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UC DAVIS VETERINARY MEDICINE

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CAHFS Accession #: [REDACTED]

Addendum Version 1

Ref.#: [REDACTED]

Coordinator: Monika Samol, DVM, Resident

E-Signed and Authorized by: Samol, Monika on
3/18/2019 4:54:47PM

Email To:
ARTHUR, RICK
RMARTHUR@UCDAVIS.EDU

Incident Track:
SANTA ANITA RACETRACK
285 West Huntington Road,
Arcadia CA 91007
Los Angeles County

This report supersedes all previous reports for this case

Date Collected: 01/20/2019 Date Received: 01/21/2019

Comments: CHRB

Case Contacts						
Submitter	FARMER, WILL	[REDACTED]	[REDACTED]	Arcadia	CA	91007
Bill To	CALIFORNIA HORSE RACING BOARD	916-263-6000	1010 Hurley Way Suite 300	Sacramento	CA	95825
Owner	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Report To	UZAL, FRANCISCO	[REDACTED]	[REDACTED]	San Bernardino	CA	92408
Report To	ARTHUR, RICK	[REDACTED]	[REDACTED]	Sierra Madre	CA	91024
Attending Vet	Blue, Melinda J	[REDACTED]	[REDACTED]	Pasadena	CA	91050
Trainer	CASSIDY, JAMES	[REDACTED]	[REDACTED]	Monrovia	CA	91016

CHRB - Related Information

Horse's Name:	[REDACTED]	Human Injury?	No
Tattoo:	[REDACTED]	Death Related to:	Race
Age:	7.00 Years	Track Surface:	Turf
Gender:	Female	Location on Track:	1/4th pole
Taxonomy:	Thoroughbred Horse	Insured?	N

Medications: Dormosedan (Detomidine); Lasix (Furosemide); Pentobarbital;

Laboratory Findings/Diagnosis

A 7 year old Thoroughbred [REDACTED] submitted with a history of right hind comminuted cannon bone fracture

Right MTIII breakdown with

Acute changes

- Open, comminuted with multiple fragments missing, complete, displaced, bi-articular, diaphyseal with dorsoproximal sagittal component and medial condylar fracture of MTIII
- Open, comminuted, complete, non-articular, transverse fracture of the MTII and MTIV
- Severe fraying and diffuse hemorrhage of body of the suspensory ligament

Chronic changes

- Mild dorsal metatarsal disease with diffuse, red petechiae in cortical bone and subtle thickening of the remaining periosteum
- Moderate, focal, uniaxial, rounded cartilage depression with dark blue center, surrounded by mildly fibrillated cartilage of the

medial condyle of the distal MTIII

- Moderate lipping of the dorsal and plantar margin of the proximal articular surface of P1
- Moderate cartilage fibrillation of the dorsomedial margin of the proximal articular surface of P1

Left hind limb:

Chronic changes

- Mild dorsal metatarsal disease with very mild periosteum thickening and multifocal, subtle petechiae in the proximodorsal cortical bone
- Moderate, focal, rounded cartilage depression with dark red center, surrounded by mildly fibrillated cartilage of the lateral condyle on the distal MTIII
- Moderate lipping of the dorsal and plantar margin of the proximal articular surface of P1

Other findings:

Gastric ulcers, squamous portion, multifocal

Case Summary

03/18/19: The case was re-opened due to necessary minor corrections (typographical errors). Further testing is concluded.

1/27/19: The most important findings include open, complete, highly comminuted with numerous fragments missing, fracture of the diaphysis, dorsoproximal cortex and medial condyle of the third metatarsal/cannon bone. The fracture resulted in the loss of support of the right hindlimb. The injury most likely was associated with focal porosity surrounded by highly sclerotic bone in medial condyle and mild dorsal cortex remodeling that combined together, likely predisposed to complete fracture of cannon bone. Despite the fact that dorsal metatarsal disease was very mild and presumably at this stage could not cause the catastrophic breakdown alone, co-existent with fairly advanced pre-existing lesion within any of the condyles of distal MTIII, may result in complete fracture, like in this case. Summarizing, horses with bilateral dorsal metatarsal/metacarpal disease should always be considered at risk for catastrophic fractures.

01/24/2019: Hind limbs were removed bilaterally above the chestnut and a thorough musculoskeletal gross examination will be conducted. The lesions observed in the stomach are frequent findings in race horses and likely incidental. Several tests are pending and I will keep you posted with these results.

Clinical History

Down the hill 1.5 mile turf race. Less than 1/16 after crossing over dirt track back on to turf, horse immediately went wrong (approx 1/2 mile into the race). RH compound comminuted MTIII fx.

Gross Observations

The necropsy of a 400kg, 7-year old [REDACTED] Thoroughbred [REDACTED] (lip tattoo [REDACTED]) started at 10:37 am on Monday, January 21 2019. The carcass had a good post-mortem preservation condition and good nutritional condition, with good musculing and fat reserves. Within the squamous portion of the stomach along the marco plicatus there were numerous, 1-3 cm diameter, multifocal to coalescing ulcers. No further findings to report. Legs examination to follow.

CHRB Musculoskeletal

Both hind limbs were examined distally to the tibio-tarsal joints. The following changes were seen:

RIGHT HIND LIMB

MTIII

- Open, comminuted with multiple fragments missing, complete, displaced, bi-articular, diaphyseal with dorsoproximal sagittal component and medial condylar fracture of MTIII with incomplete sagittal stress fractures adjacent proximally to the main fracture line

The middle of the diaphysis is highly comminuted. Multiple key fragments are missing- in the specimen there are no fragments of dorsomedial and dorsolateral diaphysis. Only few fragments of the plantar aspect of mid-shaft remain attached to the severely hemorrhagic and frayed body of the suspensory ligament. The cannon bone is divided into 2 major, distal and proximal

components. The dorsoproximal aspect is divided into 3 fragments in sagittal plane, resulting in complete separation of the dorsal and plantar parts of the proximal segment. The cortical bone of the proximal segment is mildly reddened along the fracture line. The dorsal periosteal surface of the remaining fragments appears to be mildly roughened/irregular and also slightly thickened. The distal segment is split into 2 major pieces by a medial, condylar, parasagittal, articular fracture. The lateral fragment is divided roughly into half in transverse plane.

The mild, red petechiae are diffusely present in the dorsoproximal cortical bone and along the proximal edge of the distal fracture component.

- Medial condylar, parasagittal, articular stress fracture- the opposing surfaces of the fracture reveal focal, brown spot of increased bone porosity surrounded by highly compacted/sclerotic bone
- Moderate, focal, uniaxial, rounded cartilage depression with dark blue center, surrounded by mildly fibrillated cartilage of the medial condyle of the distal MTIII

For better visualization of the injury described above, please see attached pictures and drawings.

MTII

- Complete, transverse, simple, displaced fracture at the level of the mid-shaft, from the distal component there is only a small part of the splint button in the specimen

MTIV

- Complete, transverse, simple, displaced fracture at the level of the mid-shaft, the distal part of the bone is completely missing

SUSPENSORY LIGAMENT

- Severe fraying and diffuse hemorrhage with multiple small bony fragments embedded in the dorsal surface of the body of the suspensory ligament at the level of the fracture

P1

- Moderate lipping of the dorsal and plantar margin of the proximal articular surface of P1
- Moderate cartilage fibrillation of the dorsomedial margin of the proximal articular surface of P1
- Mild scoring of the proximal articular surface of P1

LEFT HIND LIMB

MTIII

- Mild dorsal metatarsal disease with very mild periosteum thickening and multifocal, subtle petechiae in the proximodorsal cortical bone
- Moderate, focal, rounded cartilage depression with dark red center, surrounded by mildly fibrillated cartilage of the lateral condyle on the distal MTIII

P1

- Moderate lipping of the dorsal and plantar margin of the proximal articular surface of P1

No gross lesions/ abnormalities were identified in other structures of both distal hind limbs examined from the level of the midshaft of the tibia to the hoof.

Acc # [REDACTED]
 Date 01/25/19
 CC MAF

Nature:

<input checked="" type="checkbox"/> Open	<input type="checkbox"/> Closed
<input checked="" type="checkbox"/> Simple	<input checked="" type="checkbox"/> Comminuted
<input checked="" type="checkbox"/> Complete	<input type="checkbox"/> Incomplete
<input checked="" type="checkbox"/> Displaced	<input type="checkbox"/> Non-displaced
<input checked="" type="checkbox"/> Articular	<input type="checkbox"/> Non-articular

Location:

<input checked="" type="checkbox"/> Proximal Epiphyseal	<input checked="" type="checkbox"/> Distal Epiphyseal
<input checked="" type="checkbox"/> Proximal Metaphyseal	<input checked="" type="checkbox"/> Distal Metaphyseal
<input checked="" type="checkbox"/> Proximal Physeal	<input checked="" type="checkbox"/> Distal Physeal
<input checked="" type="checkbox"/> Diaphyseal	
<input checked="" type="checkbox"/> Condylar	

Medial ____ cm

Lateral ____ cm

Configuration:

<input checked="" type="checkbox"/> Axial (longitudinal)	<input type="checkbox"/> Butterfly
<input type="checkbox"/> Transverse	<input type="checkbox"/> Oblique
<input type="checkbox"/> Segmental	

Direction:

<input type="checkbox"/> Proximodorsal-Distopalmar	<input type="checkbox"/> Proximopalmar-Distodorsal
<input type="checkbox"/> Proximolateral-Distomedial	<input type="checkbox"/> Proximomedial-Distolateral
<input type="checkbox"/> Sagittal	<input type="checkbox"/> Dorsal plane (mediolateral)

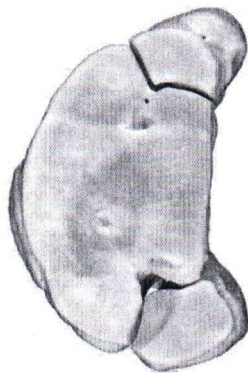
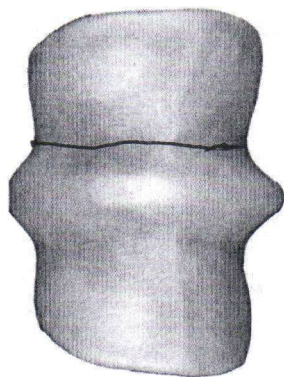
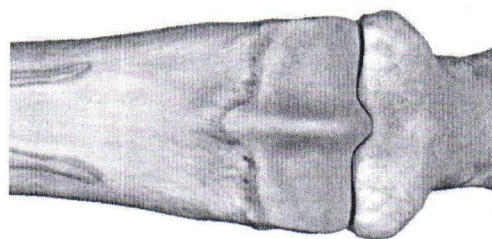
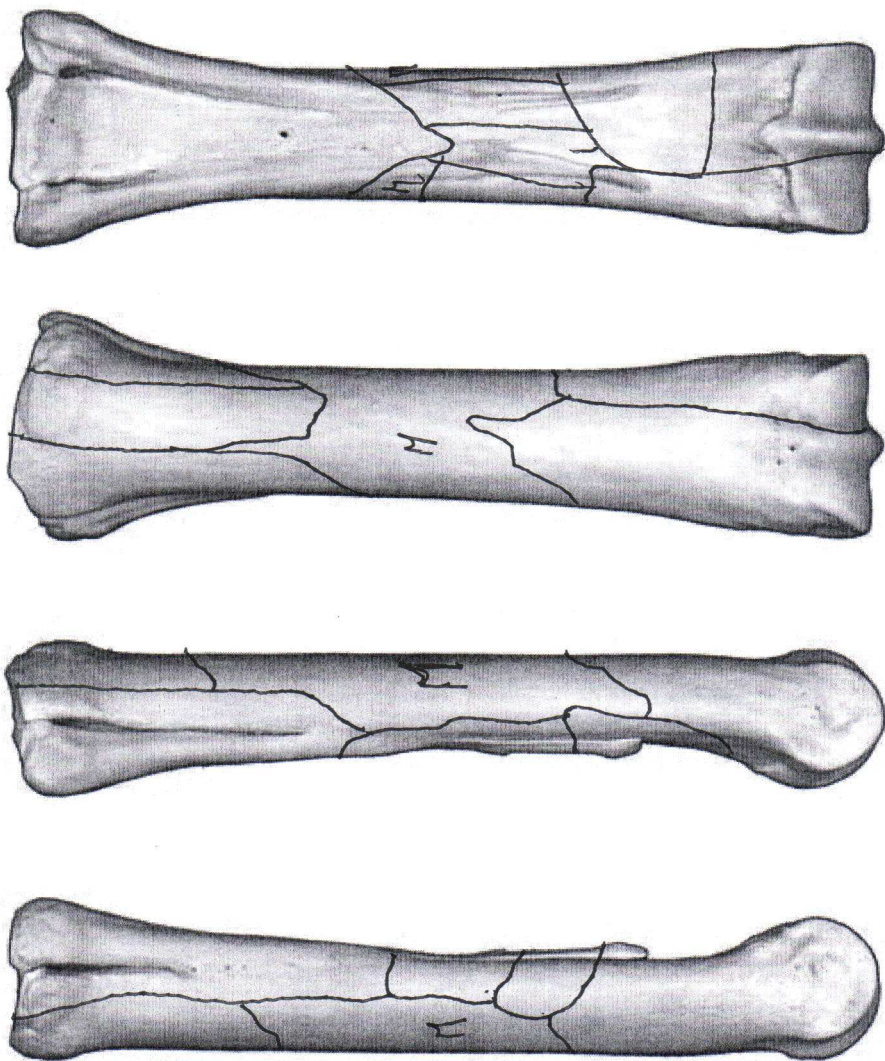
Pre-existing callus:

<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input checked="" type="checkbox"/> Unable to evaluate	

Legend:

== Callus
 --- Incomplete Fx

M Missing fragments



Exercise History Report (Full)



UCDAVIS

VETERINARY MEDICINE

*J. D. Wheat Veterinary Orthopedic
Research Laboratory*

Mar-11-2019

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.

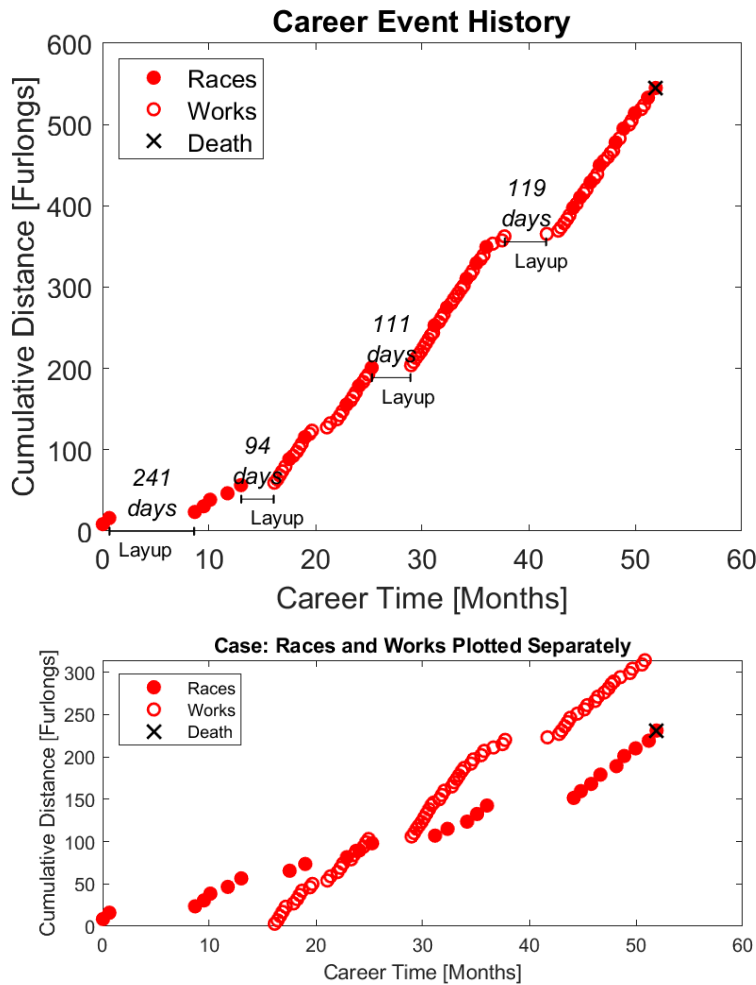
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Part 1: Graphical Representation of Individual High-Speed Exercise Histories

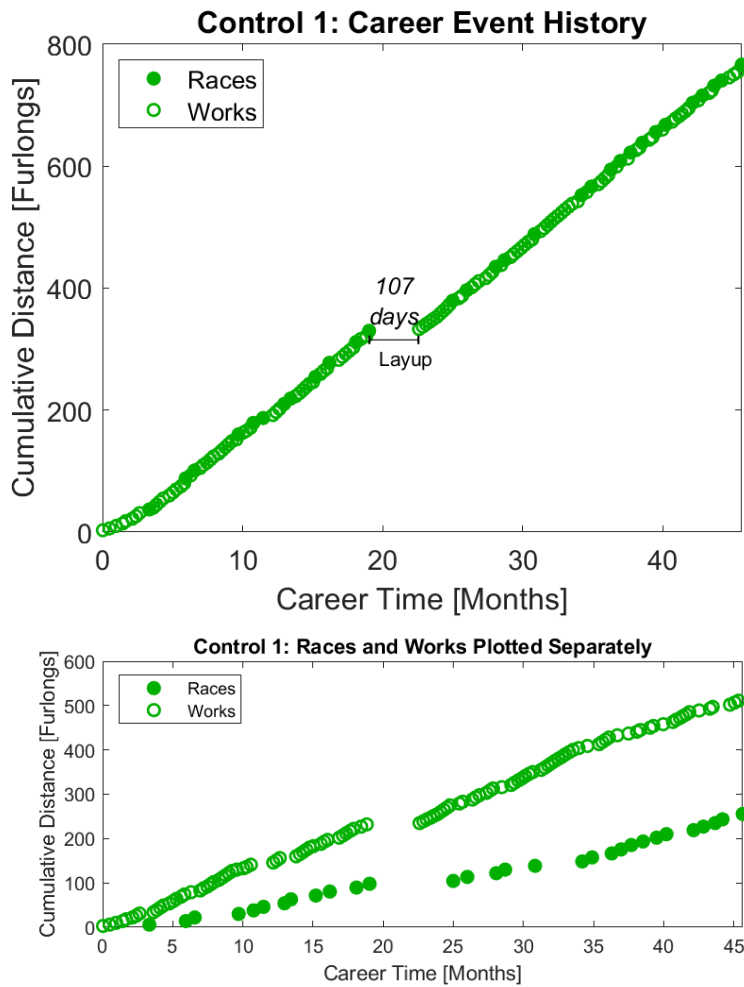
Races (filled circles), officially timed high-speed works (open circles), layups (line with endcaps, periods of time greater than 60 days in length without a race or timed work), and time of death (X) are illustrated over time (Career Time in months). With each event (race or work), the number of furlongs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

Case Horse High Speed Exercise History

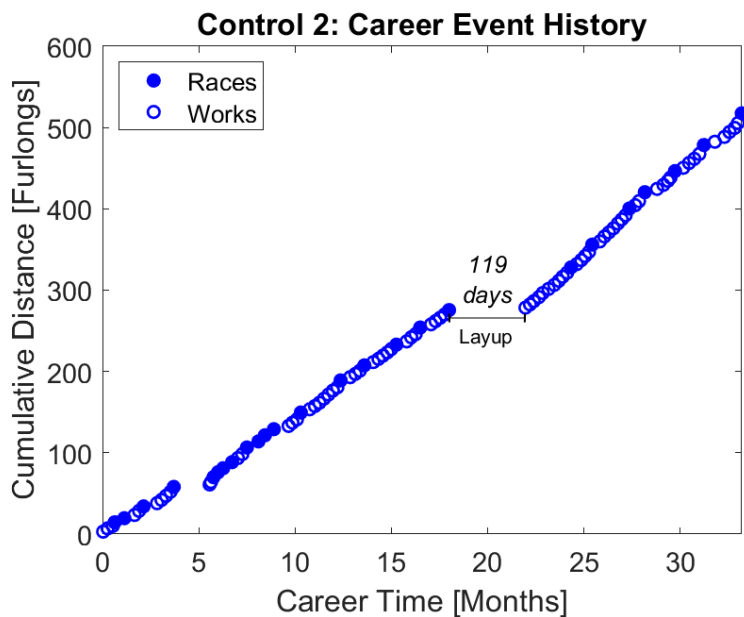


Part 1: Graphical Representation of Individual High-Speed Exercise Histories

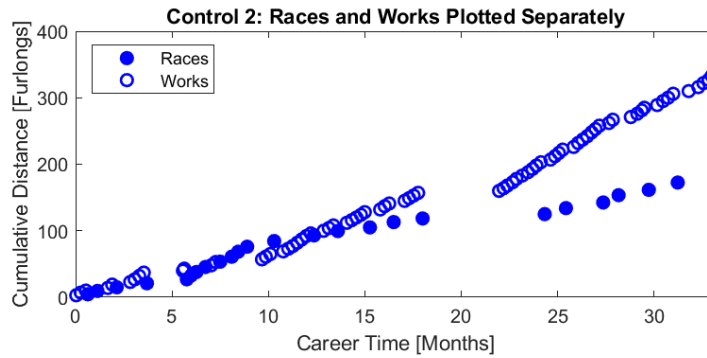
Control 1 High Speed Exercise History



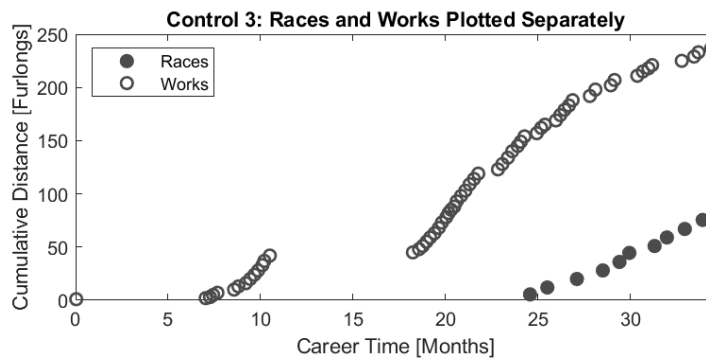
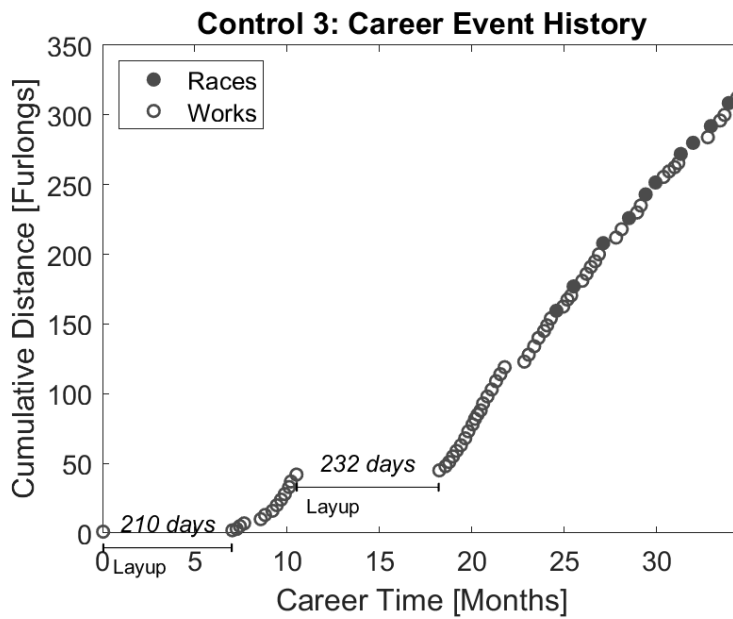
Control 2 High Speed Exercise History



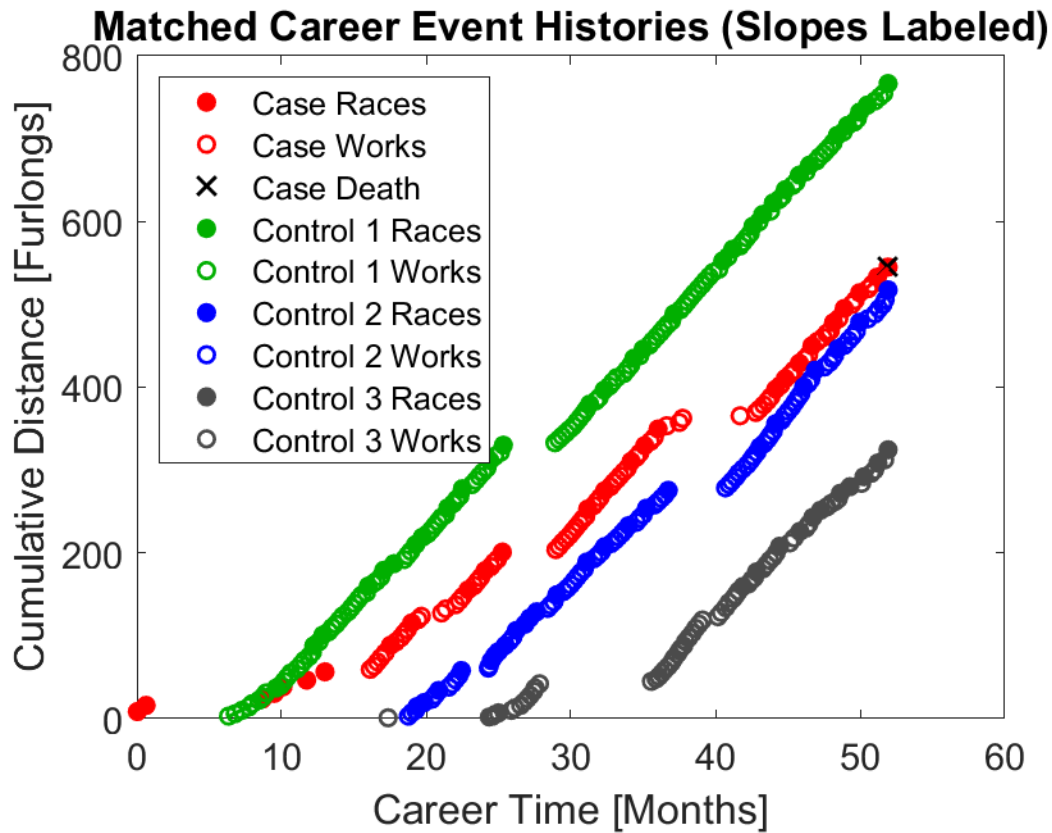
Part 1: Graphical Representation of Individual High-Speed Exercise Histories



Control 3 High Speed Exercise History

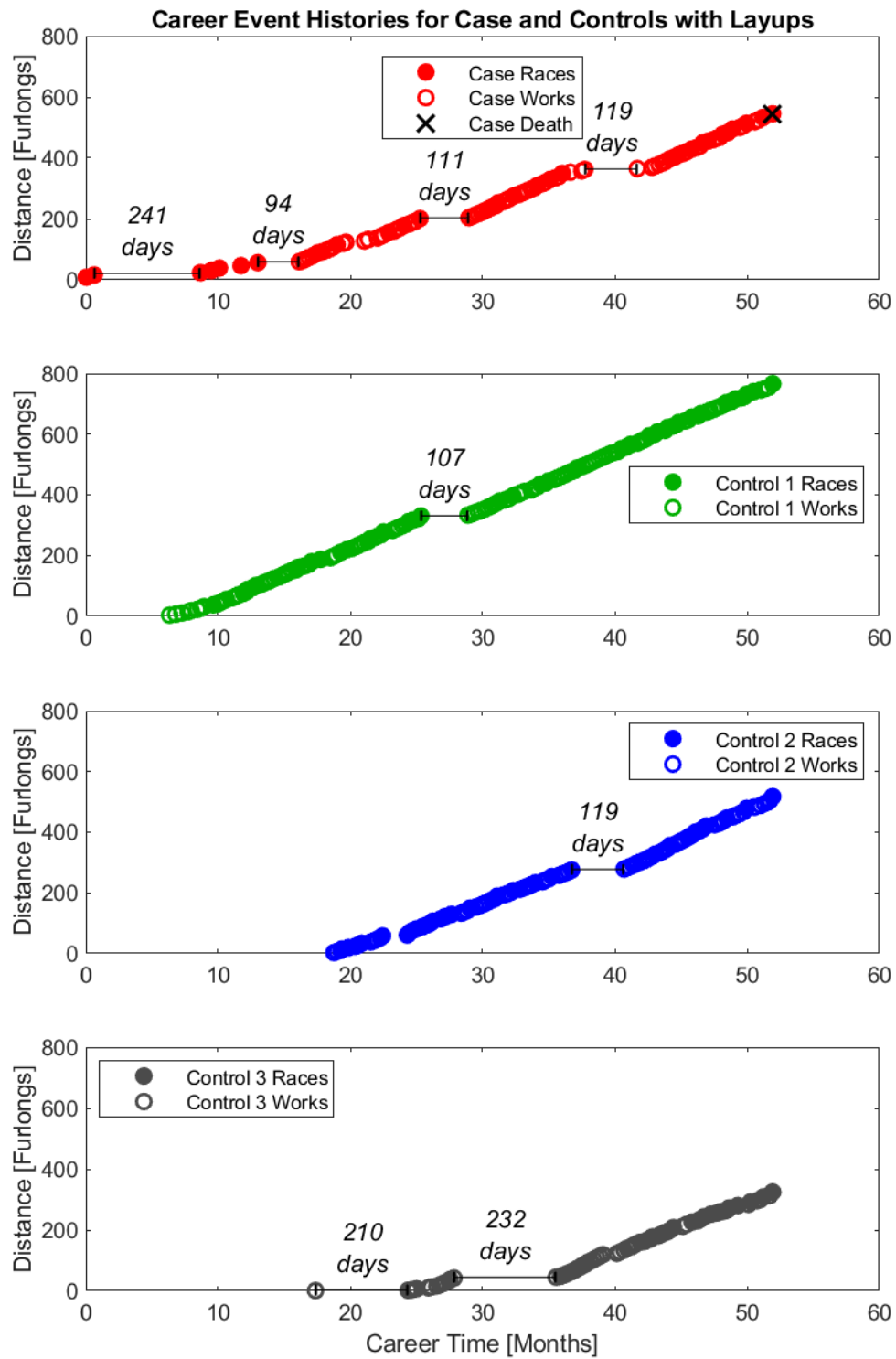


Part 2: Case and Control Horses Plotted Together

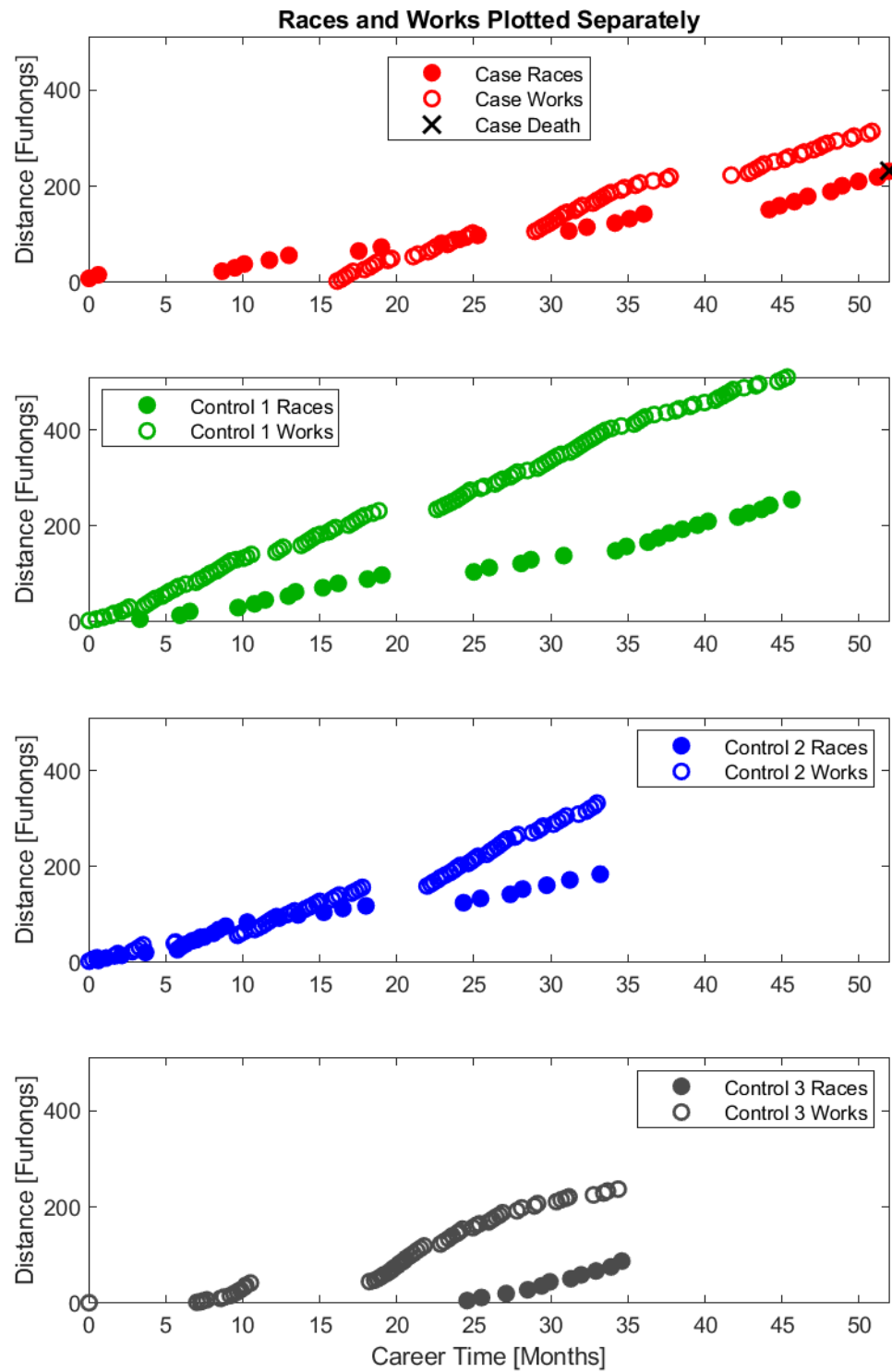


Case and Control Horses' exercise event histories are plotted on the same axes. The plots are aligned by the match date (equal to the date of death of Case Horse). Lines segments indicate specific rates of exercise at the start of career, end of career (for Case Horse), and match date (for Control Horses). 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 2: Case and Control Horses Plotted Together



Part 2: Case and Control Horses Plotted Together



Part 3: Case Horse's Event History

Date	Race/Work	Furlongs	Track	Surface	Track Cond.	Time	Age/Sex	Race Class	Earnings	Finish
1/20/2019	R	12.0	SA	Turf	Good		4U/FM	AstraG3 -100k	351	9
12/29/2018	R	9.0	SA	Turf	Firm		3U/FM	RJFrnkelG3 -150k	3000	5
12/18/2018	W	5.0	SA	Dirt	Fast	01:01.8				
12/10/2018	W	5.0	SA	Dirt	Fast	01:01.8				
11/22/2018	R	9.0	CD	Turf	Yielding		3U/FM	CardinlHG3 -100k	19000	2
11/13/2018	W	5.0	CD	Dirt	Good	01:02.4				
11/6/2018	W	5.0	CD	Dirt	Fast	01:03.8				
10/21/2018	R	12.0	KEE	Turf	Firm		3U/FM	DowagerG3 -125k	3750	5
10/10/2018	W	5.0	SA	Dirt	Fast	01:00.4				
9/29/2018	R	10.0	SA	Turf	Firm		3U/FM	RodeoDrG1 -300k	6000	5
9/22/2018	W	3.0	SA	Dirt	Fast	:37.00				
9/15/2018	W	5.0	SA	Dirt	Fast	01:01.2				
9/7/2018	W	5.0	SA	Dirt	Fast	01:01.2				
8/26/2018	W	5.0	DMR	Dirt	Fast	01:02.8				
8/15/2018	R	11.0	DMR	Turf	Firm		3U/FM	CTTTOCB -75k	9276	3
8/8/2018	W	5.0	DMR	Dirt	Fast	01:03.2				
7/31/2018	W	5.0	DMR	Dirt	Fast	01:02.0				
7/20/2018	R	8.5	DMR	Turf	Firm		3U/FM	(R) OsunitasB -75k	345	10
7/9/2018	W	5.0	SA	Dirt	Fast	01:01.2				
7/1/2018	W	5.0	SA	Dirt	Fast	01:02.8				
6/21/2018	R	8.0	SA	Turf	Firm		3U/FM	Aoc62500nw2\$ x-N	3780	4
6/11/2018	W	5.0	SA	Dirt	Fast	01:02.6				
6/1/2018	R	9.0	SA	Turf	Firm		3U/FM	Aoc62500nw2\$ x-N	3780	4
5/22/2018	W	5.0	SA	Dirt	Fast	01:04.2				

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
5/15/2018	W	5.0	SA	Dirt	Fast	01:01.0				
5/7/2018	W	5.0	SA	Dirt	Fast	01:03.2				
4/28/2018	W	4.0	SA	Dirt	Fast	:48.60				
4/21/2018	W	4.0	SA	Dirt	Fast	:49.80				
3/19/2018	W	3.0	SA	Dirt	Fast	:39.20				
11/20/2017	W	5.0	SA	Dirt	Fast	01:01.8				
11/13/2017	W	4.0	SA	Dirt	Fast	:48.40				
10/18/2017	W	4.0	SA	Dirt	Fast	:53.00				
9/30/2017	R	10.0	SA	Turf	Firm		3U/ FM	RodeoDrG1 -300k	18000	4
9/22/2017	W	5.0	SA	Dirt	Fast	01:01.2				
9/14/2017	W	5.0	SA	Dirt	Fast	01:04.4				
9/2/2017	R	9.0	DMR	Turf	Firm		3U/ FM	JCMabeG2 -200k	345	9
8/23/2017	W	5.0	DMR	Dirt	Fast	01:00.4				
8/16/2017	W	5.0	DMR	Dirt	Fast	01:02.2				
8/5/2017	R	8.5	DMR	Turf	Firm		3U/ FM	YlwRbnHG2 -200k	24000	3
7/28/2017	W	4.0	DMR	Dirt	Fast	:49.40				
7/21/2017	W	5.0	DMR	Dirt	Fast	01:01.8				
7/13/2017	W	4.0	SA	Dirt	Fast	:51.20				
7/7/2017	W	4.0	SA	Dirt	Fast	:51.40				
6/30/2017	W	5.0	SA	Dirt	Fast	01:01.2				
6/23/2017	W	5.0	SA	Dirt	Fast	01:02.0				
6/11/2017	R	8.0	SA	Turf	Firm		3U/ FM	Aoc62500nw2\$ x-N	6960	3
6/2/2017	W	5.0	SA	Dirt	Fast	01:01.6				
5/26/2017	W	5.0	SA	Dirt	Fast	01:01.4				
5/19/2017	W	4.0	SA	Dirt	Fast	:48.20				
5/7/2017	R	9.0	SA	Turf	Good		3U/ FM	Aoc62500nw2\$ x-N	345	7
5/3/2017	W	3.0	SA	Dirt	Fast	:38.20				
4/27/2017	W	5.0	SA	Dirt	Fast	01:02.4				
4/20/2017	W	5.0	SA	Dirt	Fast	01:01.6				

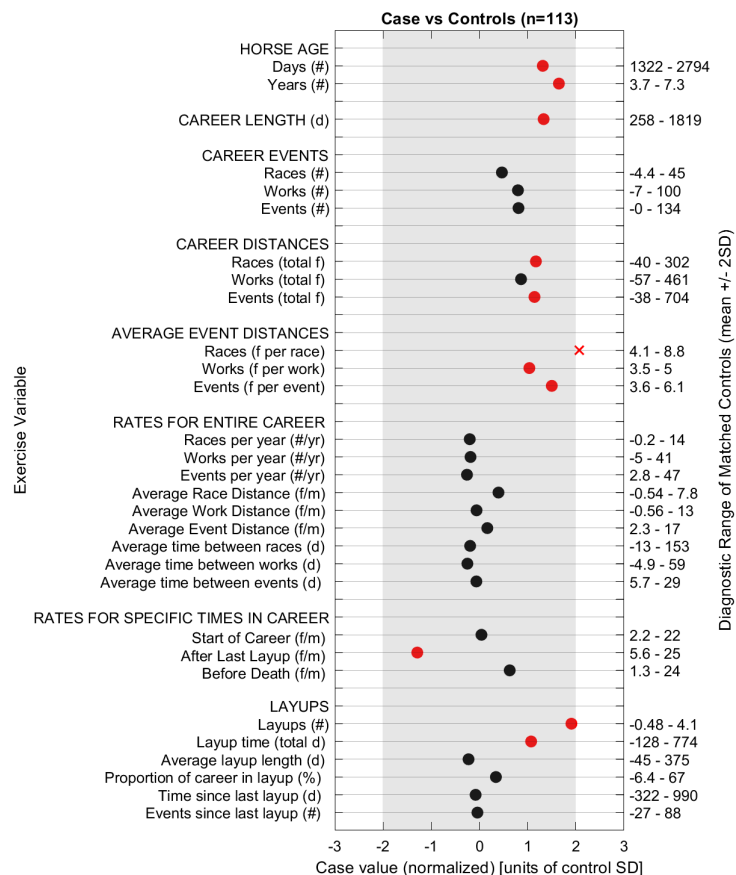
Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
4/13/2017	W	5.0	SA	Dirt	Fast	01:04.0				
4/6/2017	W	5.0	SA	Dirt	Fast	01:02.2				
3/30/2017	W	4.0	SA	Dirt	Fast	:49.00				
3/23/2017	W	4.0	SA	Dirt	Fast	:51.40				
3/16/2017	W	5.0	SA	Dirt	Fast	01:05.6				
3/9/2017	W	4.0	SA	Dirt	Fast	:48.80				
3/2/2017	W	3.0	SA	Dirt	Fast	:36.60				
11/11/2016	R	8.5	DMR	Turf	Firm		3U/ FM	(R) KthnCrsbyB -75k	9252	3
11/1/2016	W	4.0	SA	Dirt	Fast	:49.80				
10/25/2016	W	5.0	SA	Dirt	Fast	01:02.6				
10/18/2016	W	5.0	SA	Dirt	Fast	01:03.0				
10/6/2016	R	8.0	SA	Turf	Firm		3U/ FM	Aoc62500nw2\$ x-N	11000	2
9/27/2016	W	5.0	SA	Dirt	Fast	01:00.2				
9/20/2016	W	5.0	SA	Dirt	Fast	01:03.4				
9/13/2016	W	5.0	SA	Dirt	Fast	01:02.6				
9/1/2016	R	8.0	DMR	Turf	Firm		3U/ FM	Aoc80000nw3\$ x-N	8040	3
8/21/2016	W	5.0	DMR	Dirt	Fast	01:01.8				
8/14/2016	W	5.0	DMR	Dirt	Fast	01:00.4				
8/6/2016	W	5.0	DMR	Dirt	Fast	01:00.8				
7/17/2016	W	5.0	DMR	Dirt	Fast	01:02.0				
7/8/2016	W	4.0	SA	Dirt	Fast	:50.00				
5/27/2016	W	4.0	SA	Dirt	Fast	:51.80				
5/20/2016	W	4.0	SA	Dirt	Fast	:50.60				
5/7/2016	R	8.0	SA	Turf	Good		3U/ FM	Aoc40000nw1\$ x-N	34800	1
4/28/2016	W	5.0	SA	Dirt	Fast	01:00.0				
4/21/2016	W	5.0	SA	Dirt	Fast	01:02.6				
4/14/2016	W	5.0	SA	Dirt	Fast	01:02.4				
4/4/2016	W	4.0	SA	Dirt	Fast	:50.60				

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
3/24/2016	R	9.0	SA	Turf	Firm		4U/ FM	Aoc40000nw1\$ x-N	6960	3
3/13/2016	W	6.0	SA	Dirt training	Fast	01:16.4				
3/4/2016	W	5.0	SA	Dirt	Fast	01:01.8				
2/26/2016	W	5.0	SA	Dirt	Fast	01:02.6				
2/19/2016	W	4.0	SA	Dirt	Fast	:49.40				
2/11/2016	W	3.0	SA	Dirt	Fast	:37.20				
11/9/2015	R	10.0	STC	Turf	Soft		3/F	Stk - 59k	2954	5
10/2/2015	R	8.0	STC	Turf	Firm		3	Alw26873	0	6
8/14/2015	R	8.0	MOU	Turf	Good to Soft		3	Msw	8922	1
7/27/2015	R	7.0	CD	Turf	Soft		3	Alw26364	3955	3
7/2/2015	R	7.5	DEA	Turf	Firm		3	Alw17686	3537	2
11/3/2014	R	7.5	CHY	AllWthr	Fast		2/F	Alw36317	5448	3
10/16/2014	R	8.5	POR	AllWthr	Fast		2/F	Msw	4108	2

Part 4: Comparison of Exercise Variables between Case Horse and 113 Control Horses (5+ year old, female, Thoroughbred)

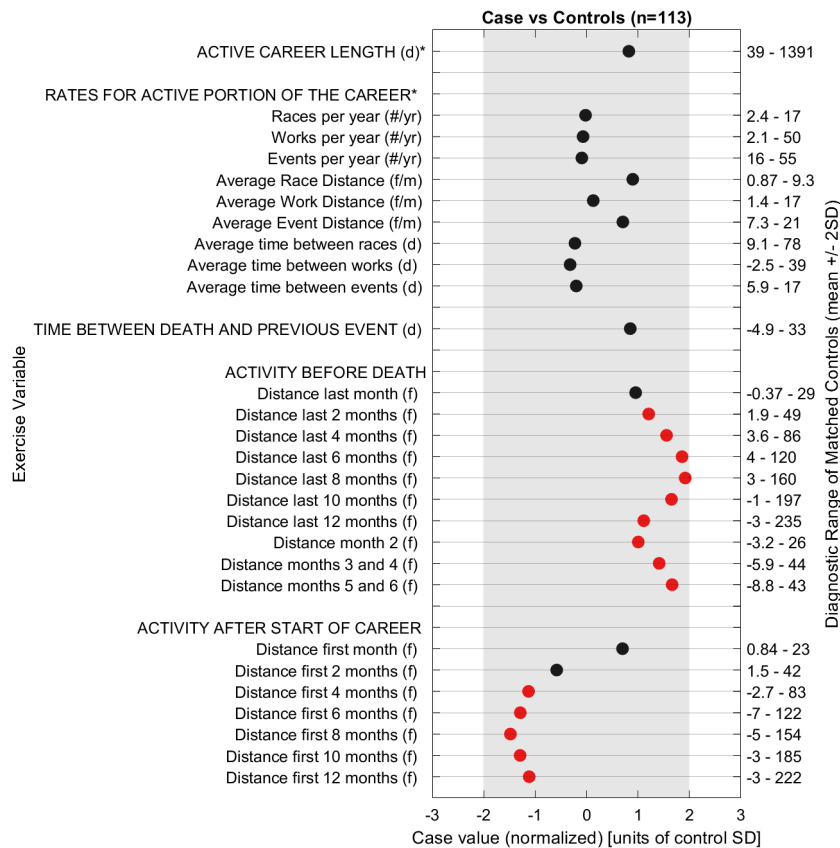


Case Horse values are indicated by black or red symbols: circles indicate values considered normal for 95% of 5+ year old, female, Thoroughbreds (n=113) (gray region) (black and red indicate within 1 and 2 SD, respectively, of mean value of controls), X's indicate values outside of the normal range. 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 113 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=113) (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 layoffs.