



UC DAVIS VETERINARY MEDICINE

105 W. Central Avenue, San Bernardino,
CA 92408-2113
(909) 383-4287

www.cahfs.ucdavis.edu

CAHFS Accession #: [REDACTED]

FINAL REPORT

Ref.#: [REDACTED]

Coordinator: Monika Samol, DVM, Resident
E-Signed and Authorized by: Samol, Monika on
2/7/2019 10:56:01AM

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: 01/25/2019 **Date Received:** 01/25/2019

Comments: CHRB

Case Contacts

Submitter	GRANDE, TIM	[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	KORINER, BRIAN	[REDACTED]	[REDACTED]	Pleasanton	CA	94566

CHRB - Related Information

Horse's Name:	[REDACTED]	Human Injury?	No
Tattoo:	[REDACTED]	Death Related to:	Training
Age:	7.00 Years	Track Surface:	Dirt
Gender:	Neutered Male	Location on Track:	7/8th pole
Taxonomy:	Thoroughbred Horse	Insured?	

Medications: Acepromazine; Dormosedan (Detomidine); Lasix (Furosemide); Pentobarbital; Torbugesic (Butorphanol);

Laboratory Findings/Diagnosis

A 7 year old [REDACTED] Thoroughbred [REDACTED] [REDACTED] with history of left hind sesamoid fracture with suspensory apparatus failure and possible condylar component

Catastrophic left hind fetlock breakdown with

LEFT HINDLIMB ACUTE CHANGES

1. Closed, comminuted, complete, displaced, articular, parasagittal, lateral condylar fracture of the MTIII with the presence of pre-existing lesion (biaxial plantar osteochondral disease, see chronic changes 1.)
2. Fractures of the proximal sesamoid bones
 - a) Closed, simple, complete, displaced, articular, transverse, apical fracture of the medial proximal sesamoid bone
 - b) Closed, comminuted, complete, displaced, articular, avulsion fracture of the axial margin of the lateral proximal sesamoid bone

3. Closed, highly comminuted, complete, displaced, articular fracture of the proximal half of P1
4. Moderate to severe scoring of the articular surfaces of the proximal sesamoid bones
5. Severe, full thickness cartilage loss along the fracture line of the lateral proximal sesamoid bone
6. Suspensory apparatus failure with severe fraying, complete splits and hemorrhage resulting in complete rupture of medial branch of the suspensory ligament
7. Severe fraying of fibers, incomplete longitudinal split and hemorrhage of the body of the suspensory ligament
8. Full thickness, longitudinal and transverse rupture of the intersesamoidean ligament
9. Severe fraying of fibers and incomplete transverse rupture of the lateral and medial cruciate ligaments
10. Severe fraying of fibers and incomplete transverse rupture of the lateral and medial short sesamoidean ligaments
11. Moderate fraying of fibers and incomplete transverse rupture of the lateral and medial collateral ligaments of the proximal sesamoid bones
12. Moderate fraying of fibers of the medial and collateral ligaments of fetlock
13. Severe, longitudinal, full-thickness split and fraying of fibers of the straight distal sesamoidean ligament
14. Moderate fraying of fibers and hemorrhage of the dorsal surface of the superficial and deep digital flexor tendons
15. Full thickness, transverse rupture of the plantar annular ligament
16. Severe scoring the distal articular surface of MTIII
17. Severe, full thickness, extensive cartilage loss of the distal articular surface of MTIII
18. Severe scoring of the proximal articular surface of P1

CHRONIC CHANGES:

1. Severe, biaxial plantar osteochondral disease with blue, subchondral bone discoloration visible through the cartilage of the medial condyle and subtle, brown, focal discoloration and porosity of the subchondral bone visible on both opposing surfaces of the fractured lateral condyle of the distal MTIII
2. Moderate, biaxial, rounded thickening of the oblique distal sesamoidean ligaments (presumably chondroid metaplasia)

RIGHT HINDLIMBS

CHRONIC CHANGES

Mild to moderate osteoarthritis of the fetlock joint

1. Moderate plantar osteochondral disease with focal, uniaxial, blue subchondral bone discoloration (bruising) visible through the flattened cartilage of the lateral condyle of the distal articular surface of MTIII accompanied by located centrally, rounded cartilage depression
2. Mild transverse ridge arthrosis with cartilage fibrillation of the distal articular surface of MTIII
3. Mild to moderate scoring of the distal articular surface of MTIII
4. Mild to moderate, biaxial, apical, irregular bony outgrowth of the proximal sesamoid bones (osteophytosis)
5. Mild to moderate scoring lines of the articular surfaces of the proximal sesamoid bones
6. Mild to moderate, biaxial, basilar, irregular bony outgrowth (osteophytosis) of the lateral proximal sesamoid bone
7. Moderate, biaxial, focal cartilage ulceration with fibrillation of the dorsal margin of the proximal articular surface of P1
8. Moderate lipping of the dorsal and plantar aspect of the proximal articular surface of P1

Other findings:

- Moderate, multifocal gastric hyperkeratosis with mild to moderate, multifocal to coalescing, non-glandular gastric ulceration along the margo plicatus (incidental)
- Pulmonary congestion and edema (euthanasia artifact)
- Splenomegaly (euthanasia artifact)

Case Summary

02/05/19 The most important findings in the left hindlimb are lateral condylar fracture of cannon bone, biaxial fracture of proximal sesamoid bones, comminuted fracture of proximal phalanx and suspensory apparatus failure. The latter injuries resulted in loss of support of the fetlock joint of the left hindlimb.

The reason of the aforementioned fractures may be related to the focal region of discoloration and bone porosity/osteopenic focus associated with the fracture surfaces in the lateral condyle of the left cannon bone.

01/25/19 No significant findings were identified in visceral organs. At the time of necropsy, both hind limbs were removed and saved for detailed examination at a later date. Results of this examination will be included in the next version of this report.

Clinical History

Left hind fetlock bilateral sesamoids with suspensory apparatus possible condylar. Working.

Gross Observations

Necropsy of a 7 year old, [REDACTED] Thoroughbred [REDACTED] [REDACTED], 519 kg, with a [REDACTED], tattoo [REDACTED] is commenced at 12:20 pm, January 25, 2019. The carcass is in good nutritional condition, with appropriate musculature development, good deposits of adipose tissue, and in mild post-mortem decomposition. The trachea contains abundant foam, the lungs are mottled pink to red, spongy and wet (euthanasia artifact). The spleen is severely enlarged and congested (euthanasia artifact). The stomach contains green, soft roughage and grain particles. Non-glandular gastric mucosa along the margo plicatus is moderately hyperkeratotic with multifocal (app. 0,5-1 cm - diameter) to coalescing (app. 4 cm x 1,5cm), relatively shallow ulcers. The intestinal tract is unremarkable, and the small colon contains formed feces.

Both hind limbs are removed at the level of the chestnut for further examination.

CHRB Musculoskeletal

Both hind limbs were examined distally from the mid-shaft of tibia. Following changes were seen:

LEFT HIND**A- MTIII**

1. Closed, simple, complete, displaced, articular, parasagittal, lateral condylar fracture of the MTIII with the presence of pre-existing lesion

The lateral condylar fragment is app. 10 cm long. The condylar fracture is coursing through blue subchondral bone discoloration. The opposing surfaces of the fracture reveal focus of brown discoloration of increased bone porosity (osteopenic focus) surrounded by highly compacted/sclerotic bone. The proximal edges of the of the condylar fragment are slightly irregular due to comminution which resulted in separation of multiple, small, irregularly shaped fragments, mostly from the dorsal aspect.

2. Severe scoring of the distal articular surface of MTIII

3. Severe, extensive, full thickness cartilage loss extending from the dorsal edge of the articular surface of medial condyle and sagittal ridge to the transverse ridge of the distal MTII

4. Severe hemorrhage accompanied by soft tissue hypertrophy at the plantar aspect of the supracondylar region of MTIII

5. Severe hemorrhage and bone erosion due to hypertrophic synovial pad at the dorsal aspect of the supracondylar region of MTIII

6. Severe, biaxial plantar osteochondral disease with blue, subchondral bone discoloration visible through the cartilage of the medial condyle and subtle, brown, focal discoloration and porosity of the subchondral bone visible on both opposing surfaces of the fractured lateral condyle of the distal MTIII

B- PROXIMAL SESAMOID BONES

1. Fractures of the proximal sesamoid bones

a) Closed, simple, complete, displaced, articular, transverse, apical fracture of the medial proximal sesamoid bone

b) Closed, comminuted, complete, displaced, articular, avulsion fracture of the axial margin of the lateral proximal sesamoid bone. The fragment is avulsed with intersesamoidean ligament and it is divided into 2 smaller pieces, which are firmly attached to the latter ligament.

3. Severe, full thickness cartilage loss along the fracture line and triangular, located on the abaxial margin of the lateral proximal sesamoid bone

4. Moderate to severe scoring of the articular surfaces of the proximal sesamoid bones

C- P1

1. Closed, highly comminuted, complete, displaced, articular fracture of the proximal half of P1- The main fracture line is crescent and courses through the intermediate groove dividing the proximal articular surface into medial and lateral components. The medial fragment is slightly bigger and consists of 3 pieces- axial containing the part of intermediate groove and plantar separating the plantar eminence from the rest of the proximal articular surface. The lateral fracture component is divided into two major fragments, also created by separation of the plantar eminence from the rest of the proximal surface.

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

2. Severe scoring of the proximal articular surface of P1

D- SOFT TISSUES

1. Full thickness, transverse rupture of the plantar annular ligament

2. Suspensory apparatus failure- the longitudinal complete splits originating from the level of the fracture line of the medial proximal sesamoid bone result in complete rupture of the medial suspensory branch. Severe fraying and incomplete longitudinal splits progress all the way proximally, up to proximal third of the body of the suspensory ligament, affecting mainly its plantar surface.
3. Full thickness, longitudinal and transverse rupture of the intersesamoidean ligament- the transverse component follows the fracture line of the medial proximal sesamoid bone, the tear propagates axially between the proximal sesamoid bones, to merge with a complete rupture of the distal straight sesamoidean ligament
4. Moderate fraying of fibers and hemorrhage of the medial edge of the dorsal surface of the superficial and deep digital flexor tendons
5. Severe fraying of fibers and incomplete transverse rupture of the lateral and medial cruciate ligaments
6. Severe fraying of fibers and incomplete transverse rupture of the lateral and medial short sesamoidean ligaments
7. Moderate fraying of fibers and incomplete transverse rupture of the lateral and medial collateral ligaments of the proximal sesamoid bones
8. Moderate fraying of fibers of the medial and collateral ligaments of fetlock
9. Severe synovial hypertrophy with red discoloration underneath the bases of the proximal sesamoid bones
10. Severe synovial thickening in the fetlock joint (proliferative synovitis)

RIGHT HIND

A- PROXIMAL SESAMOID BONES

1. Mild to moderate, biaxial, apical, irregular bony outgrowth of the proximal sesamoid bones (osteophytosis)
2. Mild to moderate scoring lines of the articular surfaces of the proximal sesamoid bones
3. Mild to moderate, biaxial, basilar, irregular bony outgrowth (osteophytosis) of the lateral proximal sesamoid bone

B- MTIII

1. Moderate plantar osteochondral disease with focal, uniaxial, blue subchondral bone discoloration (bruising) visible through the flattened cartilage of the lateral condyle of the distal articular surface of MTIII accompanied by located centrally, rounded cartilage depression
2. Mild transverse ridge arthrosis with cartilage fibrillation of the distal articular surface of MTIII
3. Mild to moderate scoring of the distal articular surface of MTIII

C- SOFT TISSUE

1. Moderate synovial thickening in the fetlock joint (proliferative synovitis)

D- P1

1. Moderate, biaxial, focal cartilage ulceration with fibrillation of the dorsal margin of the proximal articular surface of P1
2. Moderate lipping of the dorsal and plantar aspect of the proximal articular surface of P1

No gross lesions/ abnormalities were identified in other bones of both distal hind limbs examined from the mid-shaft of tibia.

Acc # [REDACTED]
 Date MAC
 CC 02104118

Proximal Phalanx - Left

Nature:

- Open
- Closed
- Simple
- Comminuted
- Complete
- Incomplete
- Displaced
- Non-displaced
- Articular
- Non-articular

Location:

- Proximal Epiphyseal
- Distal Epiphyseal
- Proximal Metaphyseal
- Distal Metaphyseal
- Proximal Physeal
- Distal Physeal
- Diaphyseal

Configuration:

- Axial (longitudinal)
- Butterfly
- Transverse
- Oblique
- Segmental

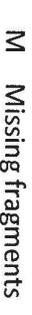
Direction:

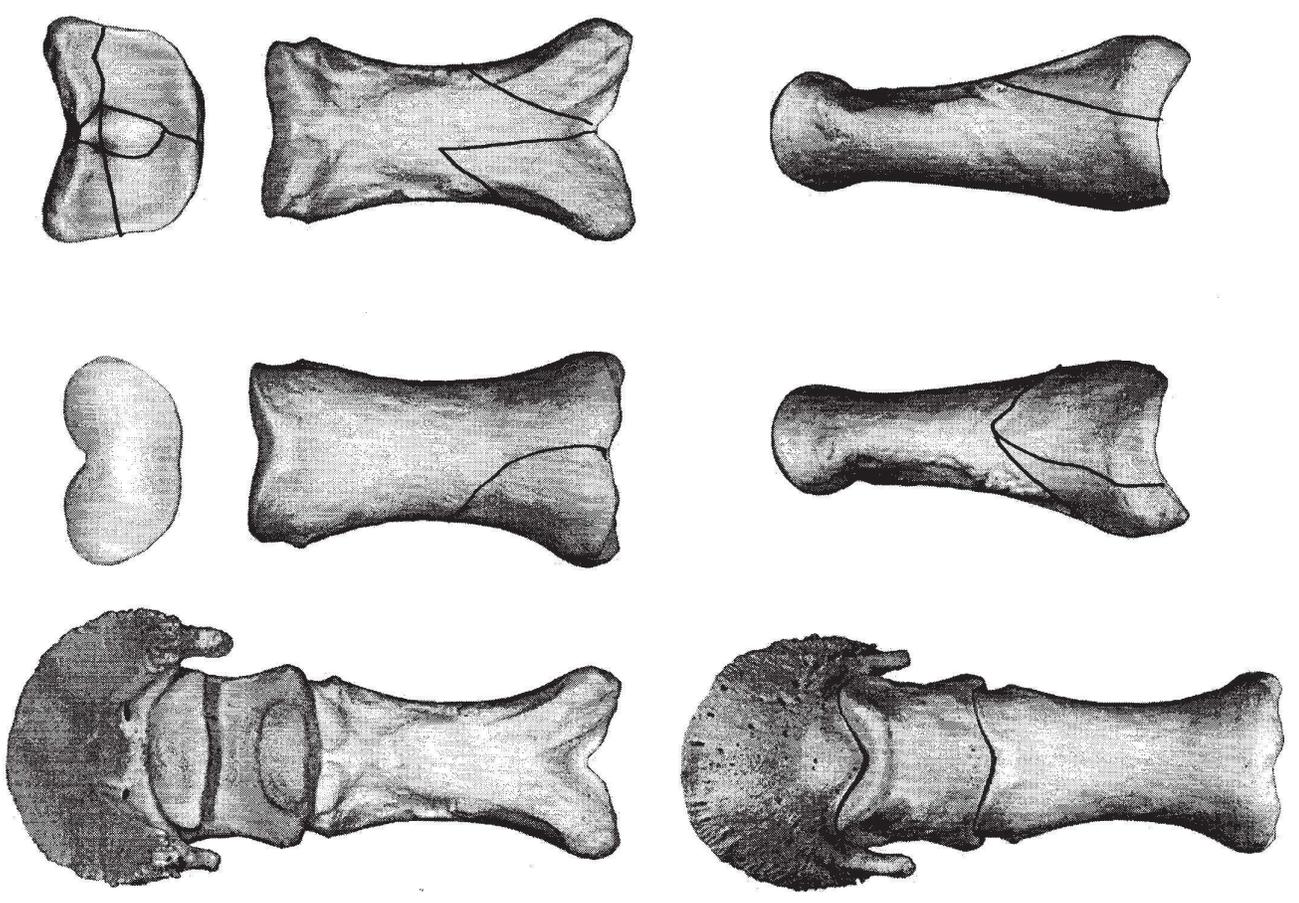
- Proximodorsal-Distopalmar
- Proximopalmar-Distodorsal
- Proximolateral-Distomedial
- Proximomedial-Distolateral
- Sagittal
- Dorsal plane (mediolateral)

Pre-existing callus:

- Yes
- No
- Unable to evaluate

Legend:

-  Callus
-  Incomplete Fx
-  Missing fragments



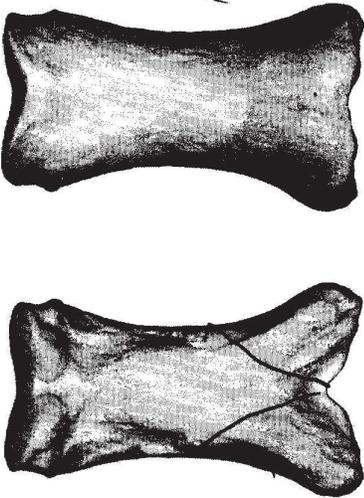
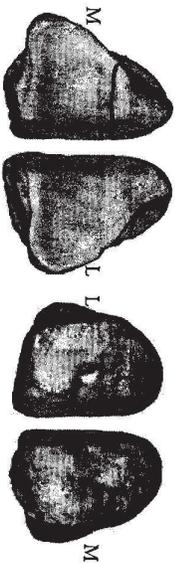
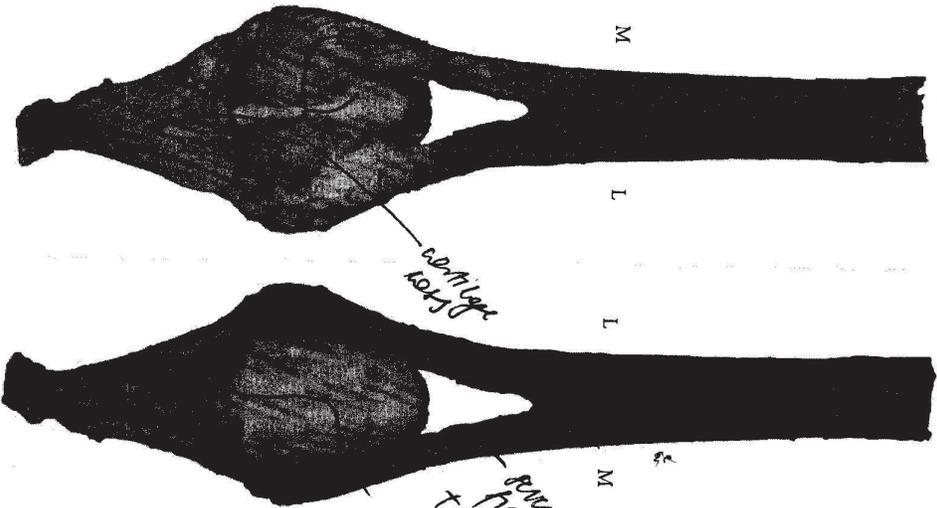
Accession #

CC: MAS

Date: 02/04/19

Left Fetlock

Please circle affected leg



P1 - separate drawings

Involved Structures

SDF tendon: Yes No DDF tendon: Yes No both legs

Suspensory ligament: Yes No

SL Medial branch SL Lateral branch

SL Body

Intersesamoidean ligament: Yes No

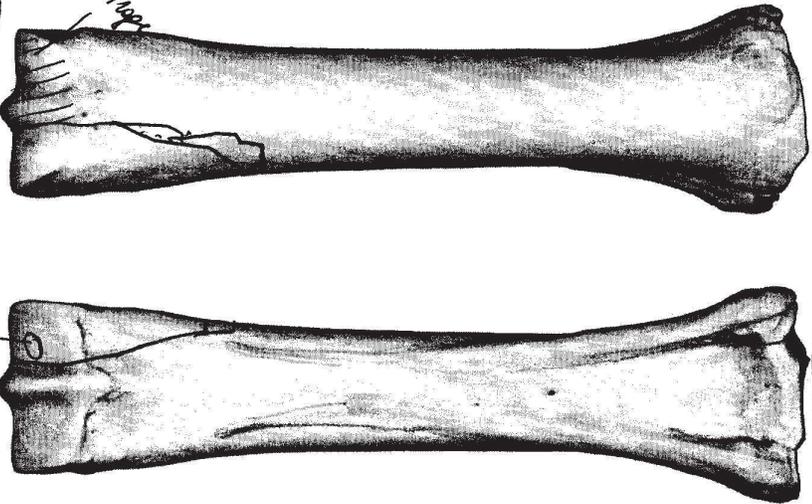
Longitudinal Transverse

Distal Sesamoidean ligaments: Yes No (straight and/or oblique)

Collateral ligaments: Yes No

Collateral Sesamoidean Ligaments: Yes No

Cruciate and/or Short Sesamoidean Ligaments Yes No



foreleg Hindleg

flexion overextension (POD)

Susp. App. (dorsal)

Open wound? Yes No

Joint capsule intact? Yes No

Joint luxated? Yes No

Susp. App. (palmar/plantar)

Open wound? Yes No

Joint capsule intact? Yes No

Joint luxated? Yes No

Exercise History Report (Full)



UC DAVIS

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.

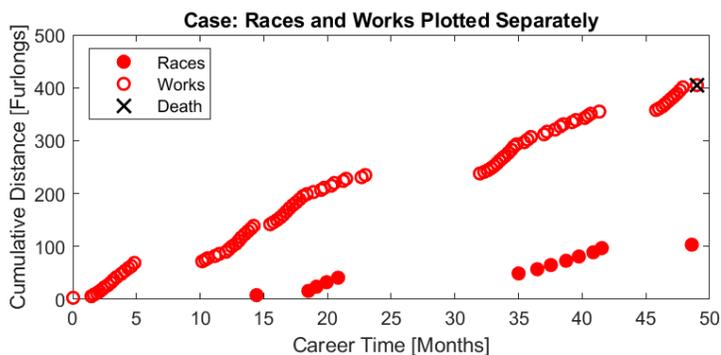
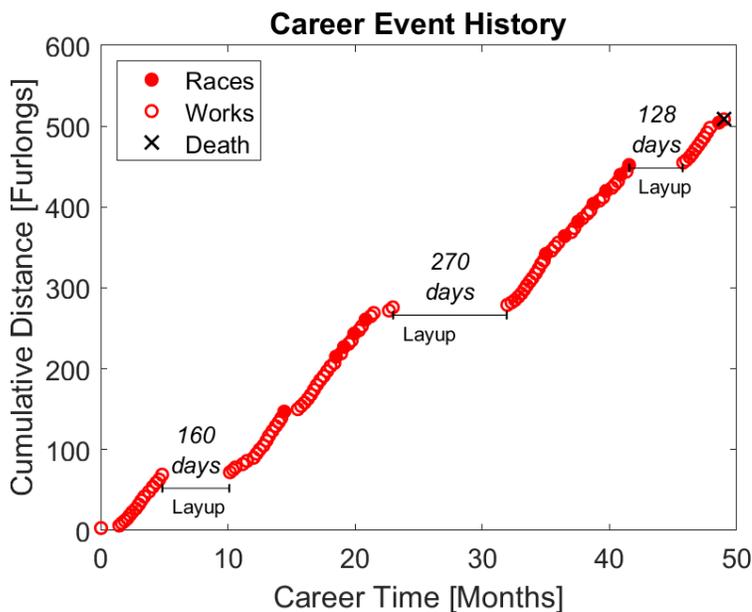
Table of Contents

Part 1: Graphical Representation of Individual High-Speed Exercise Histories	1
Case Horse High Speed Exercise History	1
Control 1 High Speed Exercise History	2
Control 2 High Speed Exercise History	2
Control 3 High Speed Exercise History	3
Part 2: Case and Control Horses Plotted Together	4
Part 3: Case Horse's Event History	7
Part 4: Comparison of Exercise Variables between Case Horse and 253 Control Horses (5+ year old, male, Thoroughbred)	11

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

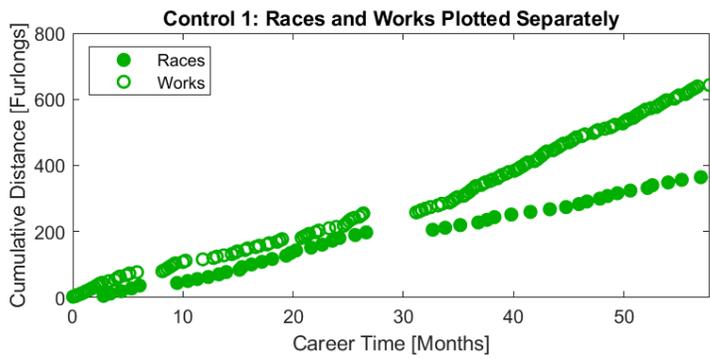
Races (filled circles), officially timed high-speed works (open circles), layups (line with endcaps, periods of time greater than 60 days in length without a race or timed work), and time of death (X) are illustrated over time (Career Time in months). With each event (race or work), the number of furlongs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

Case Horse High Speed Exercise History

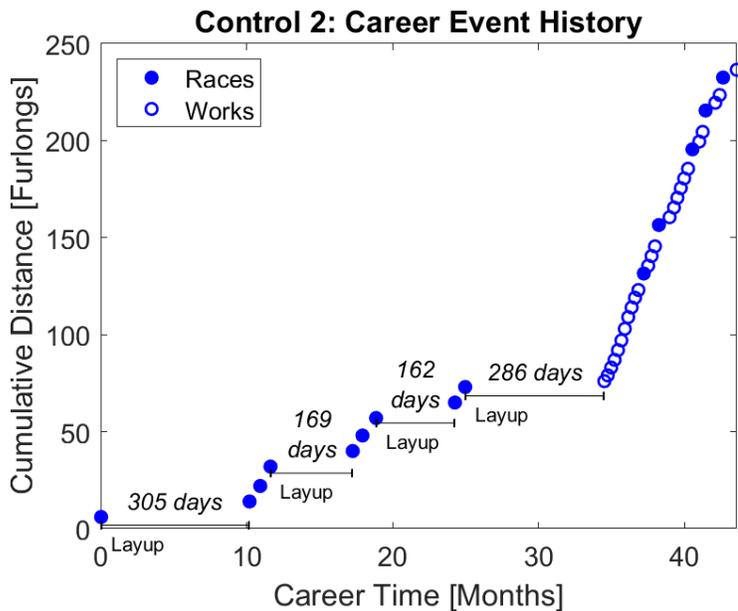


Part 1: Graphical Representation of Individual High-Speed Exercise Histories

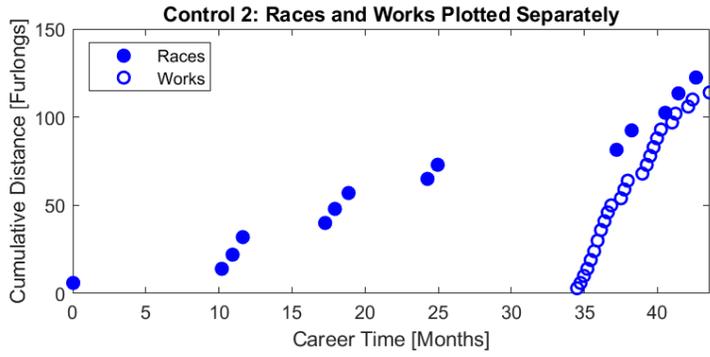
Control 1 High Speed Exercise History



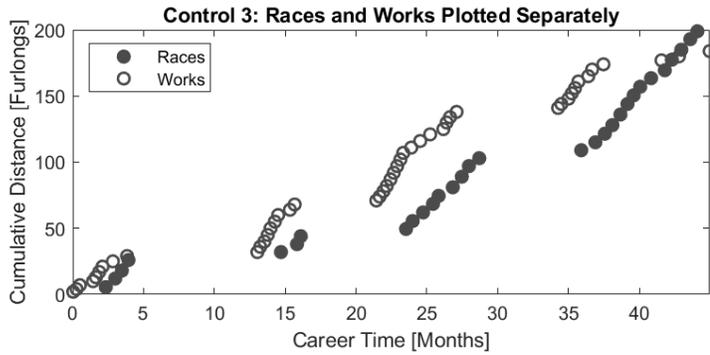
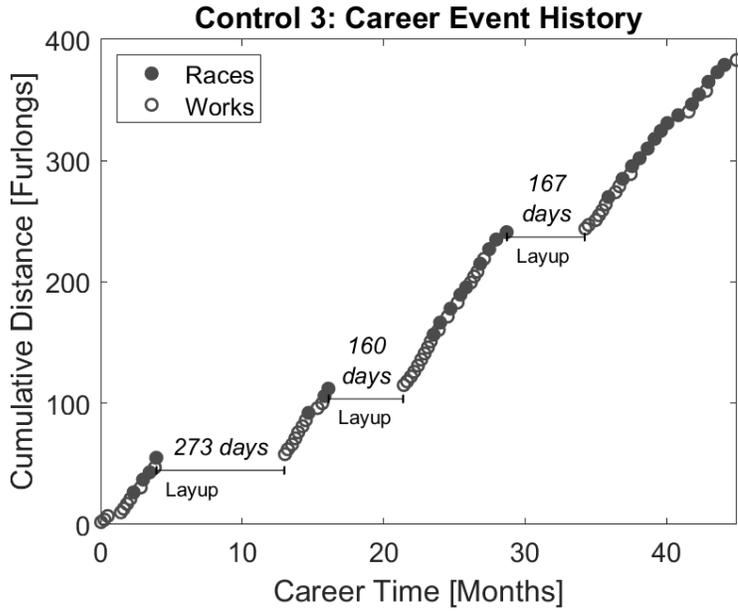
Control 2 High Speed Exercise History



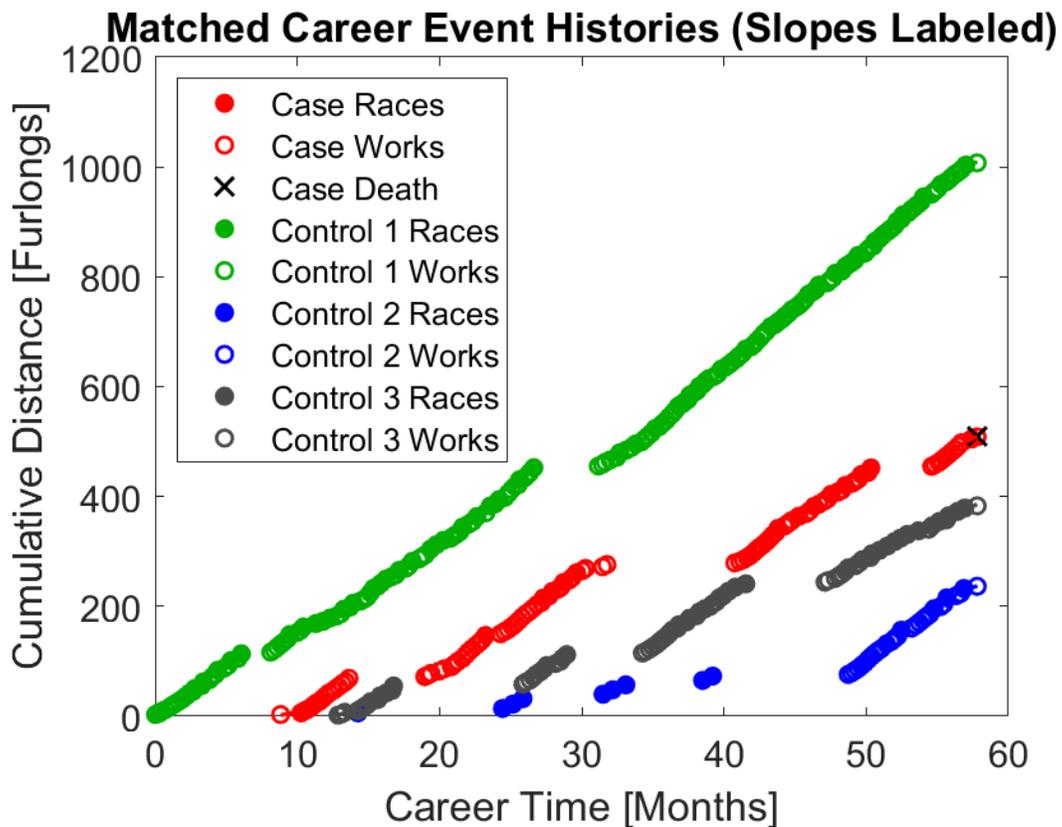
Part 1: Graphical Representation of Individual High-Speed Exercise Histories



Control 3 High Speed Exercise History

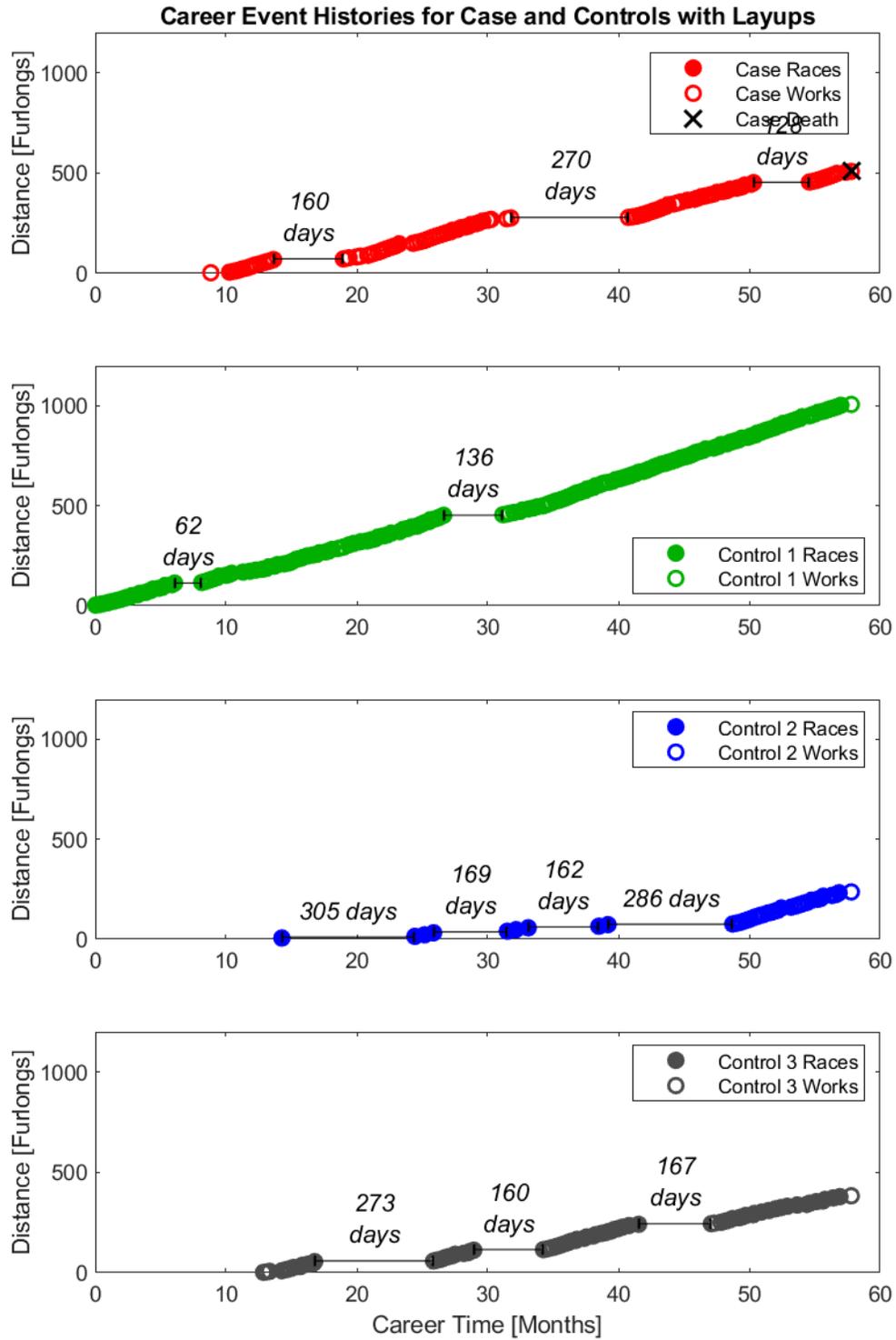


Part 2: Case and Control Horses Plotted Together

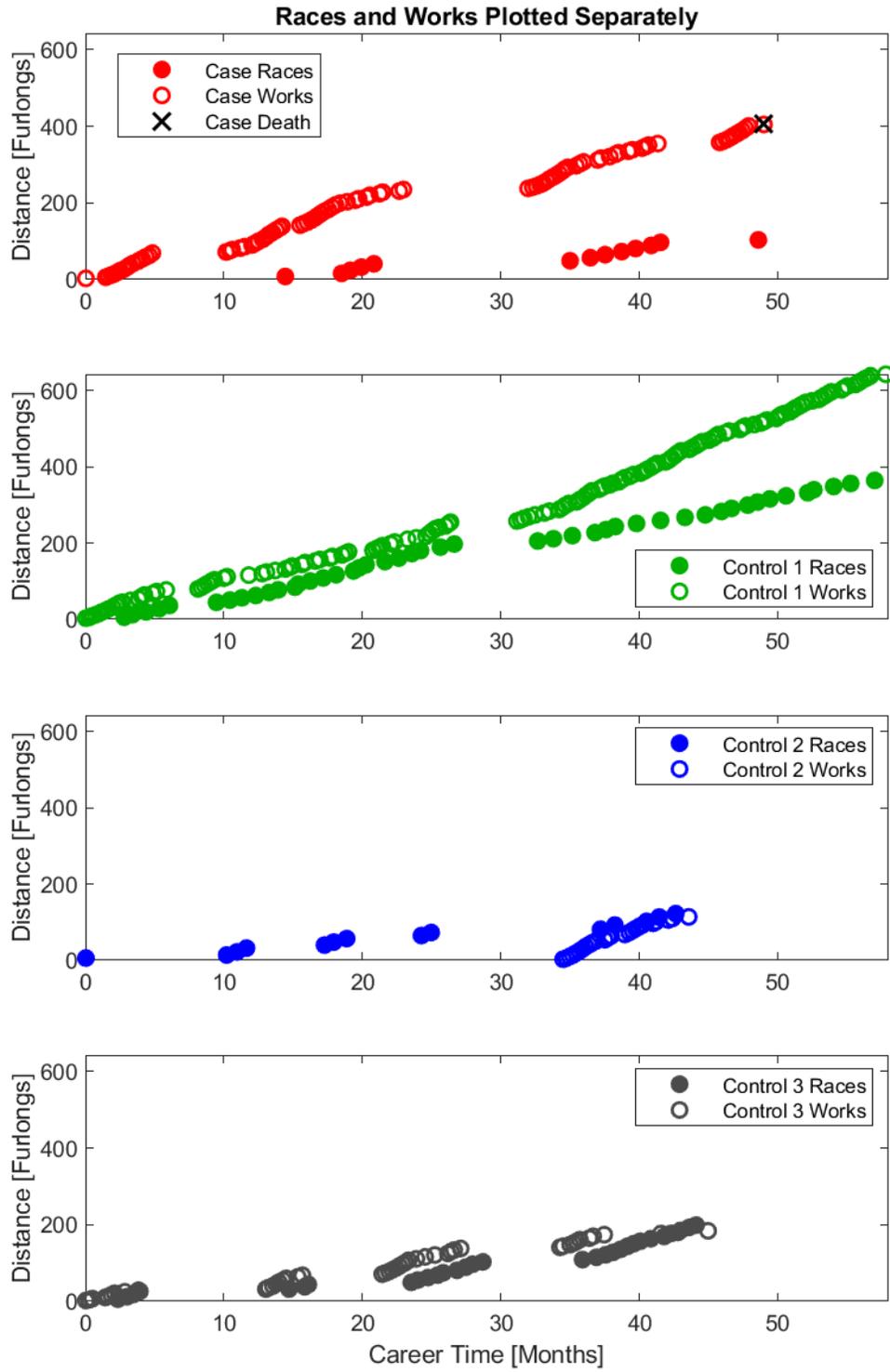


Case and Control Horses' exercise event histories are plotted on the same axes. The plots are aligned by the match date (equal to the date of death of Case Horse). Lines segments indicate specific rates of exercise at the start of career, end of career (for Case Horse), and match date (for Control Horses). 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	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
1/25/2019	W	4.0	SA	Dirt	Fast	:47.80				
1/13/2019	R	6.5	SA	Turf	Good		4U	Wcl40000 (40-35)-N	351	7
12/23/2018	W	6.0	SA	Dirt	Fast	01:15.4				
12/16/2018	W	6.0	SA	Dirt	Fast	01:15.4				
12/9/2018	W	5.0	SA	Dirt	Fast	01:03.0				
12/2/2018	W	5.0	SA	Dirt	Fast	01:02.2				
11/25/2018	W	5.0	SA	Dirt	Fast	01:02.6				
11/18/2018	W	5.0	SA	Dirt	Fast	01:05.2				
11/11/2018	W	4.0	SA	Dirt	Fast	:51.80				
11/5/2018	W	4.0	SA	Dirt	Fast	:50.80				
10/28/2018	W	3.0	SA	Dirt	Fast	:38.00				
10/21/2018	W	3.0	SA	Dirt	Fast	:37.80				
6/15/2018	R	8.0	SA	Turf	Firm		3U	Clm35000cnd	19800	1
6/9/2018	W	4.0	SA	Dirt	Fast	:49.20				
5/26/2018	R	8.0	SA	Turf	Firm		3U	Clm35000cnd	6400	2
5/20/2018	W	4.0	SA	Dirt	Fast	:50.60				
5/13/2018	W	4.0	SA	Dirt	Fast	:50.60				
5/6/2018	W	4.0	SA	Dirt	Fast	:50.20				
4/22/2018	R	8.0	SA	Turf	Firm		4U	Clm35000nw3/ L	5120	2
4/15/2018	W	4.0	SA	Dirt	Fast	:48.40				
4/6/2018	W	4.0	SA	Dirt	Fast	:48.80				
3/23/2018	R	8.0	SA	Dirt	Good		4U	Clm32000 (32-28)nw3/L	1800	4
3/16/2018	W	4.0	SA	Dirt	Fast	:48.60				
3/9/2018	W	6.0	SA	Dirt	Fast	01:15.2				
2/25/2018	W	4.0	SA	Dirt	Fast	:48.60				
2/15/2018	R	8.0	SA	Turf	Firm		4U	Clm32000nw3/ L	1800	4
2/6/2018	W	5.0	SA	Dirt	Fast	01:03.4				
1/30/2018	W	5.0	SA	Dirt	Fast	01:01.2				

Part 3: Case Horse's Event History

Date	Race/Work	Furlongs	Track	Surface	Track Cond.	Time	Age/Sex	Race Class	Earnings	Finish
1/14/2018	R	8.0	SA	Dirt	Fast		4U	Clm16000nw3/L	400	5
12/30/2017	W	5.0	SA	Dirt	Fast	01:04.0				
12/22/2017	W	5.0	SA	Dirt	Fast	01:03.6				
12/14/2017	W	4.0	SA	Dirt	Fast	:51.80				
12/1/2017	R	8.0	LRC	Dirt	Fast		3U	Clm16000 (16-14)nw2/L/x	3400	2
11/26/2017	W	4.0	SA	Dirt	Fast	:49.20				
11/20/2017	W	6.0	SA	Dirt	Fast	01:17.0				
11/14/2017	W	6.0	SA	Dirt	Fast	01:16.2				
11/7/2017	W	6.0	SA	Dirt	Fast	01:16.4				
10/30/2017	W	4.0	SA	Dirt	Fast	:50.00				
10/24/2017	W	5.0	SA	Dirt	Fast	01:03.4				
10/17/2017	W	5.0	SA	Dirt	Fast	01:02.8				
10/11/2017	W	5.0	SA	Dirt	Fast	01:03.2				
10/4/2017	W	4.0	SA	Dirt	Fast	:50.60				
9/27/2017	W	4.0	SA	Dirt	Fast	:50.20				
9/19/2017	W	3.0	SA	Dirt	Fast	:36.20				
9/11/2017	W	3.0	SA	Dirt	Fast	:38.00				
9/1/2017	W	3.0	DMR	Dirt	Fast	:36.80				
12/5/2016	W	4.0	SA	Dirt	Fast	:50.40				
11/26/2016	W	3.0	SA	Dirt	Fast	:37.80				
10/21/2016	W	4.0	SA	Dirt	Fast	:48.60				
10/14/2016	W	4.0	SA	Dirt	Fast	:51.40				
10/2/2016	R	8.5	SA	Dirt	Fast		3U	Str40000nw2/L	16800	1
9/23/2016	W	5.0	SA	Dirt	Fast	01:02.0				
9/16/2016	W	4.0	SA	Dirt	Fast	:51.40				
9/5/2016	R	8.5	DMR	Turf	Firm		3U	Str40000cnd	4080	3
8/30/2016	W	4.0	DMR	Dirt	Fast	:52.00				
8/23/2016	W	4.0	DMR	Dirt	Fast	:51.40				
8/12/2016	R	8.0	DMR	Dirt	Fast		3U	Str40000nw2/L	4320	3

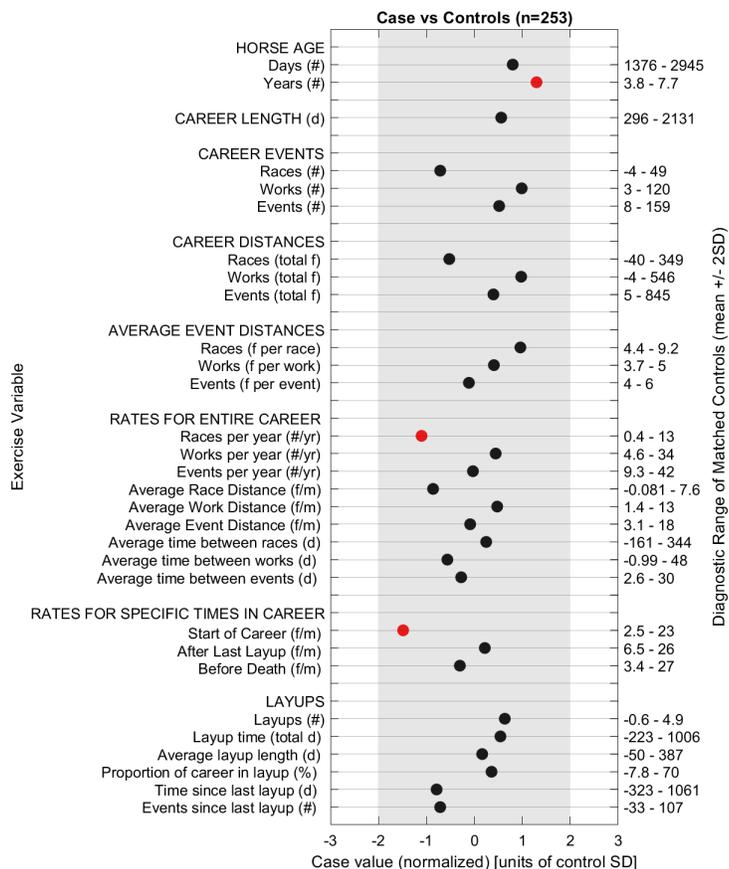
Part 3: Case Horse's Event History

Date	Race/Work	Furlongs	Track	Surface	Track Cond.	Time	Age/Sex	Race Class	Earnings	Finish
8/5/2016	W	4.0	DMR	Dirt	Fast	:50.00				
7/24/2016	R	8.0	DMR	Dirt	Fast		3U	Mcl40000 (40-35)	16800	1
7/20/2016	W	4.0	DMR	Dirt	Fast	:49.40				
7/11/2016	W	6.0	SA	Dirt	Fast	01:18.0				
7/3/2016	W	6.0	SA	Dirt	Fast	01:14.8				
6/25/2016	W	5.0	SA	Dirt	Fast	:59.80				
6/17/2016	W	6.0	SA	Dirt	Fast	01:14.8				
6/9/2016	W	6.0	SA	Dirt	Fast	01:13.4				
6/2/2016	W	6.0	SA	Dirt	Fast	01:14.8				
5/26/2016	W	5.0	SA	Dirt	Fast	01:00.0				
5/19/2016	W	5.0	SA	Dirt	Fast	01:02.0				
5/11/2016	W	4.0	SA	Dirt	Fast	:48.60				
5/3/2016	W	4.0	SA	Dirt	Fast	:50.00				
4/25/2016	W	3.0	SA	Dirt	Fast	:37.60				
3/24/2016	R	8.0	SA	Turf	Firm		3U	Mcl75000	345	7
3/17/2016	W	5.0	SA	Dirt	Fast	01:00.0				
3/11/2016	W	5.0	SA	Dirt	Fast	01:03.8				
3/4/2016	W	6.0	SA	Dirt	Fast	01:14.4				
2/25/2016	W	6.0	SA	Dirt	Fast	01:13.8				
2/17/2016	W	6.0	SA	Dirt	Fast	01:14.6				
2/11/2016	W	6.0	SA	Dirt	Fast	01:15.4				
2/4/2016	W	5.0	SA	Dirt	Fast	01:01.4				
1/26/2016	W	5.0	SA	Dirt	Fast	01:01.6				
1/19/2016	W	5.0	SA	Dirt	Fast	01:02.4				
1/12/2016	W	4.0	SA	Dirt	Fast	:49.40				
12/27/2015	W	4.0	SA	Dirt	Fast	:49.00				
12/17/2015	W	4.0	SA	Dirt	Fast	:48.60				
11/30/2015	W	3.0	SA	Dirt	Fast	:37.80				
11/24/2015	W	3.0	SA	Dirt	Fast	:38.40				
11/17/2015	W	3.0	SA	Dirt	Fast	:37.60				
6/10/2015	W	6.0	SA	Dirt	Fast	01:16.4				
6/3/2015	W	4.0	SA	Dirt	Fast	:47.00				

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
5/27/2015	W	5.0	SA	Dirt	Fast	01:01.0				
5/19/2015	W	6.0	SA	Dirt	Fast	01:15.8				
5/10/2015	W	6.0	SA	Dirt	Fast	01:16.4				
4/29/2015	W	5.0	SA	Dirt	Fast	:59.40				
4/22/2015	W	5.0	SA	Dirt	Fast	01:02.2				
4/16/2015	W	5.0	SA	Dirt	Fast	01:02.8				
4/9/2015	W	4.0	SA	Dirt	Fast	:47.80				
4/1/2015	W	4.0	SA	Dirt	Fast	:49.40				
3/26/2015	W	4.0	SA	Dirt	Fast	:50.20				
3/20/2015	W	3.0	SA	Dirt	Fast	:37.00				
3/14/2015	W	3.0	SA	Dirt	Fast	:37.00				
3/7/2015	W	3.0	SA	Dirt	Fast	:38.00				
3/1/2015	W	3.0	SA	Dirt	Fast	:37.20				
1/17/2015	W	3.0	SLR	Dirt	Fast	:38.80				

Part 4: Comparison of Exercise Variables between Case Horse and 253 Control Horses (5+ year old, male, Thoroughbred)

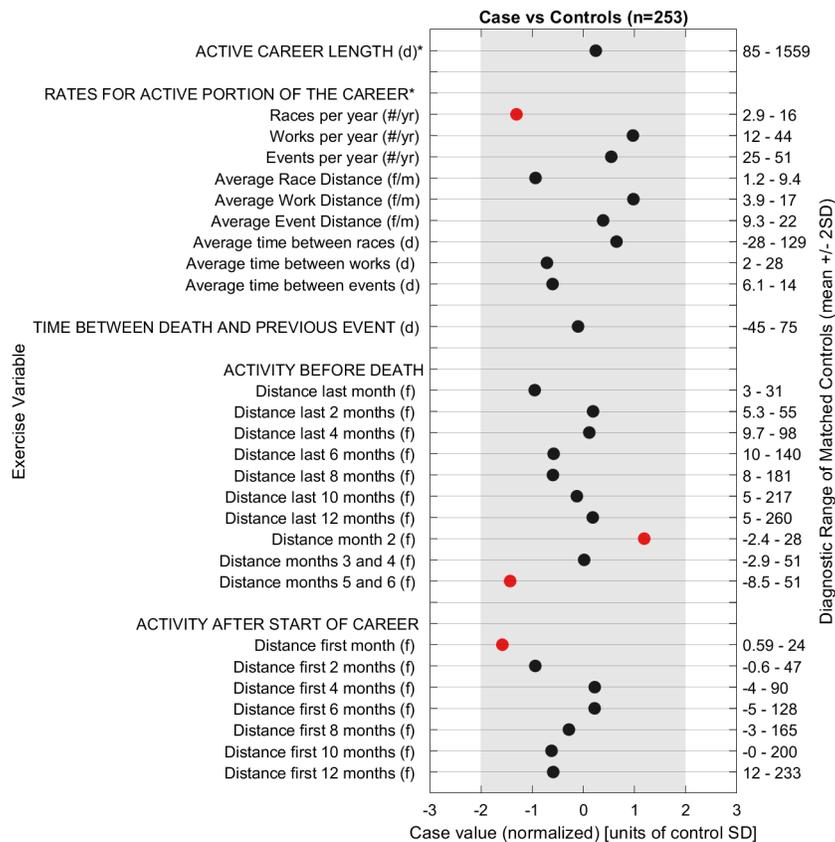


Case Horse values are indicated by black or red symbols: circles indicate values considered normal for 95% of 5+ year old, male, Thoroughbreds (n=253) (gray region) (black and red indicate within 1 and 2 SD, respectively, of mean value of controls), X's indicate values outside of the normal range. Two 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 253 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=253) (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.