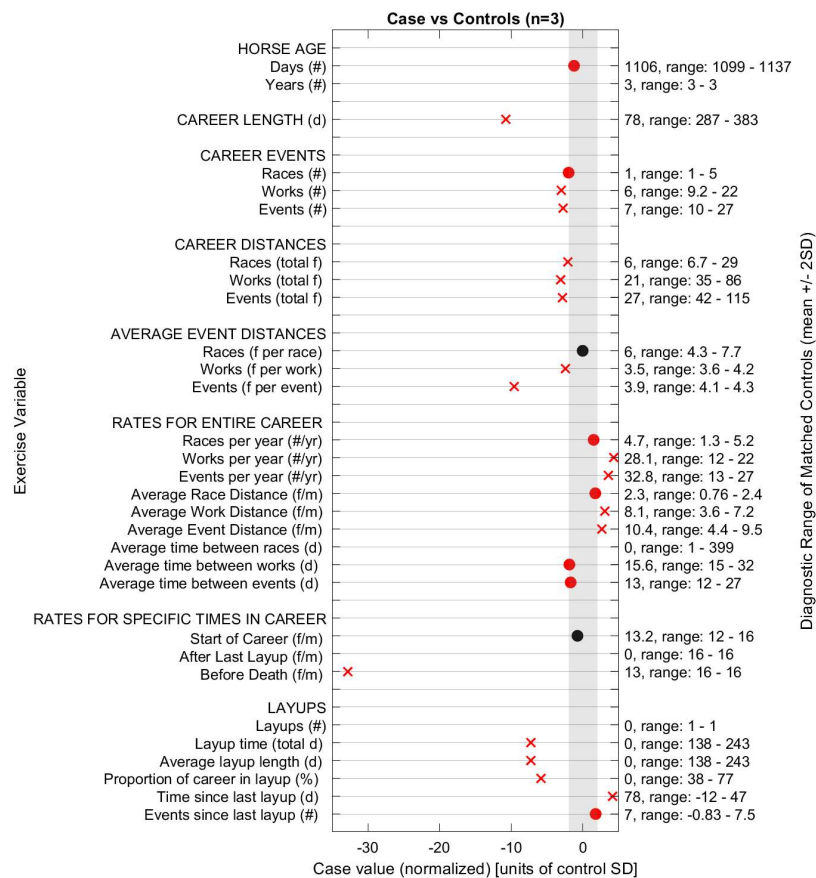


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## Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
3/19/2023	R	6.0	LRL	Dirt	Fast		3 /F	Mcl30000 (30-24)-c	720	6
3/1/2023	W	4.0	FAI	Dirt	Fast	:48.80				
2/21/2023	W	3.0	FAI	Dirt	Fast	:36.60				
2/15/2023	W	4.0	FAI	Dirt	Fast	:50.20				
2/8/2023	W	4.0	FAI	Dirt	Fast	:50.00				
1/27/2023	W	3.0	FAI	Dirt	Fast	:38.00				
1/21/2023	W	3.0	FAI	All Weather Training	Fast	:39.40				

## Part 4: Comparison of Exercise Variables between Case Horse and 3 Control Horses (3 year old, female, Thoroughbred)

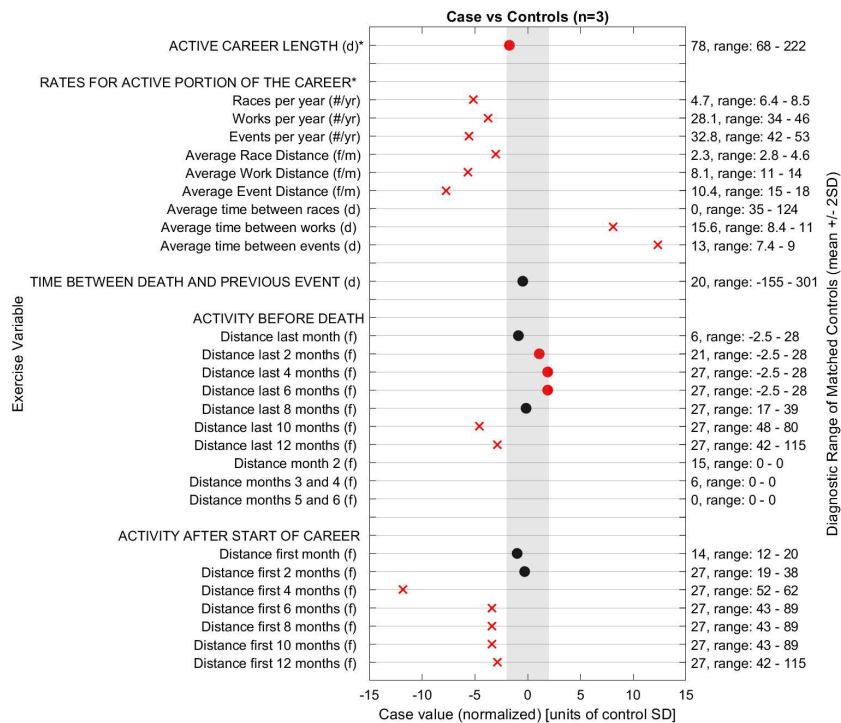


Case Horse values are indicated by black or red symbols: circles indicate values considered normal for 95% of 3 year old, female, Thoroughbreds (n=3) (gray region) (black and red indicate within 1 and 2 SD, respectively, of mean value of controls), X's indicate values outside of the normal range. Two and 3 year old case horses are also matched to control horses by the quarter in which the case horse died (Jan-Mar, Apr-Jun, Jul-Sep, Oct-Dec). Variables that are not calculable are not plotted (e.g. time between races for a horse with zero events). f=furlongs; yr=year; m=month; d=days.

^Rates are calculated over 2 to 5 events.

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## Part 4: Comparison of Exercise Variables between Case Horse and 3 Control Horses (3 year old, female, Thoroughbred)



Case Horse values are indicated by black or red symbols: circles indicate values considered normal for 95% of 3 year old, female, Thoroughbreds (n=3) (gray region) (black and red indicate within 1 and 2 SD, respectively, of mean value of controls), X's indicate values outside of the normal range. Two and 3 year old case horses are also matched to control horses by the quarter in which the case horse died (Jan-Mar, Apr-Jun, Jul-Sep, Oct-Dec). Variables that are not calculable are not plotted (e.g. time between races for a horse with zero events). f=furlongs; yr=year; m=month; d=days.

^Rates are calculated over 2 to 5 events.

\*Active Career Length is the career length excluding the time during layups.

# Exercise History Report (Full)

## Utterly Courageous



**UCDAVIS**

**VETERINARY MEDICINE**

*J. D. Wheat Veterinary Orthopedic  
Research Laboratory*

**Apr-27-2023**

## **Exercise History Report (Full)**

### **J.D. Wheat Veterinary Orthopedic Research Laboratory**

This report summarizes the high speed exercise history for Case Horse. There are four parts to this report:

Part 1 is a graph that depicts the races and officially recorded high speed workouts for Case Horse over the horse's career. The graph is useful for visually assessing features of a horse's career like: career length, periods of layup, and exercise consistency. If Case Horse had zero recorded high-speed exercise events, this graph is not produced. Event histories for three breed, sex, age, and event-matched control horses are also plotted.

Part 2 includes graphs which illustrate Case Horse's exercise history alongside that of Control Horses. These graphs are useful for visually comparing periods of layup and specific rates of exercise in the horses' exercise histories.

Part 3 is a chronological listing of races and officially timed works beginning with the most recent event (race or work).

Part 4 is a chart that allows comparison of exercise variables between Case Horse and other racehorses of similar age, sex, and breed that did not die at the same time from an injury. Similar to comparing the results of a blood test to a range of normal values, the values for Case Horse can be assessed in the context of a normal range for 95% of a sample of similar racehorses that did not die during the same time as Case Horse.

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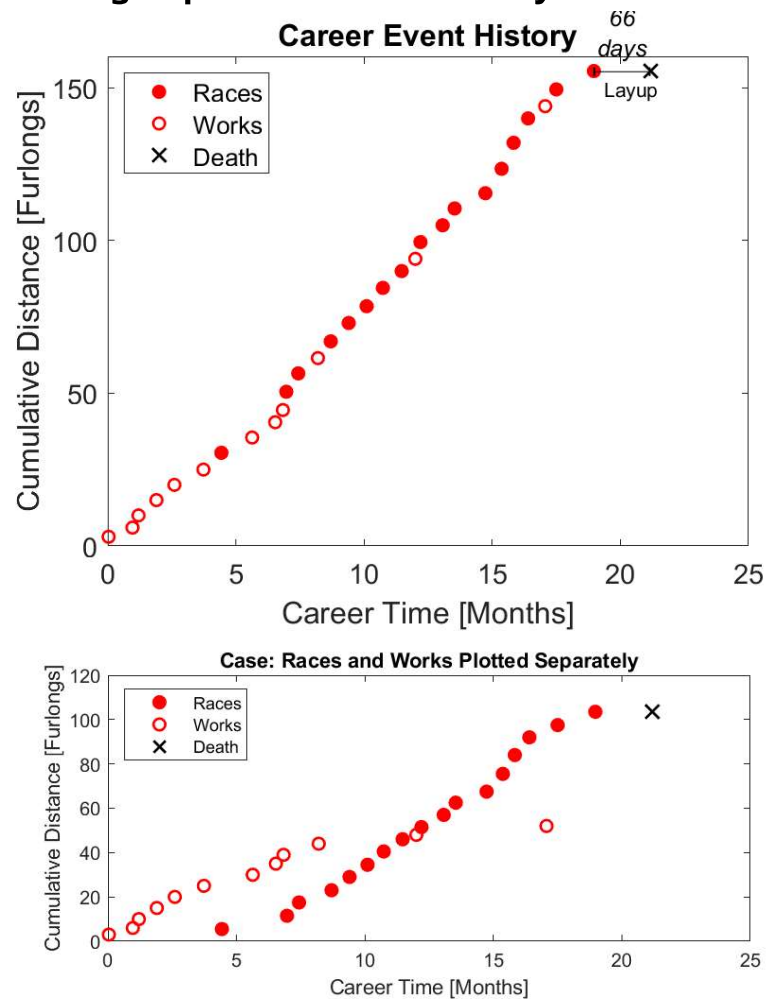
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Part 4: Comparison of Exercise Variables between Case Horse and 7 Control Horses (5+ year old, female, Thoroughbred) .....	9

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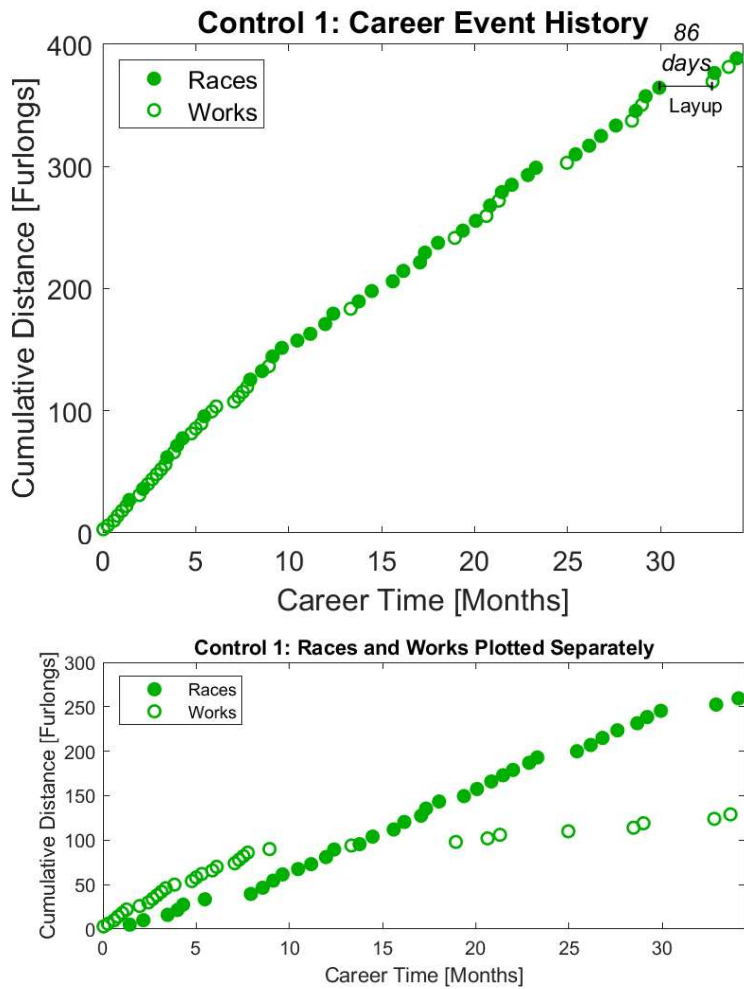
# Part 1: Graphical Representation of Individual High-Speed Exercise Histories

Races (filled circles), officially timed high-speed works (open circles), layups (line with endcaps, periods of time greater than 60 days in length without a race or timed work), and time of death (X) are illustrated over time (Career Time in months). With each event (race or work), the number of furlongs the horse exercised in that event is added to the number of furlongs exercised in all previous events.

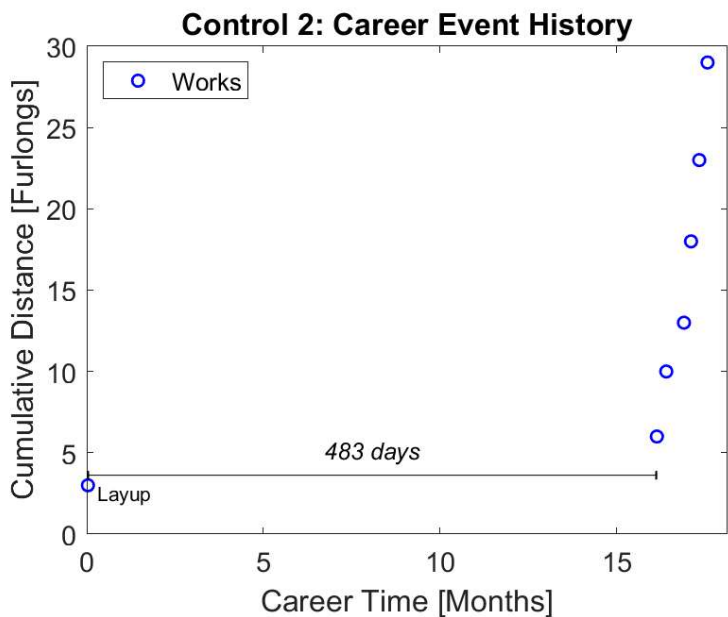
## Case Horse High Speed Exercise History



## Control 1 High Speed Exercise History

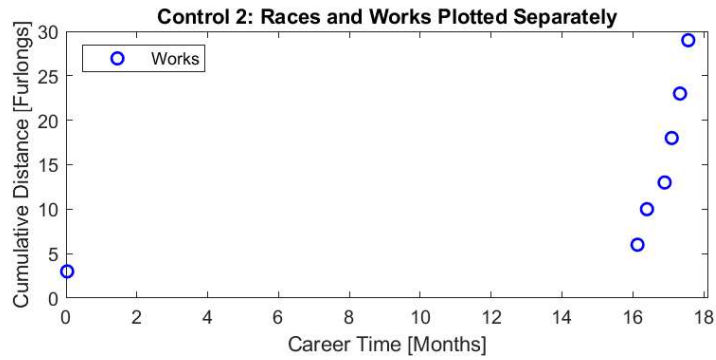


## Control 2 High Speed Exercise History

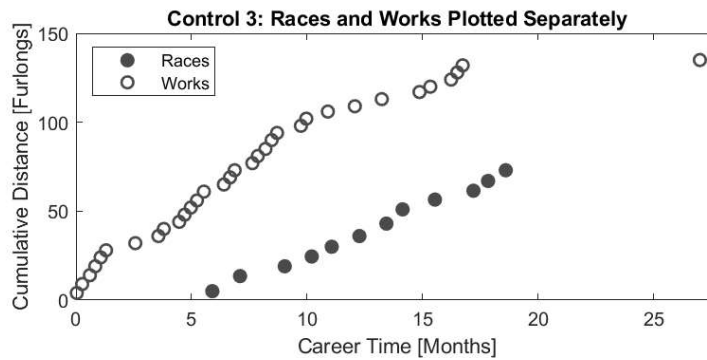
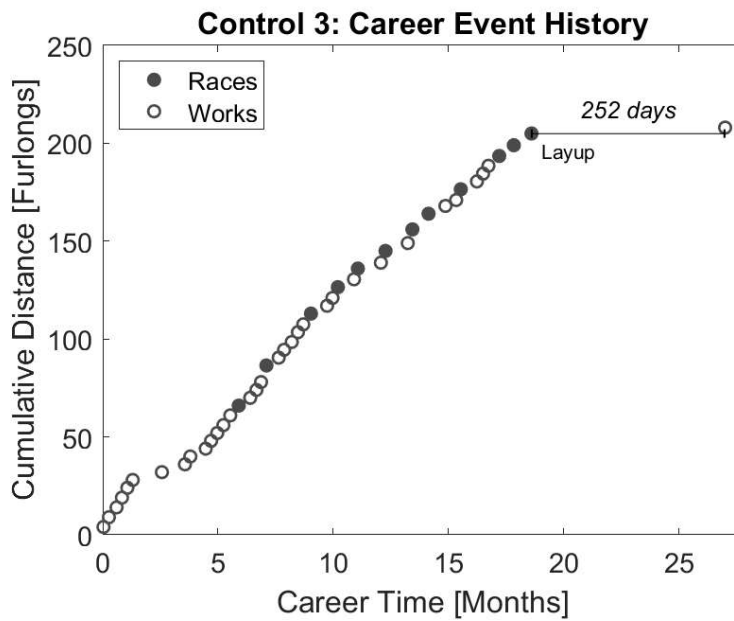


## Part 1: Graphical Representation of Individual High-Speed Exercise Histories

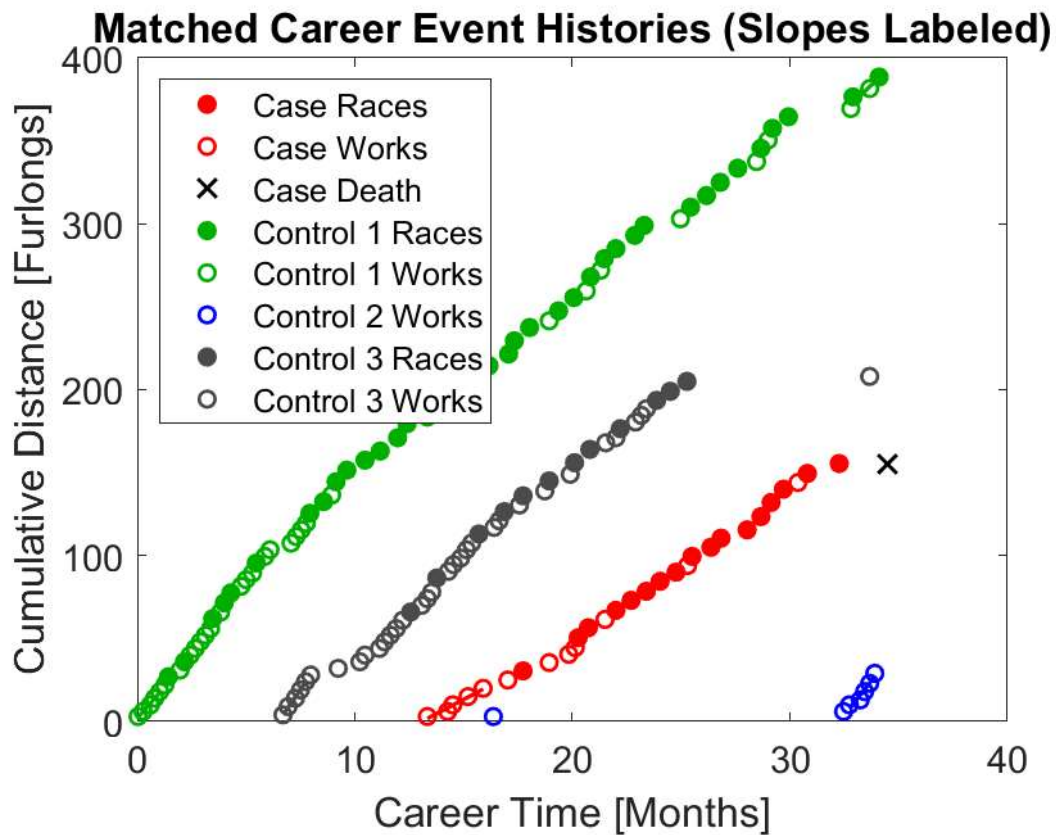
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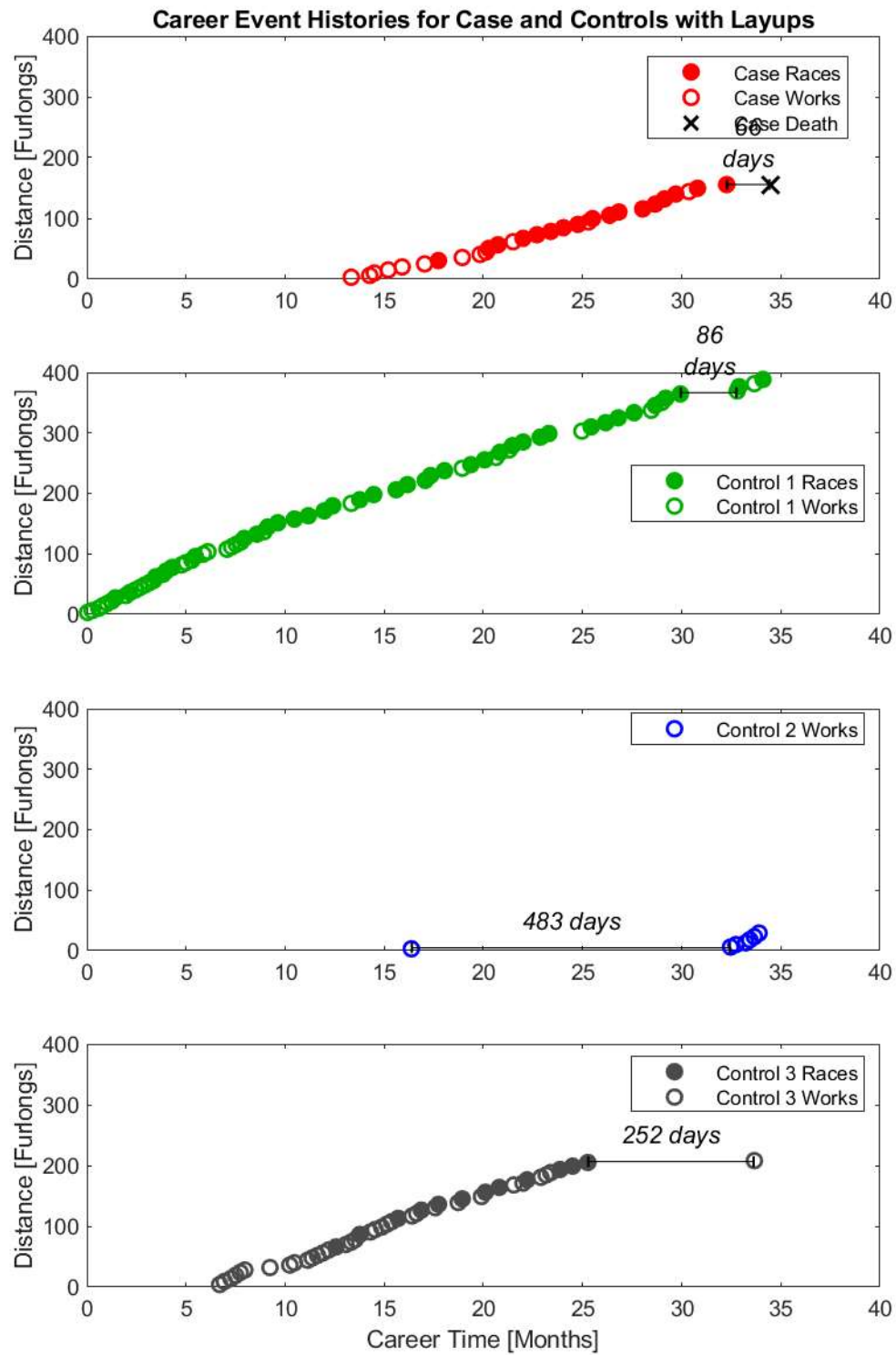
### Control 3 High Speed Exercise History

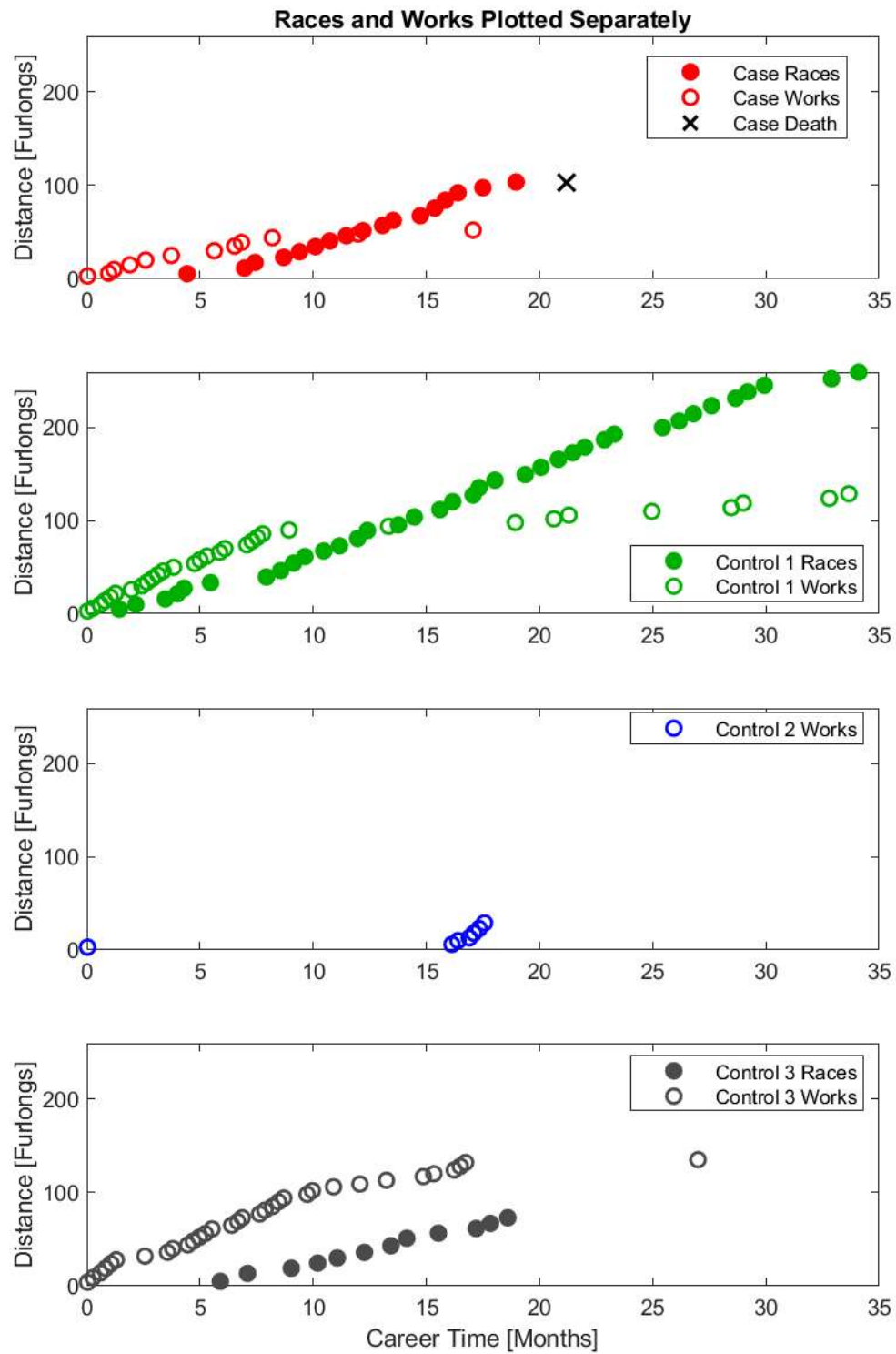


## Part 2: Case and Control Horses Plotted Together



Case and Control Horses' exercise event histories are plotted on the same axes. The plots are aligned by the match date (equal to the date of death of Case Horse). Lines segments indicate specific rates of exercise at the start of career, end of career (for Case Horse), and match date (for Control Horses). Event rates are calculated as the slopes of the plots over 2 to 5 events not spanning a layup period, in units of furlongs per month.





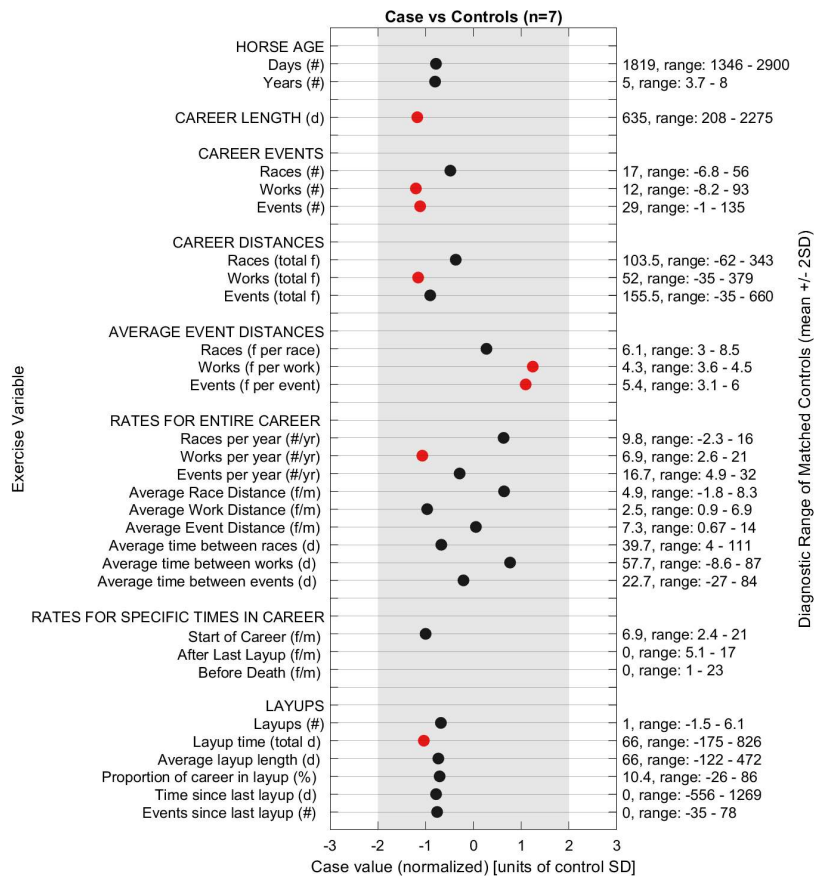
### Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
1/22/2023	R	6.0	LRL	Dirt	Fast		4U / FM	Alw60480nw1/ x	1620	5
12/9/2022	R	5.5	LRL	Dirt	Good		3U / FM	Clm40000 (40-32)cnd	2200	4
11/26/2022	W	4.0	LRL	Dirt	Fast	:50.00				
11/6/2022	R	8.0	LRL	Turf	Firm		3U / FM	(R) Alw48900cnd	300	8
10/20/2022	R	8.5	LRL	Turf	Firm		3U / FM	(R) Alw48300cnd	960	6
10/6/2022	R	8.0	LRL	Dirt	Fast		3U / FM	Alw57780nw1/ x	12420	2
9/17/2022	R	5.0	PIM	Turf	Firm		3U / FM	Alw56820nw1/ x	1080	6
8/12/2022	R	5.5	LRL	Dirt	Fast		3U / FM	Alw59970nw1/ x	6210	3
7/29/2022	R	5.5	LRL	Turf	Good		3U / FM	Clm40000 (40-32)nw2/L	29670	1
7/3/2022	R	5.5	LRL	Turf	Firm		35 / FM	Mcl45000 (45-36)-N	30360	1
6/27/2022	W	4.0	LRL	Dirt	Fast	:51.40				
6/11/2022	R	5.5	LRL	Turf	Good		35 / FM	Mcl40000 (40-32)-N	780	6
5/20/2022	R	6.0	PIM	Dirt	Fast		35 / FM	Mcl40000 (40-32)-N	5405	3
5/1/2022	R	5.5	LRL	Turf	Firm		35 / FM	Mcl40000 (40-32)-N	300	7
4/10/2022	R	6.0	LRL	Dirt	Fast		35 / FM	Mcl40000 (40-32)	9867	2
3/20/2022	R	5.5	LRL	Dirt	Fast		45 / FM	Mcl40000 (40-32)-N	4934	3
3/5/2022	W	5.0	LRL	Dirt	Fast	01:02.0				
2/10/2022	R	6.0	LRL	Dirt	Fast		45 / FM	Wmc40000 (40-32)-N	1872	5
1/27/2022	R	6.0	LRL	Dirt	Fast		45 / FM	Wmc40000 (40-32)-N	1872	5

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
1/23/2022	W	4.0	LRL	Dirt	Fast	:51.40				
1/14/2022	W	5.0	LRL	Dirt	Fast	01:03.0				
12/18/2021	W	5.0	LRL	Dirt	Fast	01:03.0				
11/12/2021	R	5.5	LRL	Dirt	Sloppy		35 / FM	Wmc40000 (40-32)	4485	3
10/22/2021	W	5.0	LRL	Dirt	Fast	01:03.0				
9/18/2021	W	5.0	LRL	Dirt	Fast	01:02.0				
8/28/2021	W	5.0	LRL	Dirt	Fast	01:03.2				
8/7/2021	W	4.0	TIM	Dirt	Fast	:49.80				
7/31/2021	W	3.0	TIM	Dirt	Fast	:38.00				
7/3/2021	W	3.0	TIM	Dirt	Fast	:38.00				

## Part 4: Comparison of Exercise Variables between Case Horse and 7 Control Horses (5+ year old, female, Thoroughbred)

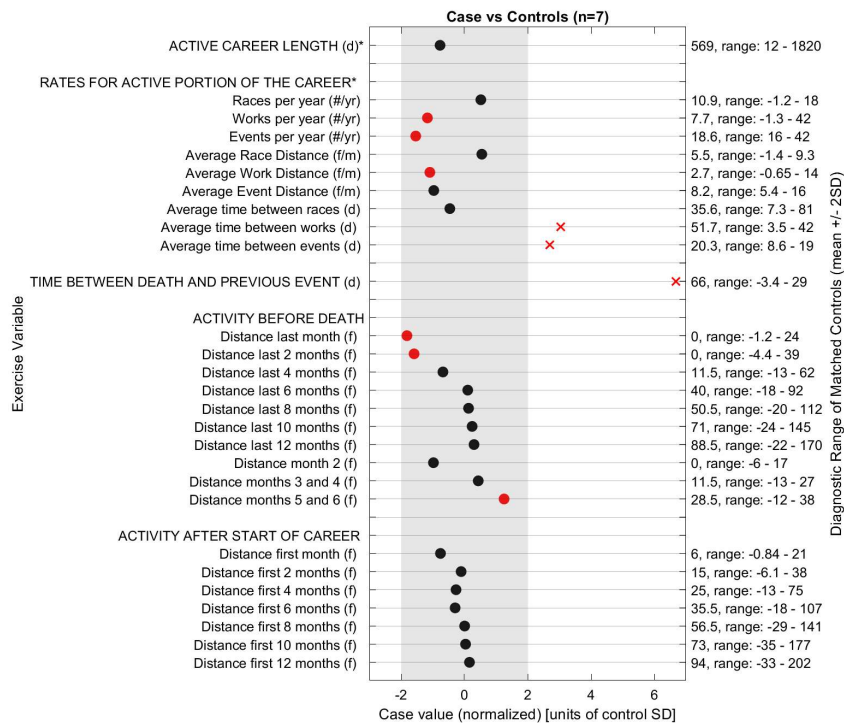


Case Horse values are indicated by black or red symbols: circles indicate values considered normal for 95% of 5+ year old, female, Thoroughbreds (n=7) (gray region) (black and red indicate within 1 and 2 SD, respectively, of mean value of controls), X's indicate values outside of the normal range. Two and 3 year old case horses are also matched to control horses by the quarter in which the case horse died (Jan-Mar, Apr-Jun, Jul-Sep, Oct-Dec). Variables that are not calculable are not plotted (e.g. time between races for a horse with zero events). f=furlongs; yr=year; m=month; d=days.

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\*Active Career Length is the career length excluding the time during layups.

# Exercise History Report (Full)

## We Call Him Clyde



**UC DAVIS**

**VETERINARY MEDICINE**

*J. D. Wheat Veterinary Orthopedic  
Research Laboratory*

**Apr-27-2023**

## **Exercise History Report (Full)**

### **J.D. Wheat Veterinary Orthopedic Research Laboratory**

This report summarizes the high speed exercise history for Case Horse. There are four parts to this report:

Part 1 is a graph that depicts the races and officially recorded high speed workouts for Case Horse over the horse's career. The graph is useful for visually assessing features of a horse's career like: career length, periods of layup, and exercise consistency. If Case Horse had zero recorded high-speed exercise events, this graph is not produced. Event histories for three breed, sex, age, and event-matched control horses are also plotted.

Part 2 includes graphs which illustrate Case Horse's exercise history alongside that of Control Horses. These graphs are useful for visually comparing periods of layup and specific rates of exercise in the horses' exercise histories.

Part 3 is a chronological listing of races and officially timed works beginning with the most recent event (race or work).

Part 4 is a chart that allows comparison of exercise variables between Case Horse and other racehorses of similar age, sex, and breed that did not die at the same time from an injury. Similar to comparing the results of a blood test to a range of normal values, the values for Case Horse can be assessed in the context of a normal range for 95% of a sample of similar racehorses that did not die during the same time as Case Horse.

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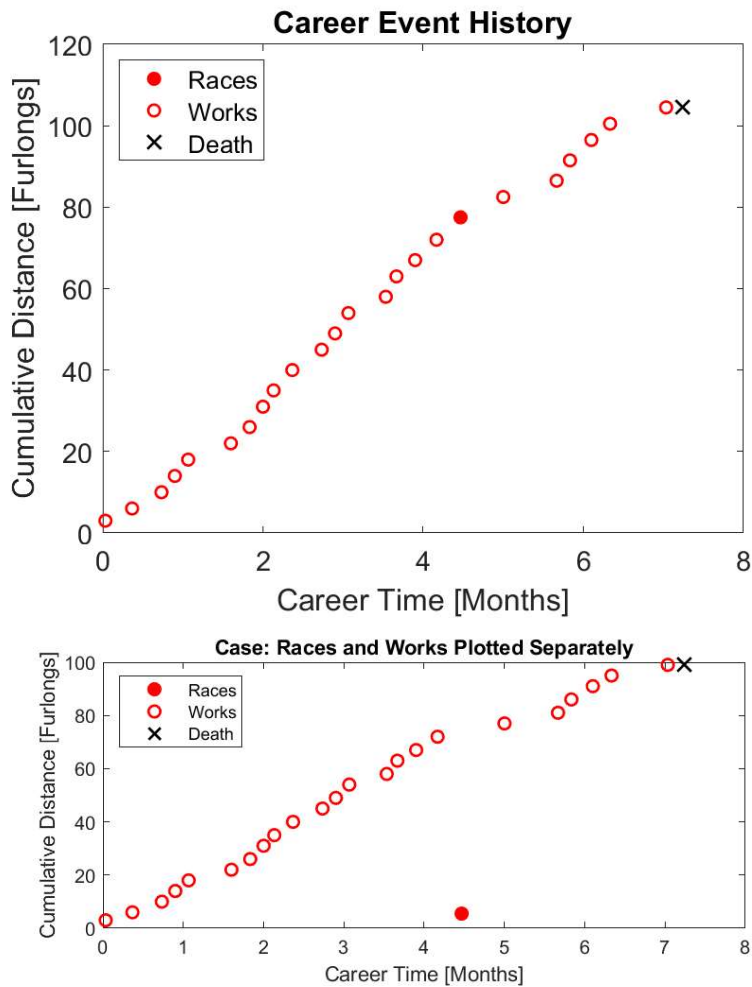
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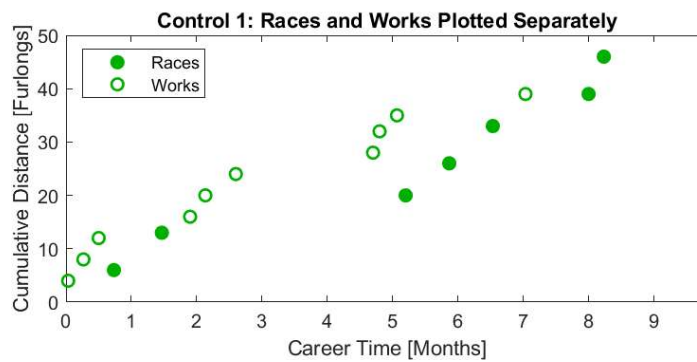
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Races (filled circles), officially timed high-speed works (open circles), layups (line with endcaps, periods of time greater than 60 days in length without a race or timed work), and time of death (X) are illustrated over time (Career Time in months). With each event (race or work), the number of furlongs the horse exercised in that event is added to the number of furlongs exercised in all previous events.

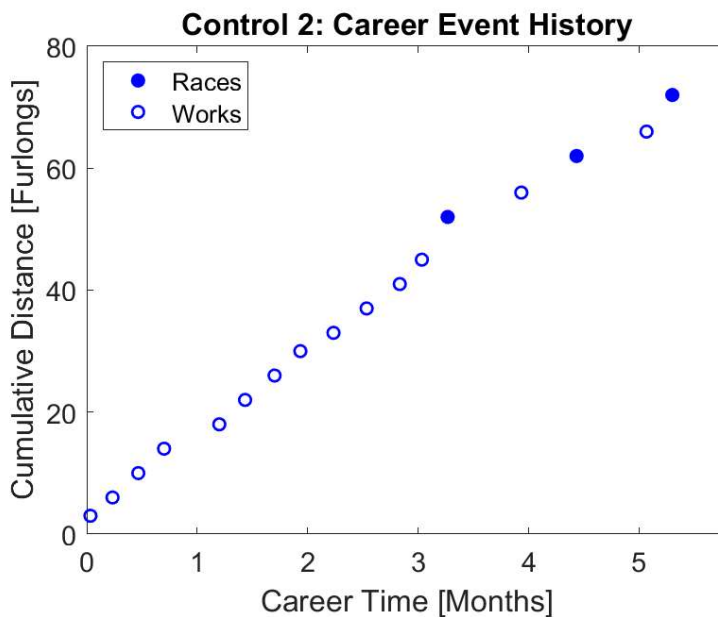
## Case Horse High Speed Exercise History



## Control 1 High Speed Exercise History

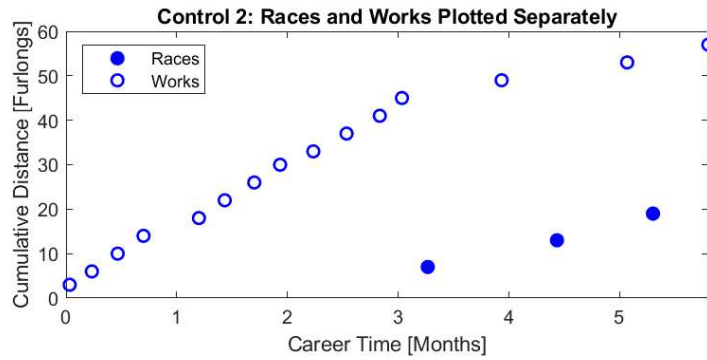


## Control 2 High Speed Exercise History

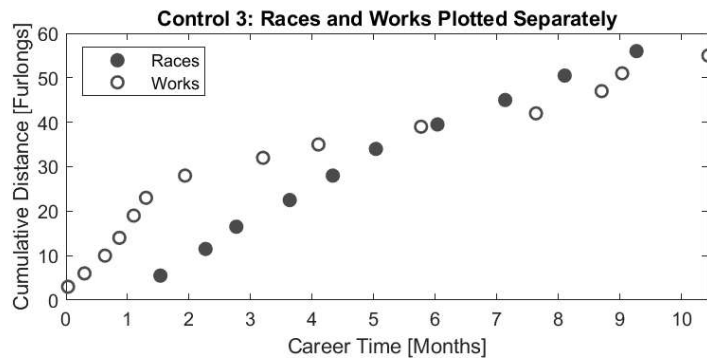
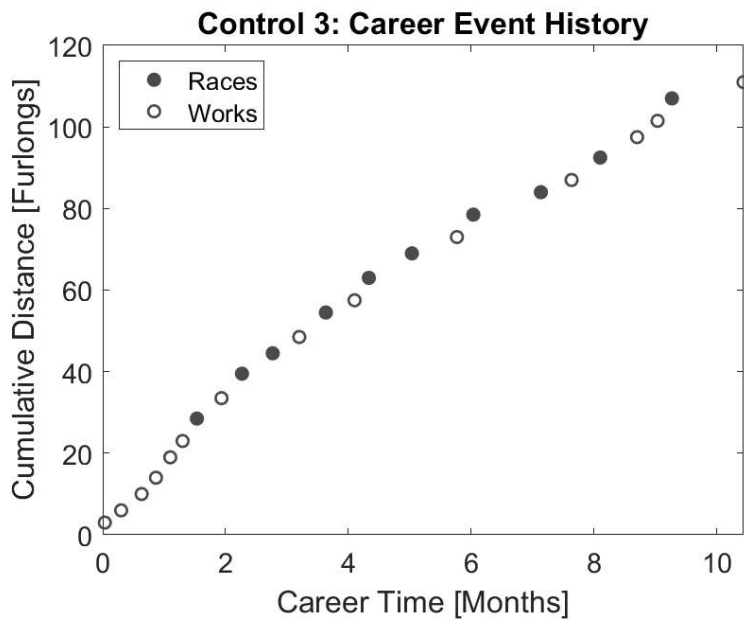


## Part 1: Graphical Representation of Individual High-Speed Exercise Histories

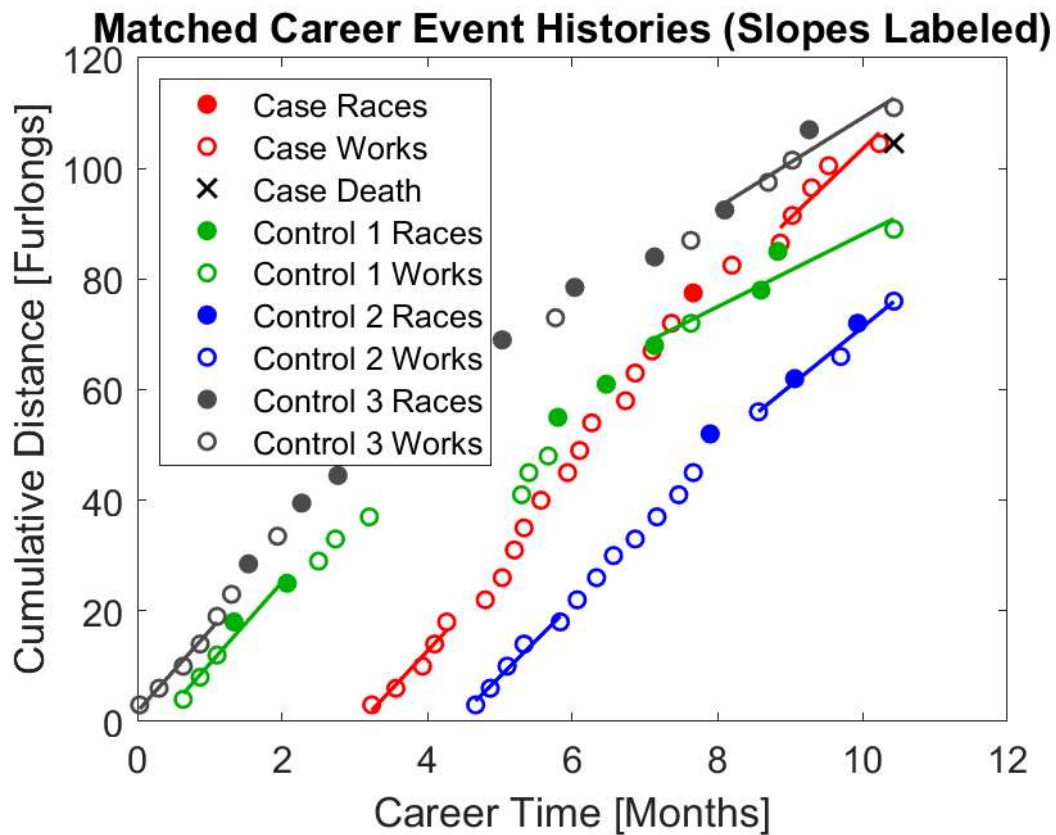
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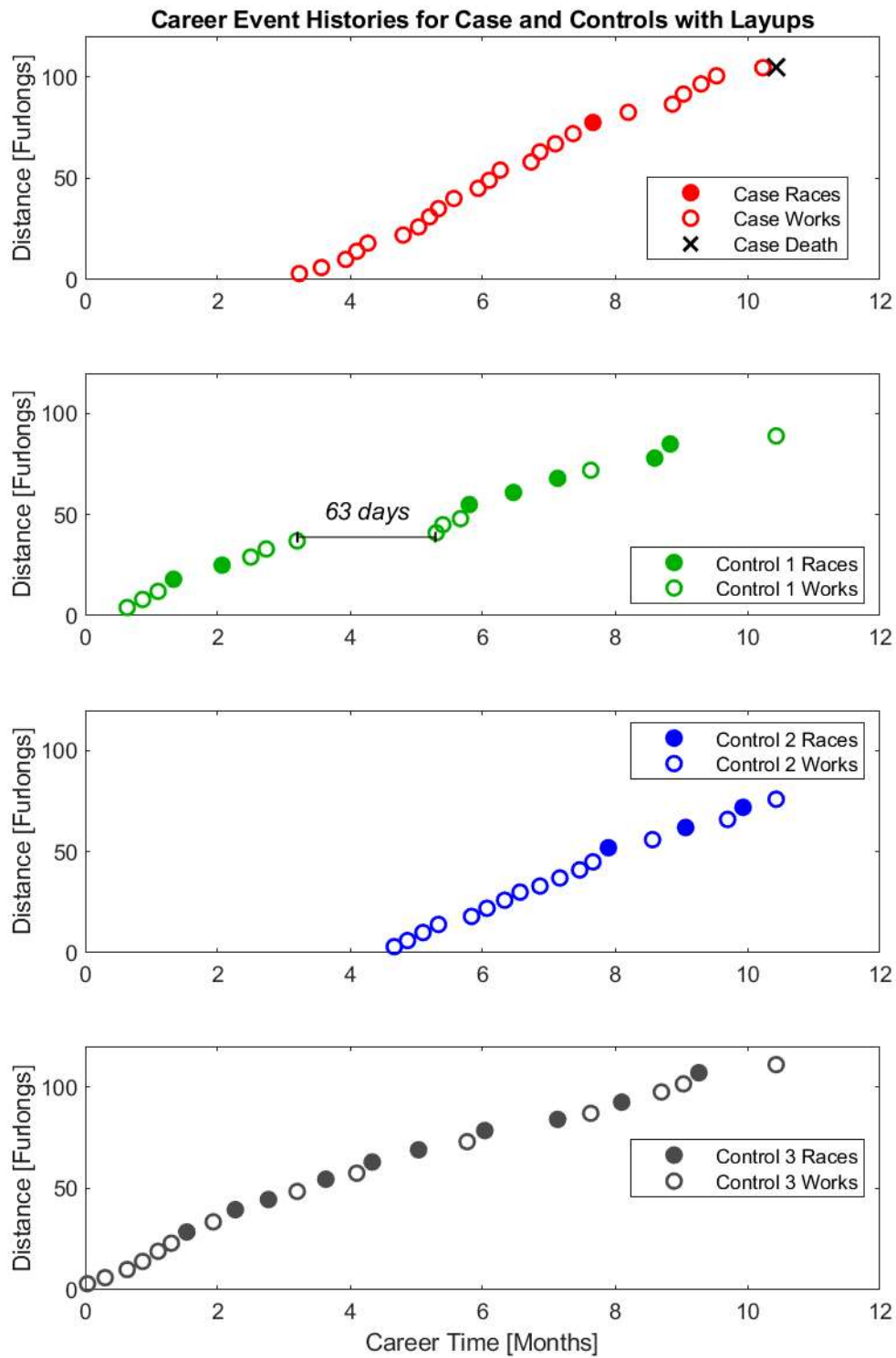
### Control 3 High Speed Exercise History

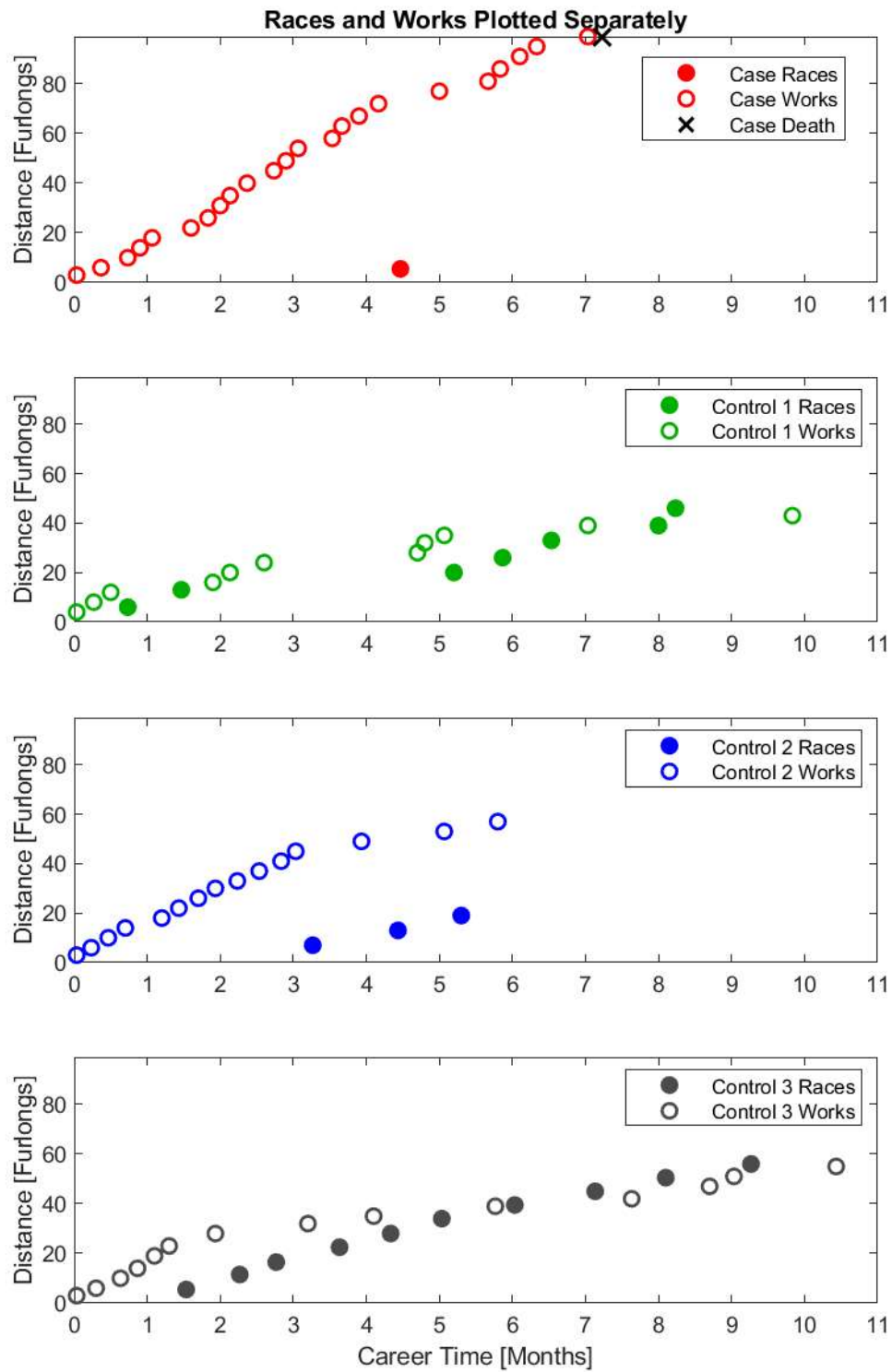


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Case and Control Horses' exercise event histories are plotted on the same axes. The plots are aligned by the match date (equal to the date of death of Case Horse). Lines segments indicate specific rates of exercise at the start of career, end of career (for Case Horse), and match date (for Control Horses). Event rates are calculated as the slopes of the plots over 2 to 5 events not spanning a layup period, in units of furlongs per month.

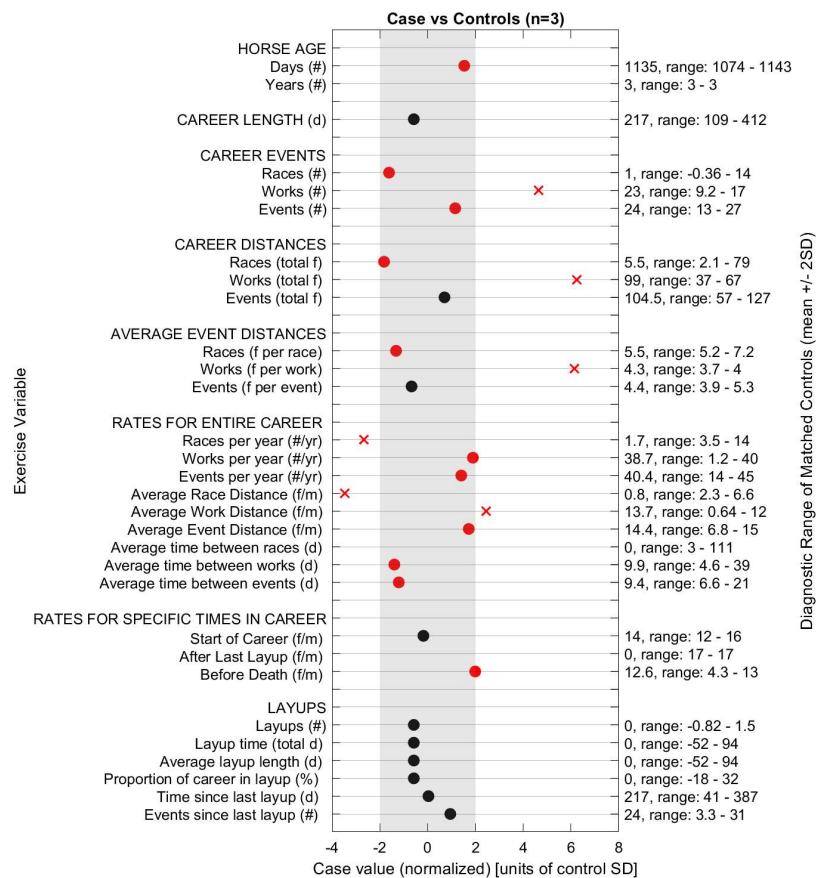




### Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
4/2/2023	W	4.0	LRL	Dirt	Fast	:51.80				
3/12/2023	W	4.0	LRL	Dirt	Fast	:51.00				
3/5/2023	W	5.0	LRL	Dirt	Fast	01:02.0				
2/25/2023	W	5.0	LRL	Dirt	Fast	01:01.4				
2/20/2023	W	4.0	LRL	Dirt	Fast	:49.40				
1/31/2023	W	5.0	LRL	Dirt	Fast	01:03.0				
1/15/2023	R	5.5	LRL	Dirt	Fast		3	Mcl45000 (45-36)	300	7
1/6/2023	W	5.0	LRL	Dirt	Fast	01:03.4				
12/29/2022	W	4.0	LRL	Dirt	Fast	:51.00				
12/22/2022	W	5.0	LRL	Dirt	Muddy	01:04.2				
12/18/2022	W	4.0	LRL	Dirt	Fast	:49.00				
12/4/2022	W	5.0	LRL	Dirt	Good	01:03.0				
11/29/2022	W	4.0	LRL	Dirt	Fast	:50.00				
11/24/2022	W	5.0	LRL	Dirt	Fast	01:04.0				
11/13/2022	W	5.0	LRL	Dirt	Fast	01:02.6				
11/6/2022	W	4.0	LRL	Dirt	Good	:49.60				
11/2/2022	W	5.0	LRL	Dirt	Fast	01:03.0				
10/28/2022	W	4.0	LRL	Dirt	Fast	:49.20				
10/21/2022	W	4.0	LRL	Dirt	Fast	:51.00				
10/5/2022	W	4.0	LRL	Dirt	Fast	:51.00				
9/30/2022	W	4.0	LRL	Dirt	Fast	:50.00				
9/25/2022	W	4.0	LRL	Dirt	Fast	:50.40				
9/14/2022	W	3.0	LRL	Dirt	Fast	:36.40				
9/4/2022	W	3.0	LRL	Dirt	Fast	:36.40				

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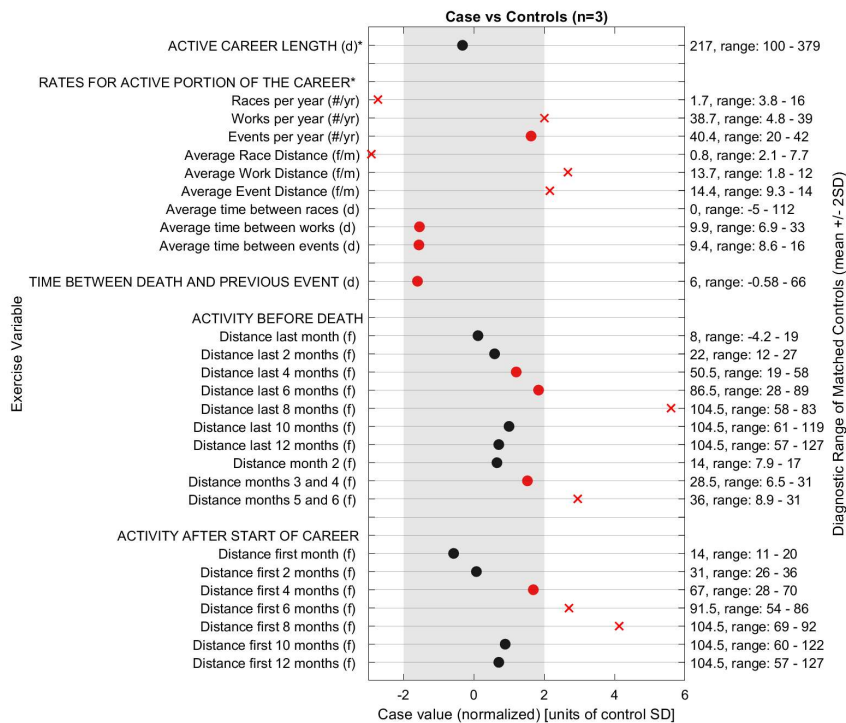


Case Horse values are indicated by black or red symbols: circles indicate values considered normal for 95% of 3 year old, male, Thoroughbreds (n=3) (gray region) (black and red indicate within 1 and 2 SD, respectively, of mean value of controls), X's indicate values outside of the normal range. Two and 3 year old case horses are also matched to control horses by the quarter in which the case horse died (Jan-Mar, Apr-Jun, Jul-Sep, Oct-Dec). Variables that are not calculable are not plotted (e.g. time between races for a horse with zero events). f=furlongs; yr=year; m=month; d=days.

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# Exercise History Report (Full)

## Witty Banter



**UC DAVIS**

**VETERINARY MEDICINE**

*J. D. Wheat Veterinary Orthopedic  
Research Laboratory*

**Apr-27-2023**

## **Exercise History Report (Full)**

### **J.D. Wheat Veterinary Orthopedic Research Laboratory**

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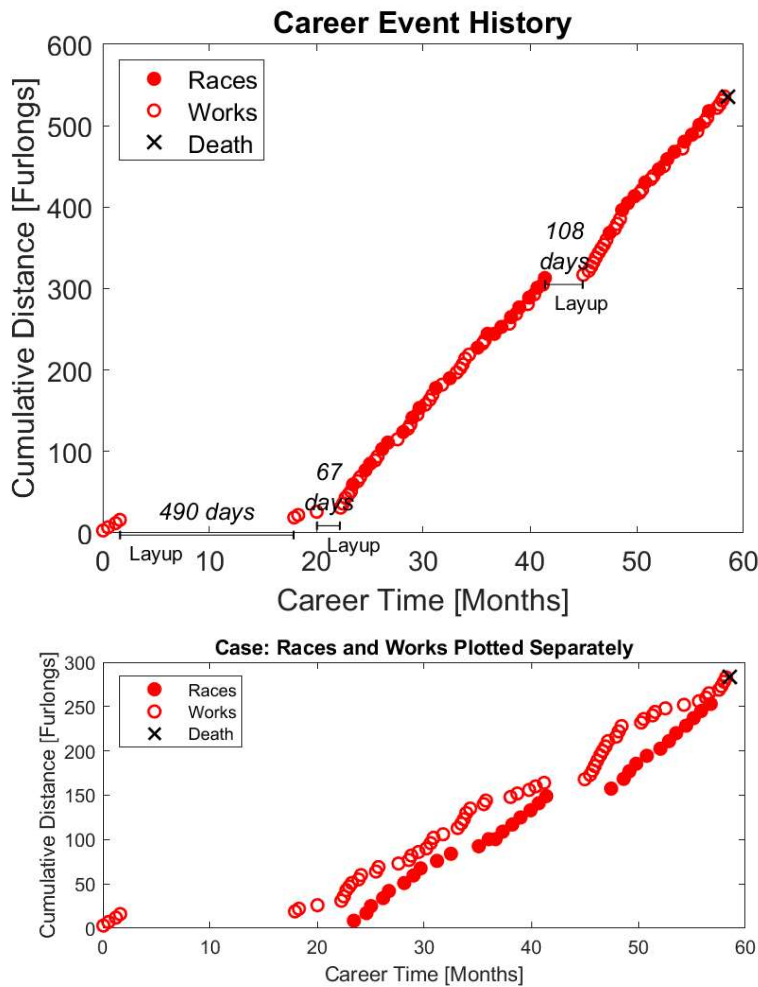
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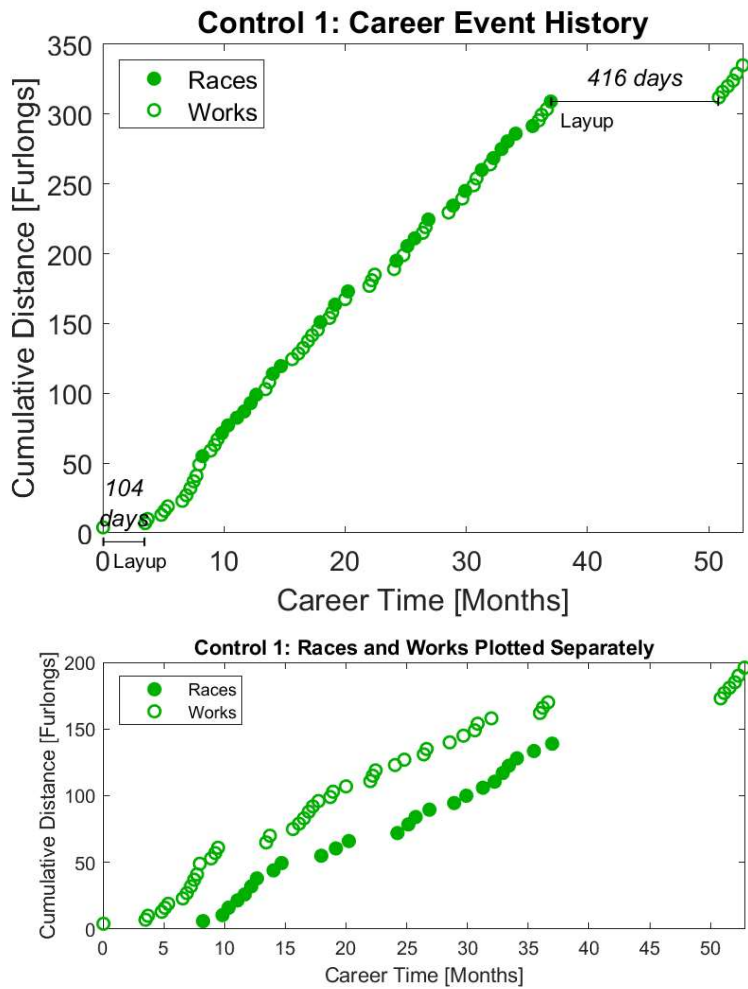
# Part 1: Graphical Representation of Individual High-Speed Exercise Histories

Races (filled circles), officially timed high-speed works (open circles), layups (line with endcaps, periods of time greater than 60 days in length without a race or timed work), and time of death (X) are illustrated over time (Career Time in months). With each event (race or work), the number of furlongs the horse exercised in that event is added to the number of furlongs exercised in all previous events.

## Case Horse High Speed Exercise History



## Control 1 High Speed Exercise History

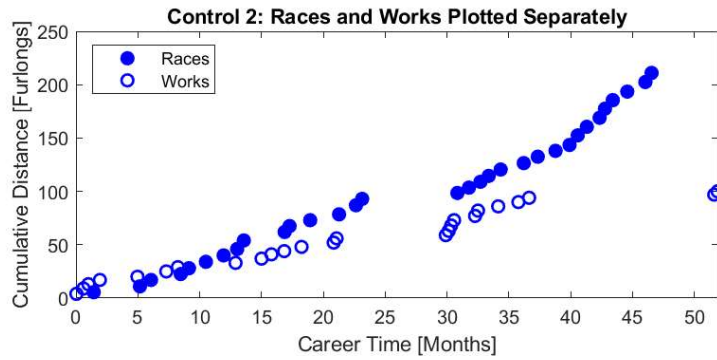


## Control 2 High Speed Exercise History

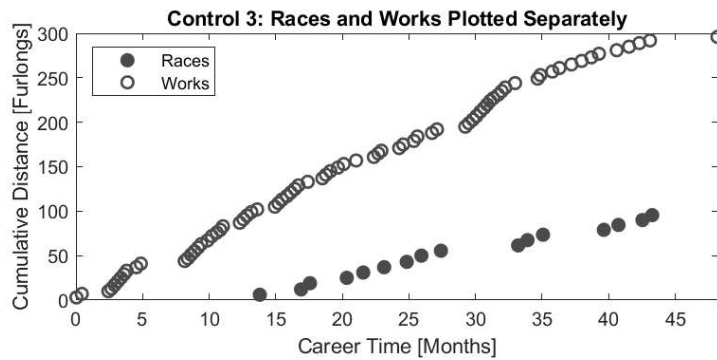
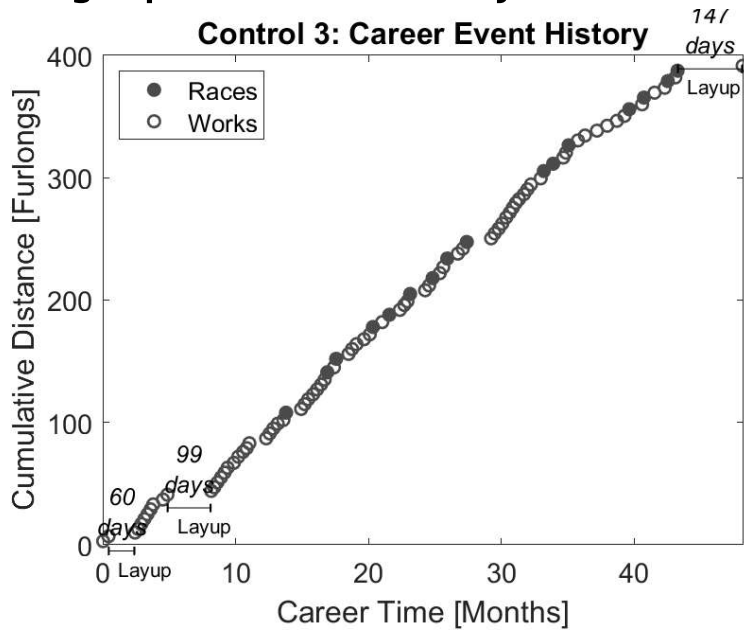


## Part 1: Graphical Representation of Individual High-Speed Exercise Histories

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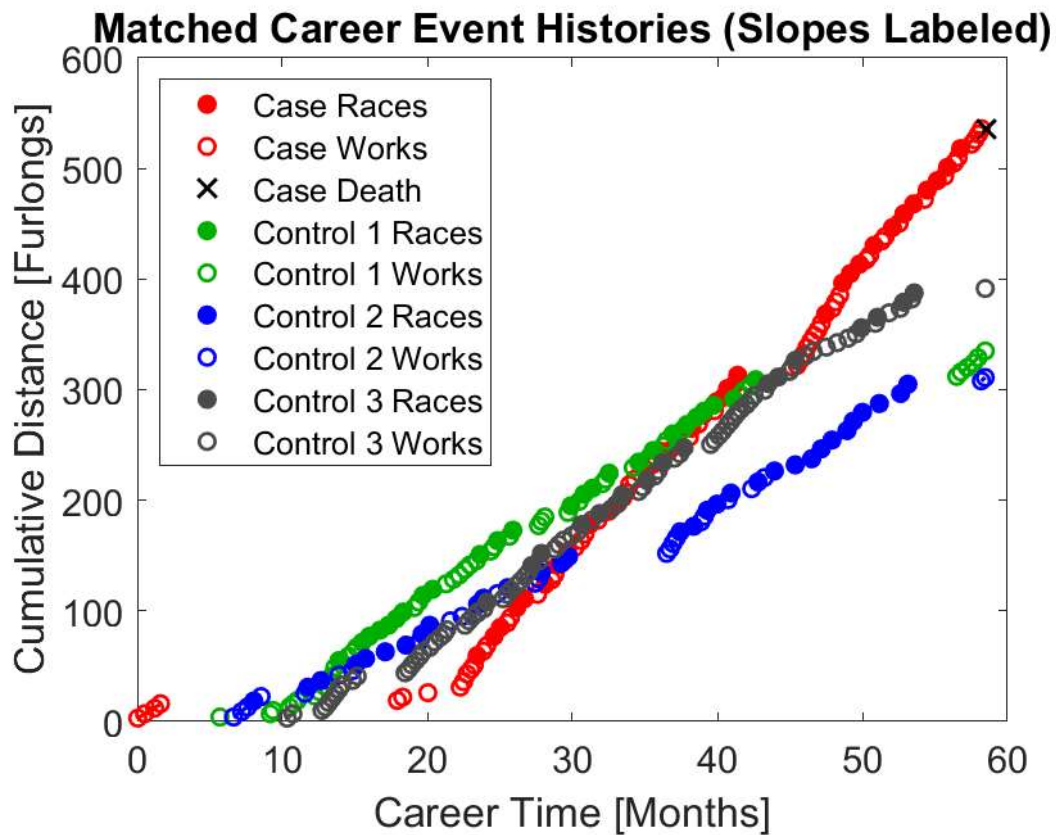


### Control 3 High Speed Exercise History

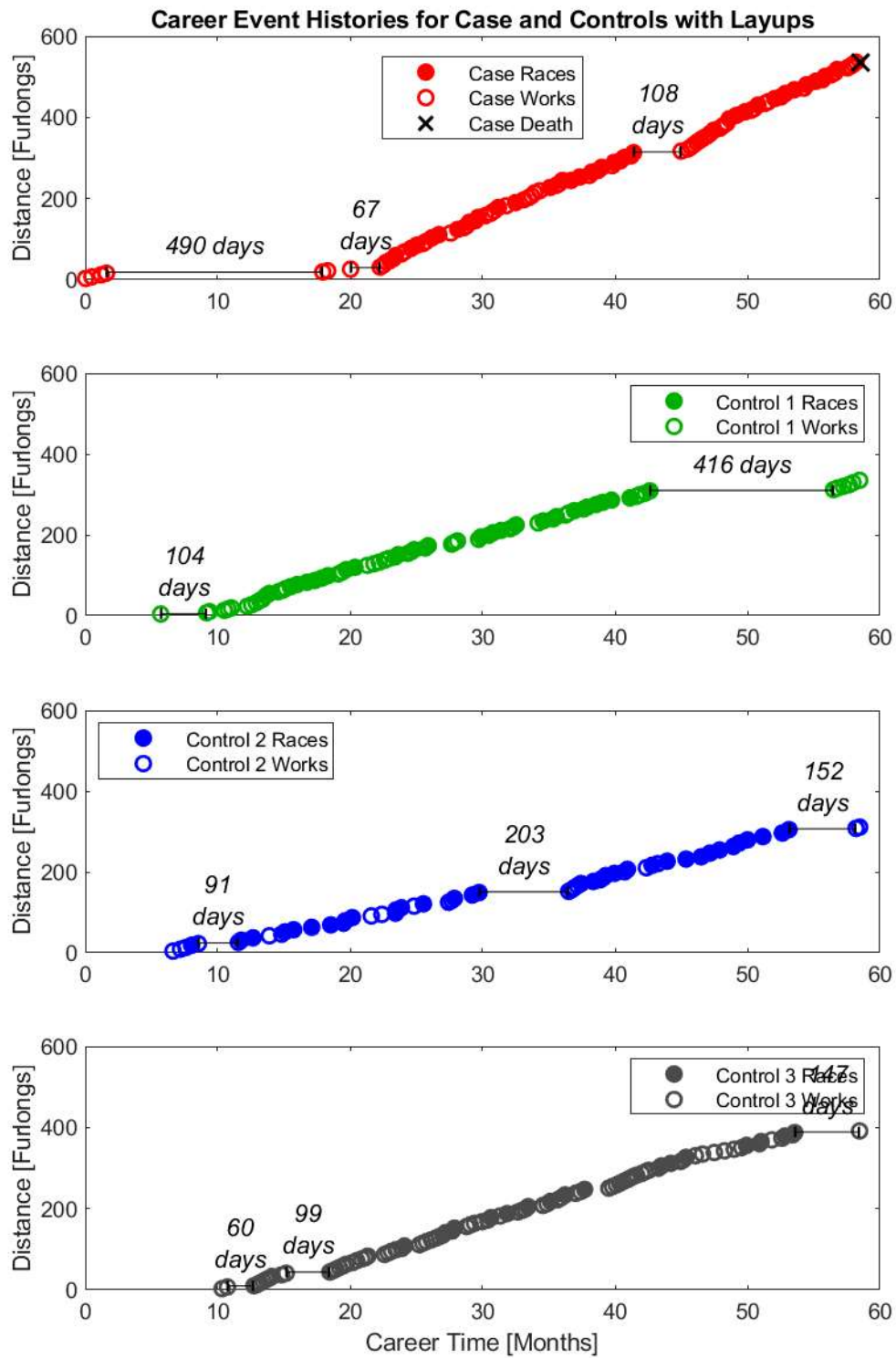


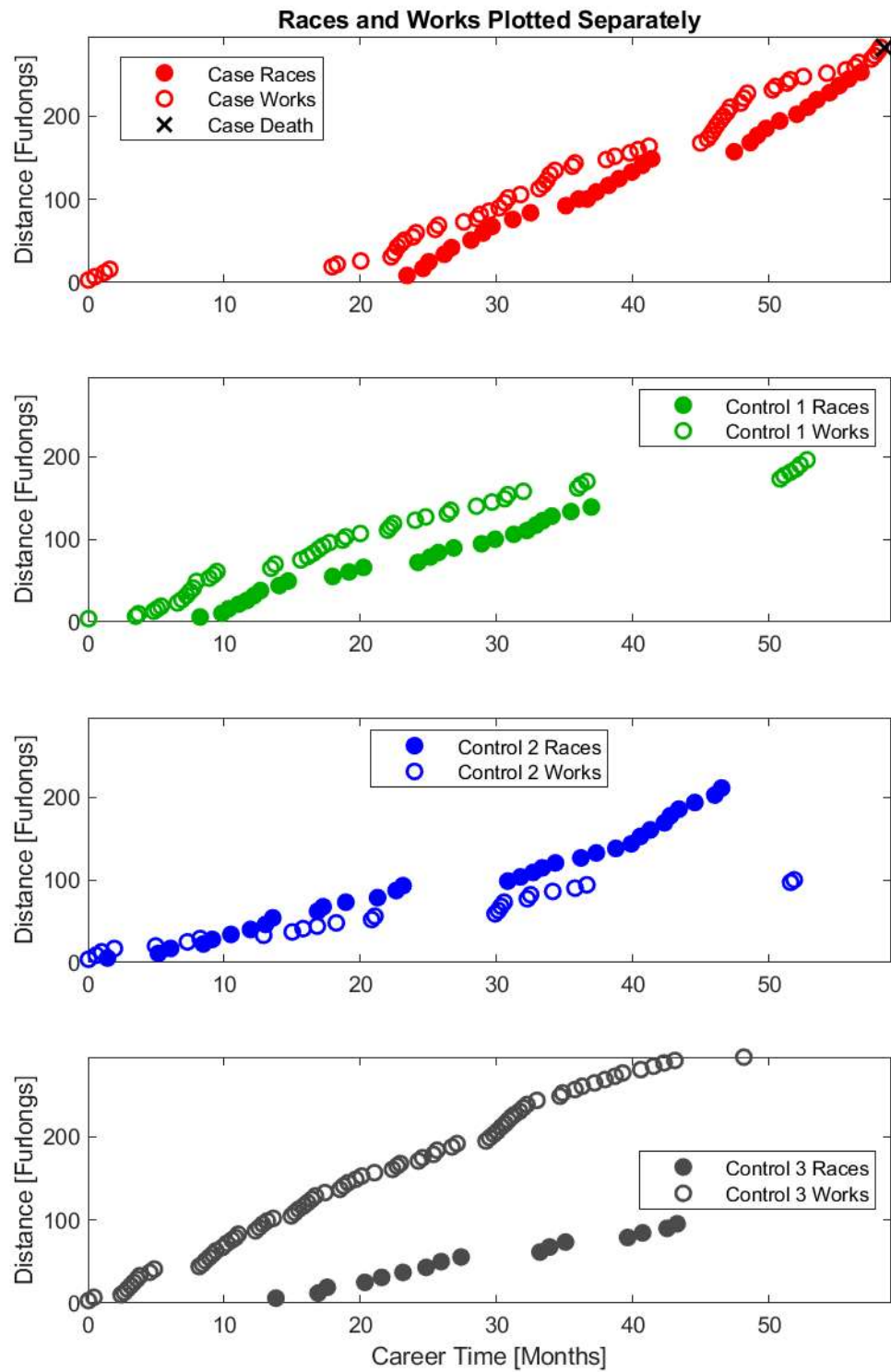
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## Part 2: Case and Control Horses Plotted Together



Case and Control Horses' exercise event histories are plotted on the same axes. The plots are aligned by the match date (equal to the date of death of Case Horse). Lines segments indicate specific rates of exercise at the start of career, end of career (for Case Horse), and match date (for Control Horses). Event rates are calculated as the slopes of the plots over 2 to 5 events not spanning a layup period, in units of furlongs per month.





## Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
4/8/2023	W	5.0	LRL	Dirt	Fast	01:03.2				
4/2/2023	W	5.0	LRL	Dirt	Fast	01:02.2				
3/26/2023	W	4.0	LRL	Dirt	Muddy	49.00				
3/19/2023	W	4.0	LRL	Dirt	Fast	:50.00				
2/24/2023	R	8.0	LRL	Dirt	Fast		4U / FM	SOC 8000/12500	5200	2
2/19/2023	W	5.0	LRL	Dirt	Fast	01:03.0				
2/11/2023	W	4.0	LRL	Dirt	Fast	:51.00				
1/28/2023	R	8.0	LRL	Dirt	Fast		4U / FM	SOC 12500/20000	3200	3
1/22/2023	W	4.0	LRL	Dirt	Fast	:51.00				
1/7/2023	R	8.5	LRL	Dirt	Fast		4U / FM	SOC 12500/20000	640	6
12/17/2022	R	8.5	LRL	Dirt	Good		3U / FM	SOC 8000/12500	5200	2
12/11/2022	W	4.0	LRL	Dirt	Fast	:48.80				
11/19/2022	R	9.0	LRL	Turf	Good		3U / FM	Alw57420nw1/ x	300	9
10/30/2022	R	8.5	LRL	Turf	Firm		3U / FM	Alw54000nw1/ x	0	8
10/20/2022	W	4.0	LRL	Dirt	Fast	:49.00				
10/6/2022	R	8.0	LRL	Dirt	Fast		3U / FM	Alw57780nw1/ x	5400	3
9/21/2022	W	4.0	LRL	Dirt	Fast	:49.20				
9/14/2022	W	4.0	LRL	Dirt	Fast	:49.40				
8/29/2022	R	9.0	CNL	Turf	Firm		3U / FM	Str20000	25200	1
8/20/2022	W	4.0	LRL	Dirt	Fast	:48.20				
8/13/2022	W	4.0	LRL	Dirt	Fast	:50.00				
7/30/2022	R	8.5	LRL	Turf	Good		3U / FM	SOC 16000/30000	4000	3
7/11/2022	R	8.5	CNL	Turf	Firm		3U / FM	Alw70000nw1/ x	1000	8

### Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
6/25/2022	R	11.0	LRL	Turf	Firm		3U / FM	Alw49020nw1/ x	1440	5
6/19/2022	W	6.0	LRL	Dirt	Fast	01:16.0				
6/11/2022	W	6.0	LRL	Dirt	Fast	01:16.0				
6/4/2022	W	5.0	LRL	Dirt	Fast	01:03.0				
5/21/2022	R	8.5	PIM	Turf	Firm		3U / FM	Alw58900nw1/ x	1160	6
5/12/2022	W	6.0	LRL	Dirt	Fast	01:17.0				
5/5/2022	W	5.0	LRL	Dirt	Good	01:02.0				
4/27/2022	W	5.0	LRL	Dirt	Fast	01:03.0				
4/20/2022	W	6.0	LRL	Dirt	Fast	01:17.0				
4/12/2022	W	6.0	LRL	Dirt	Fast	01:14.6				
4/5/2022	W	5.0	LRL	Dirt	Fast	01:03.6				
3/30/2022	W	5.0	LRL	Dirt	Fast	01:05.6				
3/23/2022	W	5.0	ELL	Turf	Firm	01:02.2				
3/8/2022	W	4.0	ELL	Dirt	Fast	:50.40				
11/20/2021	R	8.0	LRL	Turf	Good		3U / FM	Alw63360nw1/ x	1920	8
11/14/2021	W	4.0	LRL	Dirt	Fast	:48.40				
10/30/2021	R	8.0	LRL	Dirt	Fast		3U / FM	Alw59520nw1/ x	4800	3
10/21/2021	W	4.0	LRL	Dirt	Fast	:50.00				
10/7/2021	R	8.0	LRL	Turf	Firm		3U / FM	SOC 16000 - N	1725	4
10/3/2021	W	4.0	LRL	Dirt	Fast	:50.40				
9/9/2021	R	8.0	LRL	Turf	Good		3U / FM	Clm16000 (16-12.5)cnd	15600	1
8/31/2021	W	4.0	LRL	Dirt	Fast	:49.60				
8/17/2021	R	8.0	CNL	Dirt	Fast		3U / FM	Clm16000nw2/ L	18000	1
8/12/2021	W	4.0	LRL	Dirt	Fast	:51.00				
7/21/2021	R	8.5	CNL	Turf	Firm		3U / FM	Str25000cnd	1000	7
7/1/2021	R	0.0	DEL	Dirt	Fast		3U / FM	Clm16000nw2/ L	4000	2

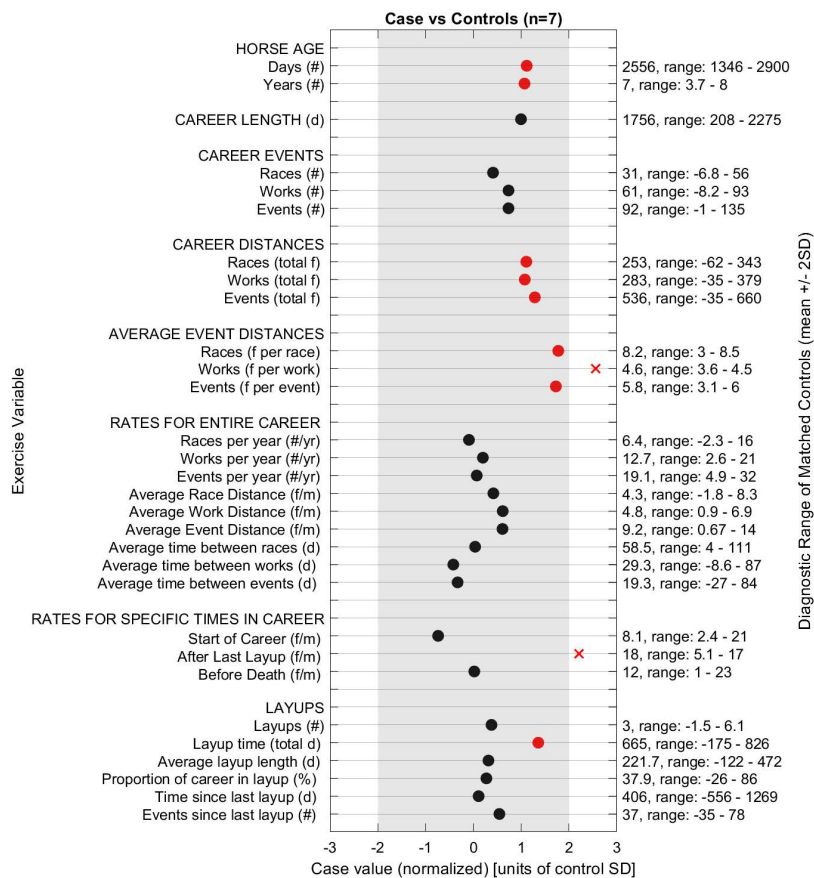
Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
6/12/2021	R	8.0	DEL	Dirt	Fast		3U / FM	Clm25000 (25-20)nw2/L	2530	3
6/4/2021	W	4.0	TIM	Dirt	Fast	:51.00				
5/29/2021	W	5.0	TIM	Dirt	Sloppy	01:04.4				
5/15/2021	R	8.5	PIM	Turf	Firm		3U / FM	Alw74932nw1/ x	2080	9
4/21/2021	W	5.0	PIM	Dirt	Fast	01:02.2				
4/10/2021	W	7.0	LRL	Dirt	Muddy	01:32.0				
4/3/2021	W	5.0	LRL	Dirt	Fast	01:00.2				
3/27/2021	W	5.0	LRL	Dirt	Fast	01:01.0				
3/17/2021	W	7.0	LRL	Dirt	Fast	01:33.2				
2/26/2021	R	8.0	LRL	Dirt	Fast		4U / FM	SOC 25000 - N	1740	4
2/4/2021	W	4.0	LRL	Dirt	Fast	:51.40				
1/18/2021	R	8.5	LRL	Dirt	Fast		4U / FM	SOC 16000 - N	1800	4
1/8/2021	W	6.0	LRL	Dirt	Fast	01:16.2				
12/31/2020	W	6.0	LRL	Dirt	Fast	01:16.0				
12/19/2020	W	4.0	LRL	Dirt	Fast	:50.40				
12/3/2020	R	8.0	LRL	Dirt	Fast		3U / FM	SOC 25000 - N	3080	3
11/27/2020	W	4.0	LRL	Dirt	Fast	:49.60				
11/13/2020	R	8.5	LRL	Dirt	Good		3U / FM	SOC 25000 - N	3080	3
11/7/2020	W	5.0	LRL	Dirt	Fast	01:02.0				
10/31/2020	W	4.0	LRL	Dirt	Fast	:48.60				
10/18/2020	R	9.0	LRL	Dirt	Fast		3U / FM	Mcl16000 (16-14)	12540	1
10/2/2020	W	4.0	LRL	Dirt	Fast	:50.00				
9/5/2020	R	8.0	LRL	Dirt	Fast		3U / FM	Wmc40000 (40-35)	3630	3
8/20/2020	R	9.0	LRL	Dirt	Fast		3U / FM	Msw	4400	3
8/7/2020	W	5.0	LRL	Dirt	Fast	01:00.4				
7/31/2020	W	4.0	LRL	Dirt	Muddy	:50.20				

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
7/17/2020	R	8.0	LRL	Turf	Firm		3U / FM	Mcl25000	1620	4
7/4/2020	R	8.5	LRL	Turf	Firm		3U / FM	Msw	1600	6
6/19/2020	W	5.0	LRL	Dirt	Fast	01:01.4				
6/12/2020	W	4.0	LRL	Dirt	Fast	:50.60				
5/30/2020	R	8.5	LRL	Turf	Firm		3U / FM	Msw	1600	10
5/24/2020	W	4.0	LRL	Dirt	Fast	:48.20				
5/17/2020	W	4.0	LRL	Dirt	Fast	:49.00				
5/9/2020	W	7.0	LRL	Dirt	Fast	01:29.0				
5/2/2020	W	5.0	LRL	Dirt	Fast	01:02.6				
4/25/2020	W	5.0	LRL	Dirt	Good	01:01.6				
2/18/2020	W	4.0	ELL	Turf	Firm	:50.60				
12/28/2019	W	3.0	ELL	Dirt	Fast	:38.00				
12/17/2019	W	3.0	ELL	Dirt	Fast	:38.80				
8/14/2018	W	4.0	ELL	Dirt	Fast	:52.00				
8/2/2018	W	5.0	ELL	Dirt	Fast	01:06.4				
7/12/2018	W	4.0	ELL	Dirt	Fast	:52.20				
6/28/2018	W	3.0	ELL	Dirt	Fast	:38.60				

## Part 4: Comparison of Exercise Variables between Case Horse and 7 Control Horses (5+ year old, female, Thoroughbred)

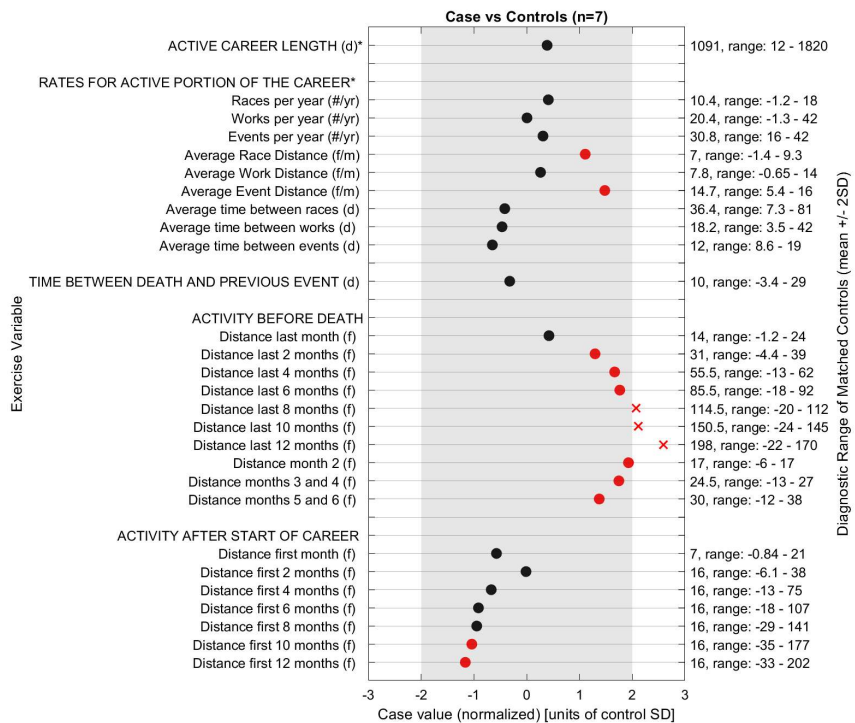


Case Horse values are indicated by black or red symbols: circles indicate values considered normal for 95% of 5+ year old, female, Thoroughbreds (n=7) (gray region) (black and red indicate within 1 and 2 SD, respectively, of mean value of controls), X's indicate values outside of the normal range. Two and 3 year old case horses are also matched to control horses by the quarter in which the case horse died (Jan-Mar, Apr-Jun, Jul-Sep, Oct-Dec). Variables that are not calculable are not plotted (e.g. time between races for a horse with zero events). f=furlongs; yr=year; m=month; d=days.

^Rates are calculated over 2 to 5 events.

\*Active Career Length is the career length excluding the time during layups.

## Part 4: Comparison of Exercise Variables between Case Horse and 7 Control Horses (5+ year old, female, Thoroughbred)



Case Horse values are indicated by black or red symbols: circles indicate values considered normal for 95% of 5+ year old, female, Thoroughbreds (n=7) (gray region) (black and red indicate within 1 and 2 SD, respectively, of mean value of controls), X's indicate values outside of the normal range. Two and 3 year old case horses are also matched to control horses by the quarter in which the case horse died (Jan-Mar, Apr-Jun, Jul-Sep, Oct-Dec). Variables that are not calculable are not plotted (e.g. time between races for a horse with zero events). f=furlongs; yr=year; m=month; d=days.

^Rates are calculated over 2 to 5 events.

\*Active Career Length is the career length excluding the time during layups.