



UC DAVIS VETERINARY MEDICINE

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CAHFS Accession #: [REDACTED]

FINAL REPORT

Ref.#: [REDACTED]

Coordinator: Monika Samol, DVM, Resident

E-Signed and Authorized by: Samol, Monika on
2/6/2019 1:40:40PM

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: 01/23/2019 Date Received: 01/23/2019

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	DOWD, JOSEPH	[REDACTED]	[REDACTED]	Arcadia	CA	91066
Trainer	Lucarelli, Frank	[REDACTED]	[REDACTED]	Auburn	WA	98002

CHRB - Related Information

Horse's Name:	[REDACTED]	Human Injury?	
Tattoo:	[REDACTED]	Death Related to:	Training
Age:	4.00 Years	Track Surface:	Dirt
Gender:	Neutered Male	Location on Track:	Finish line
Taxonomy:	Thoroughbred Horse	Insured?	

Medications: Pentobarbital; Rompun (Xylazine);

Laboratory Findings/Diagnosis

A 4 year old [REDACTED] Thoroughbred [REDACTED] submitted with a history of left hind open condylar fracture and possible sesamoid fractures

Catastrophic left hind fetlock breakdown with

LEFT HINDLIMB

ACUTE CHANGES

1. Open, simple, complete, displaced, articular, oblique, parasagittal, lateral condylar fracture of the MTIII with the presence of pre-existing lesion (biaxial plantar osteochondral disease, see chronic changes 1.)
2. Open, biaxial, comminuted, complete, transverse, articular, apical fracture of the proximal sesamoid bones with avulsion fracture component off the axial aspect of the lateral proximal sesamoid bone
3. Open, simple, complete, non-displaced, articular, parasagittal, chip fracture of the proximal lateral plantar eminence of P1

4. Severe scoring of the articular surfaces of the proximal sesamoid bones
5. Severe, full thickness cartilage loss of axial aspect of the articular surface of the lateral proximal sesamoid bone
6. Suspensory apparatus failure with severe fraying, complete splits and hemorrhage 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, transverse rupture of the plantar annular ligament
9. Full thickness, longitudinal and transverse rupture of the intersesamoidean ligament
10. Severe fraying of fibers of the lateral and medial short and cruciate 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. Severe scoring the distal articular surface of MTIII
16. Severe scoring of the proximal articular surface of P1
17. Moderate to severe cartilage erosion of the dorsal and plantar margins 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 brown, focal discoloration and lysis of the subchondral bone visible on both opposing surfaces accompanied by focal collapse of subchondral bone and the overlying cartilage of the fractured lateral condyle of the distal MTIII

RIGHT HINDLIMB

CHRONIC CHANGES

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
2. Moderate, biaxial, longitudinal fissures in the cartilage of the parasagittal grooves of the distal articular surface of MTIII
3. Moderate to severe, biaxial, apical, irregular bony outgrowth of the proximal sesamoid bones (osteophytosis)
4. Moderate to severe, uniaxial, basilar, irregular bony outgrowth (osteophytosis) of the lateral proximal sesamoid bone
5. Moderate, biaxial, pink to violet, focal, transverse subchondral bone discoloration visible through the cartilage overlying the bases of the proximal sesamoid bones
6. Mild to moderate, focal, grey subchondral bone discoloration visible through the cartilage along the abaxial margins of the proximal sesamoid bones
7. Moderate, biaxial, red cartilage discoloration adjacent to the sagittal groove of the proximal 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, multifocal, non-glandular gastric ulceration along the margo plicatus (incidental)
- Pulmonary congestion and edema (euthanasia artifact)
- Splenomegaly (euthanasia artifact)

Case Summary

02/04/19 The most important findings in the left hindlimb are lateral condylar fracture of cannon bone, biaxial, apical fracture of proximal sesamoid bones, chip 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 canon bone.

01/24/19 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: MTIII condylar fracture (open) w/possible biaxial sesamoid fractures; horse reportedly working (last race 12/31/18, no

works in-between); * assistant trainer reports history of right hind tibial stress injury (date not specified).

Gross Observations

Necropsy of a 4 year old, [REDACTED] Thoroughbred [REDACTED] ([REDACTED]), 522 kg, with a [REDACTED] [REDACTED] is commenced at 1:40 pm, January 23, 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 markedly 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 cm - diameter), 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. Open, simple, complete, displaced, articular, oblique, parasagittal, lateral condylar fracture of the MTIII with the presence of pre-existing lesion

The lateral condylar fragment is app. 7 cm long. The condylar fracture is coursing through blue subchondral bone discoloration. The opposing surfaces of the fracture reveal focus of dark red/ brown discoloration of increased bone porosity (osteopenic focus) surrounded by highly compacted/sclerotic bone accompanied by clearly visible subchondral bone and cartilage collapse.

2. Severe scoring with very wide vertical clefts, especially affecting the sagittal ridge of the distal articular surface of MTIII
3. Severe hemorrhage accompanied by soft tissue hypertrophy at the plantar aspect of the supracondylar region of MTIII
4. Severe hemorrhage and bone erosion due to hypertrophic synovial pad at the dorsal aspect of the supracondylar region of MTIII
5. Severe, biaxial plantar osteochondral disease with blue, subchondral bone discoloration visible through the cartilage of the medial condyle and brown, focal discoloration with lysis of the subchondral bone visible on both opposing surfaces accompanied by focal collapse of subchondral bone and the overlying cartilage of the fractured lateral condyle of the distal MTIII. The blue discoloration (bruising) of the subchondral bone of the medial condyle is not that apparent, is subtle and smaller in diameter, with centrally located, short (app. 0.2cm) cartilage fissures.

B- PROXIMAL SESAMOID BONES

1. Open, biaxial, comminuted, complete, transverse, articular, apical fracture of the proximal sesamoid bones
 - a) Medial proximal sesamoid bone- the apical fragment is severely comminuted into multiple small fragments
 - b) Lateral proximal sesamoid bones- the small apical fragment is avulsed with lateral branch of the suspensory ligament. The axial fracture component is avulsed with intersemoidean ligament. The latter fragment is divided into 3 pieces (roughly equal), firmly attached to the ligament. There is also extensive cartilage loss along the axial fracture line.
2. Severe scoring of the articular surfaces of the proximal sesamoid bones

C- P1

1. Open, simple, complete, non-displaced, articular, parasagittal, chip fracture of the proximal lateral plantar eminence of P1
2. Severe scoring of the proximal articular surface of P1
3. Moderate to severe cartilage erosion of the dorsal and plantar margins of the proximal articular surface of P1

D- SOFT TISSUES

1. Severe, multiple, complete longitudinal splits of the medial branch of the suspensory ligament progressing to the level app. 2-3 cm above the bifurcation, where it progresses further proximally as incomplete splits up to proximal third of the body of the suspensory ligament, mainly affecting its plantar surface.
2. Full thickness, longitudinal and transverse rupture of the intersemoidean 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
3. Full thickness, transverse rupture of the plantar annular ligament
4. Severe fraying of fibers of the lateral and medial short and cruciate ligaments
5. Moderate fraying of fibers and incomplete transverse rupture of the lateral and medial collateral ligaments of the proximal sesamoid bones

6. Moderate fraying of fibers of the medial and collateral ligaments of fetlock
7. Moderate fraying of fibers and hemorrhage of the medial edge of the dorsal surface of the superficial and deep digital flexor tendons
8. Severe synovial hypertrophy with red discoloration underneath the bases of the proximal sesamoid bones
9. Severe synovial thickening in the fetlock joint (proliferative synovitis)

RIGHT HIND

A- PROXIMAL SESAMOID BONES

1. Moderate to severe, biaxial, apical, irregular bony outgrowth of the proximal sesamoid bones (osteophytosis)
2. Moderate to severe, uniaxial, basilar, irregular bony outgrowth (osteophytosis) of the lateral proximal sesamoid bone
3. Moderate, biaxial, pink to violet, focal, transverse subchondral bone discoloration visible through the cartilage overlying the bases of the proximal sesamoid bones
4. Mild to moderate, focal, grey subchondral bone discoloration visible through the cartilage (app. 1.5 cm long) along the abaxial margins of the proximal sesamoid bones. The discoloration of the medial proximal sesamoid bone appears to be slightly darker, and also has few focal pinpoints of depressed cartilage

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
2. Moderate, biaxial, longitudinal fissures in the cartilage of the parasagittal grooves of the distal articular surface of MTIII

C- SOFT TISSUE

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

D- P1

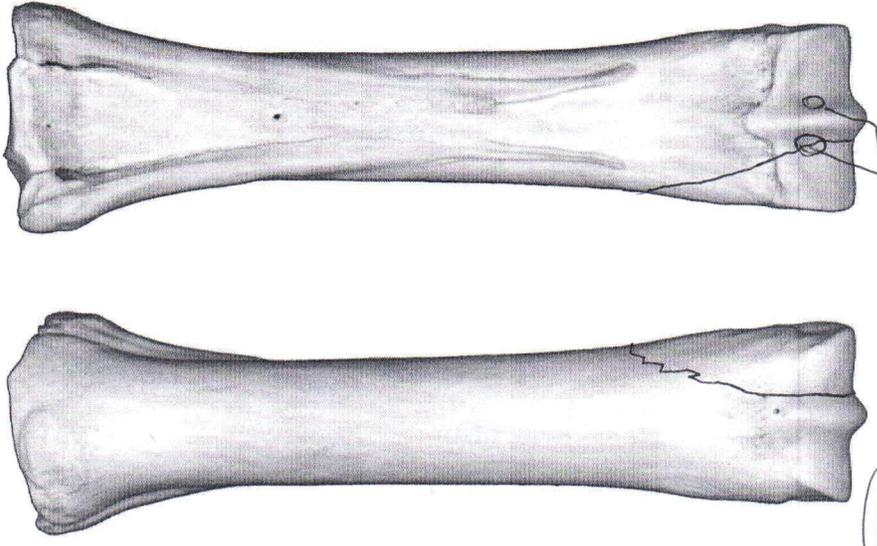
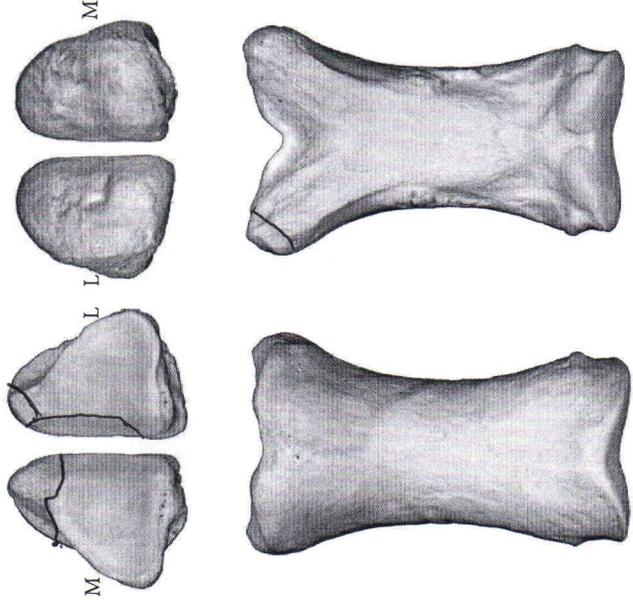
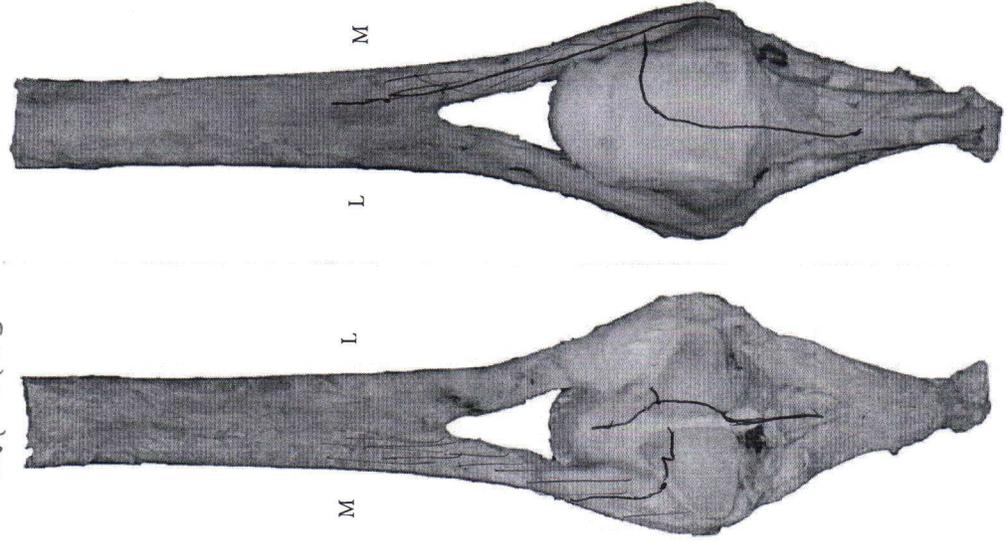
1. Moderate, biaxial, red cartilage discoloration adjacent to the sagittal groove of the proximal surface of P1
2. Moderate lipping of the dorsal and plantar aspect of the proximal articular surface of P1
3. Mild, biaxial, focal shallow ulceration with fibrillation of the cartilage of the dorsal margin 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.

Accession #
 CC: MAS
 Date: 02/01/13

Left Fetlock

Please circle affected leg
 foreleg
 hindleg



Involved Structures

SDF tendon: Yes No DDF tendon: Yes No

Suspensory ligament: Yes No

SL Medial branch SL Lateral branch SL Body

Intersesamoid ligament: Yes No
 Longitudinal Transverse

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

Collateral ligaments: Yes No

Collateral Sesamoid Ligaments: Yes No

Cruciate and/or Short Sesamoid Ligaments: Yes No

Susp. App. (dorsal) 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.

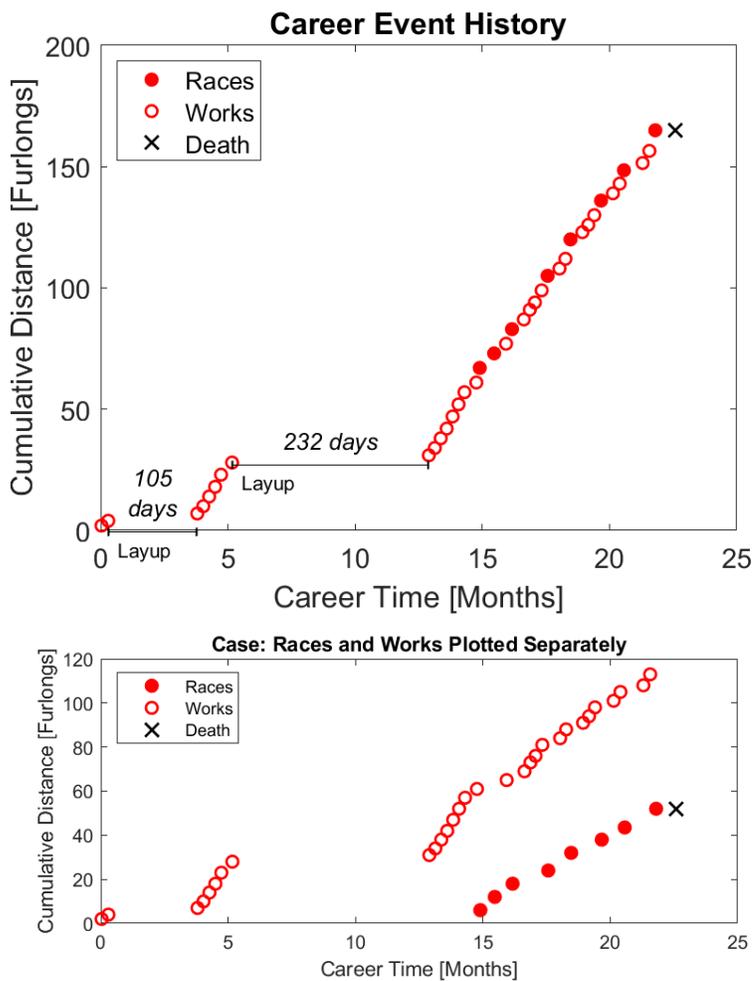
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Part 1: Graphical Representation of Individual High-Speed Exercise Histories

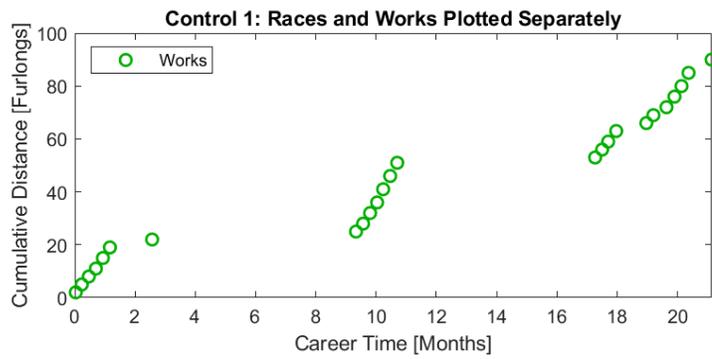
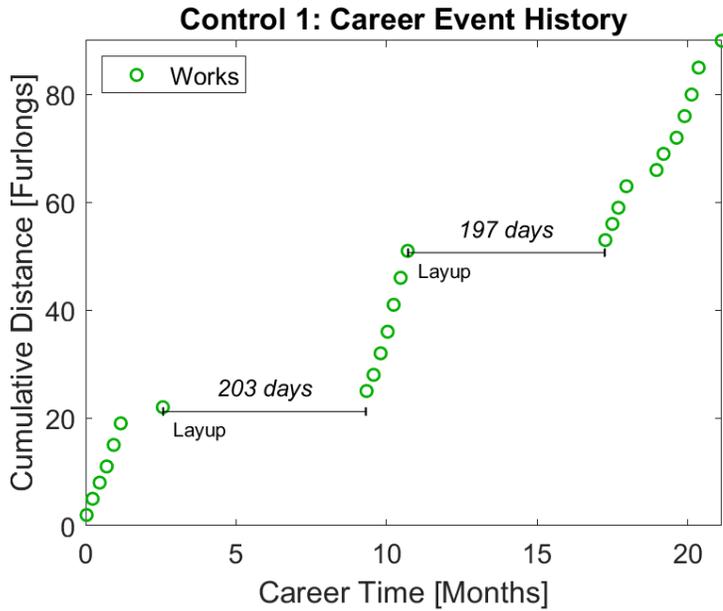
Races (filled circles), officially timed high-speed works (open circles), layups (line with endcaps, periods of time greater than 60 days in length without a race or timed work), and time of death (X) are illustrated over time (Career Time in months). With each event (race or work), the number of furlongs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

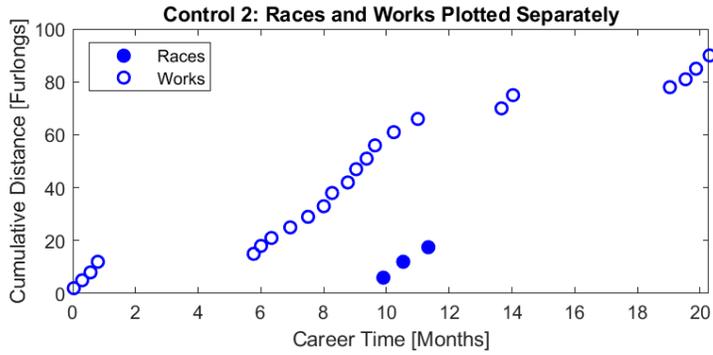
Control 1 High Speed Exercise History



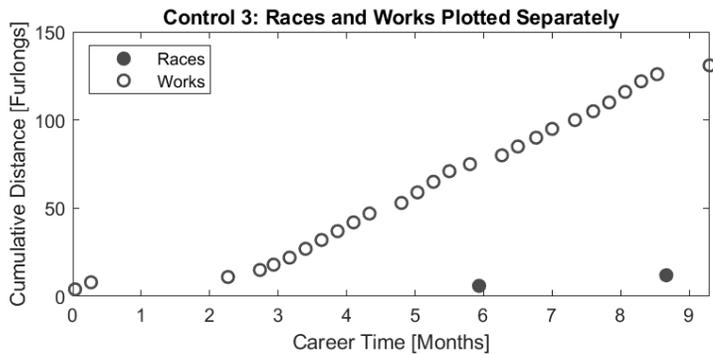
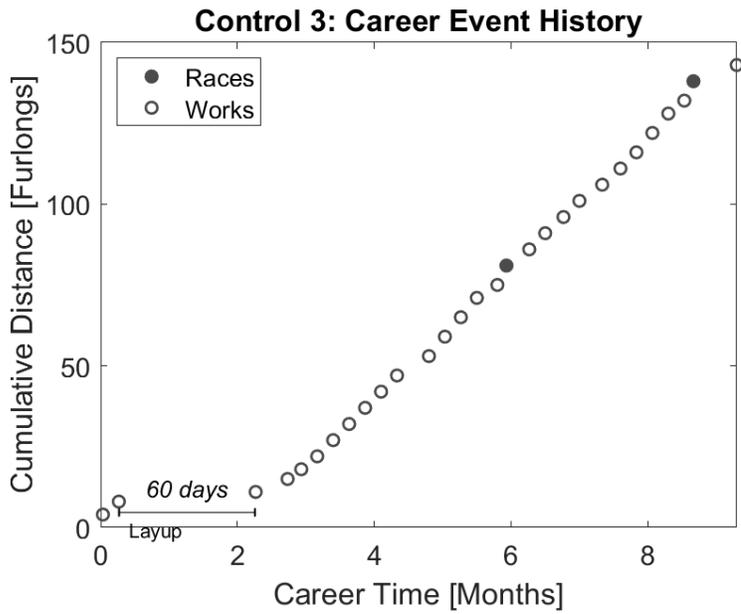
Control 2 High Speed Exercise History



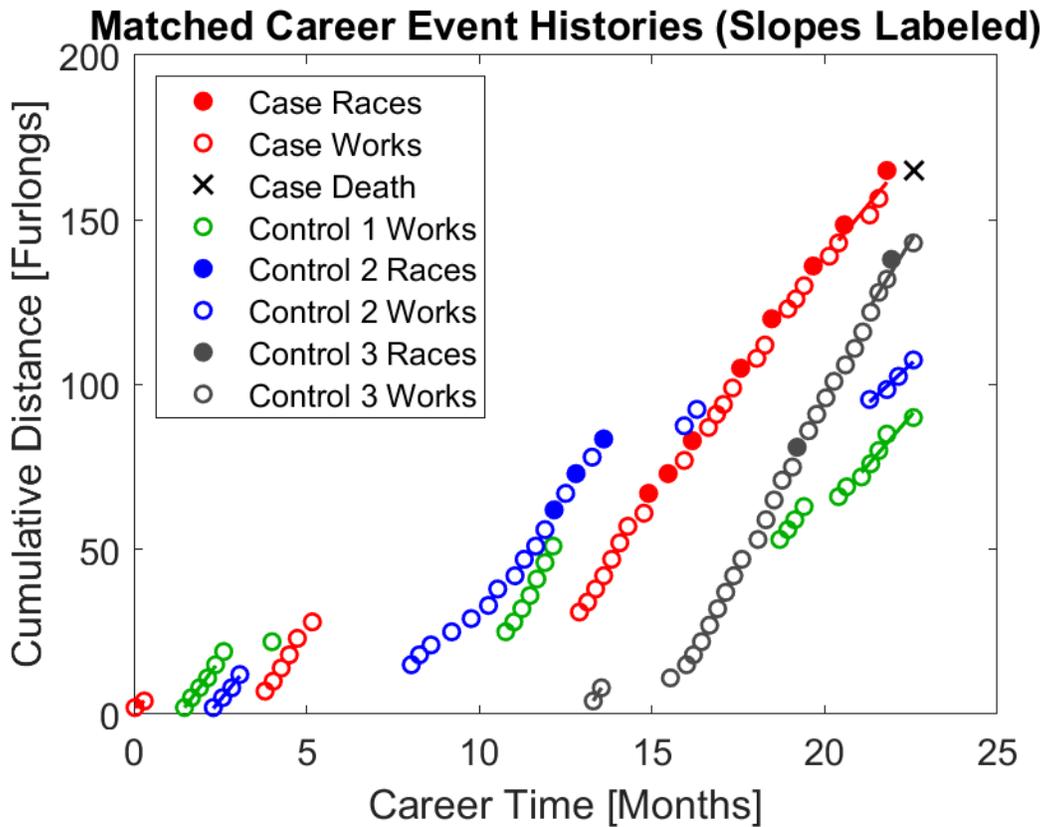
Part 1: Graphical Representation of Individual High-Speed Exercise Histories



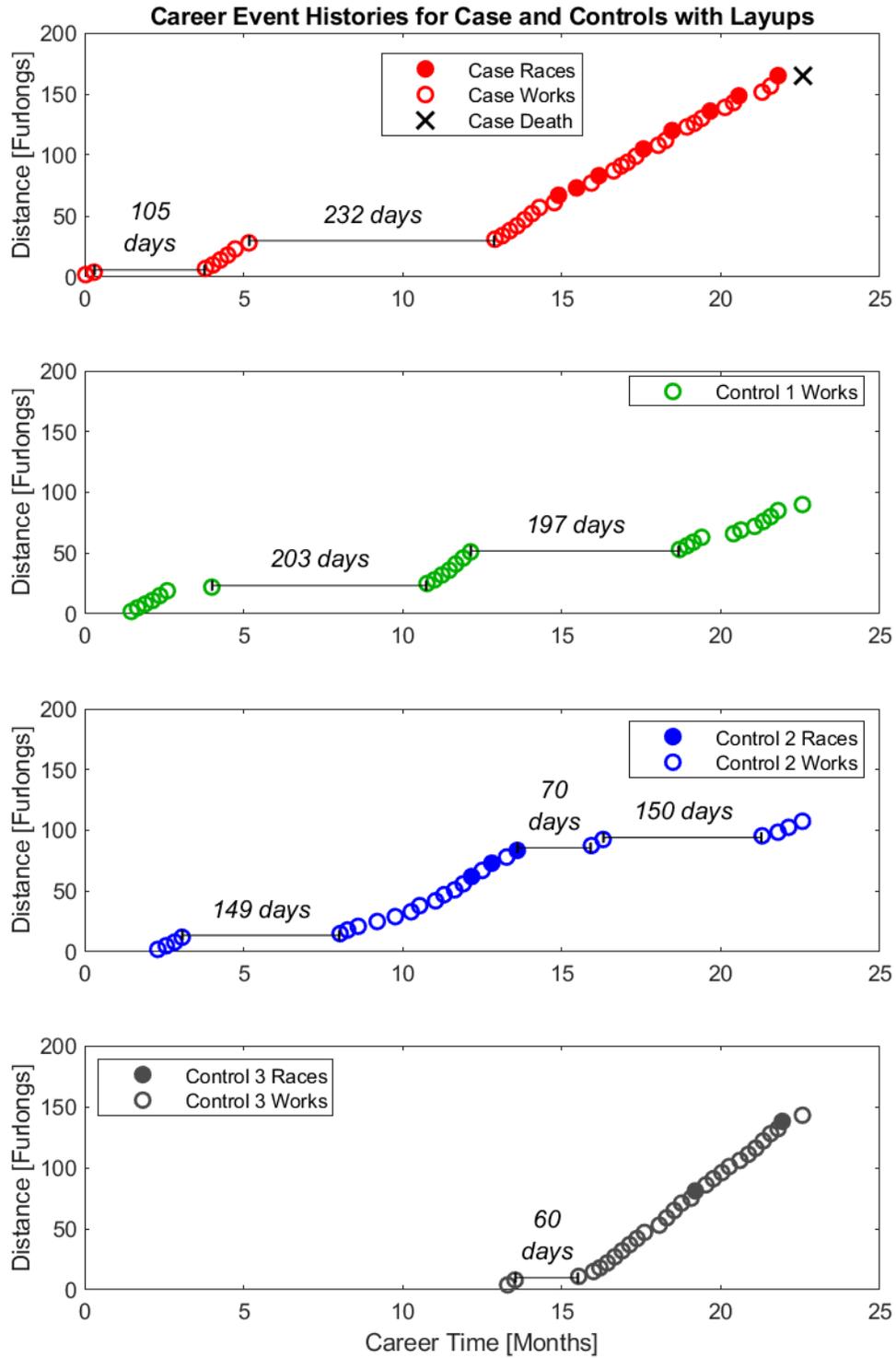
Control 3 High Speed Exercise History



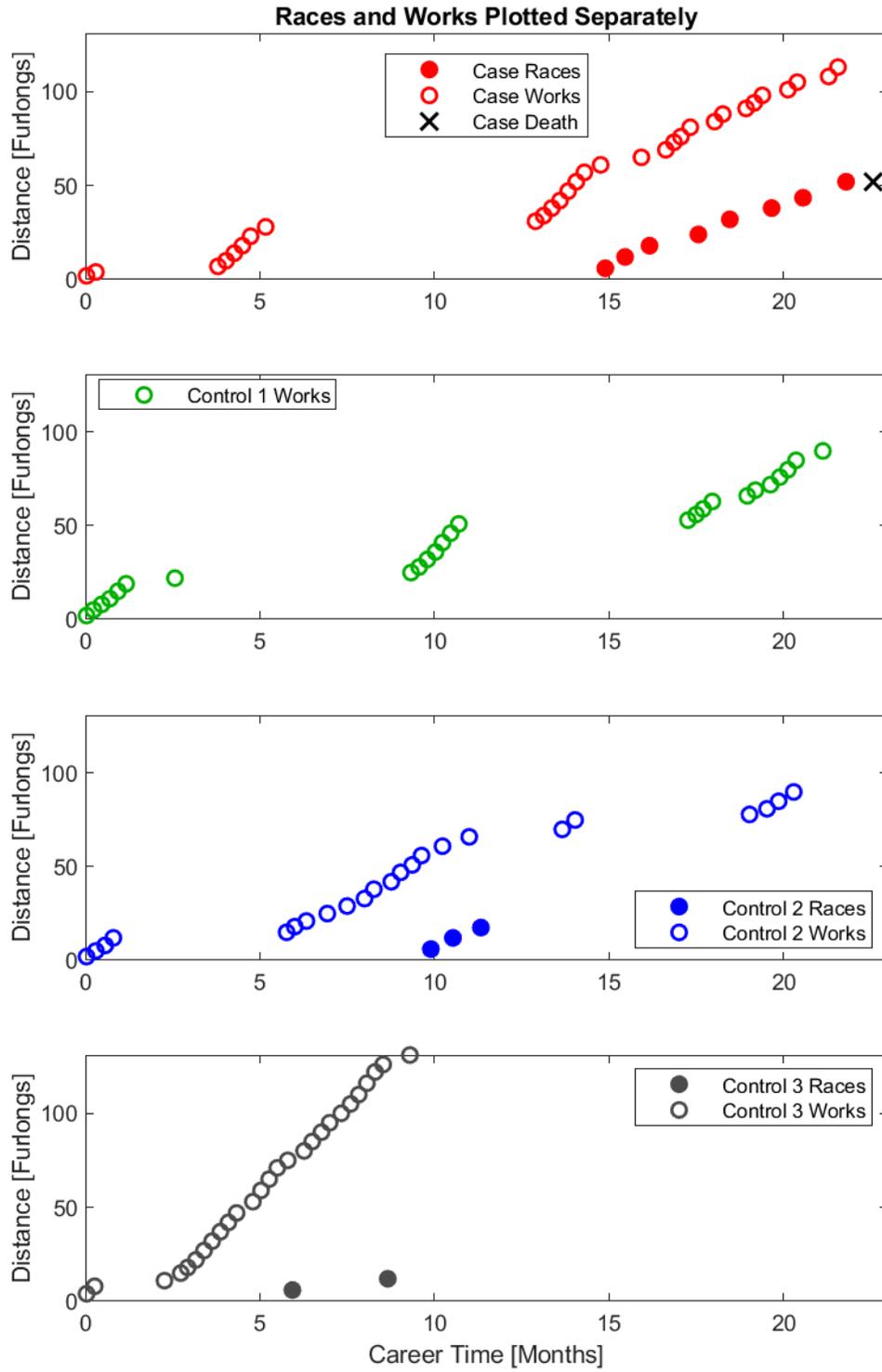
Part 2: Case and Control Horses Plotted Together



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
12/31/2018	R	8.5	GG	Turf	Good		3U	Str50000nw2/L/x	225	9
12/24/2018	W	5.0	GG	AllWthr	Fast	01:02.4				
12/16/2018	W	3.0	GG	AllWthr	Fast	:39.80				
11/24/2018	R	5.5	GG	AllWthr	Fast		3U	Str50000nw2/L/x	225	7
11/19/2018	W	4.0	GG	AllWthr	Fast	:52.40				
11/11/2018	W	3.0	GG	AllWthr	Fast	:40.80				
10/28/2018	R	6.0	GG	AllWthr	Fast		3U	Clm40000 (40-35)	500	5
10/20/2018	W	4.0	GG	AllWthr	Fast	:48.40				
10/13/2018	W	3.0	GG	AllWthr	Fast	:37.80				
10/6/2018	W	3.0	GG	AllWthr	Fast	:37.60				
9/22/2018	R	8.0	GG	Turf	Firm		3U	Alw27000nw1\$225x	225	6
9/16/2018	W	4.0	GG	AllWthr	Fast	:49.40				
9/9/2018	W	3.0	GG	AllWthr	Fast	:36.40				
8/26/2018	R	6.0	GG	AllWthr	Fast		3U	Alw27000nw1\$225x	225	8
8/19/2018	W	5.0	GG	AllWthr	Fast	01:02.2				
8/11/2018	W	3.0	GG	AllWthr	Fast	:37.60				
8/5/2018	W	4.0	GG	AllWthr	Fast	:48.60				
7/29/2018	W	4.0	GG	AllWthr	Fast	:50.20				
7/15/2018	R	6.0	SAC	Dirt	Fast		3U	Msw	15600	1
7/8/2018	W	4.0	GG	AllWthr	Fast	:49.40				
6/24/2018	R	6.0	OTP	Dirt	Fast		3U	Msw	3120	3
6/7/2018	R	6.0	GG	AllWthr	Fast		3U	Msw	1560	4
6/3/2018	W	4.0	GG	AllWthr	Fast	:49.00				
5/20/2018	W	5.0	GG	AllWthr	Fast	01:02.0				
5/13/2018	W	5.0	GG	AllWthr	Fast	01:02.2				
5/6/2018	W	5.0	GG	AllWthr	Fast	01:03.6				
4/29/2018	W	4.0	GG	AllWthr	Fast	:50.60				

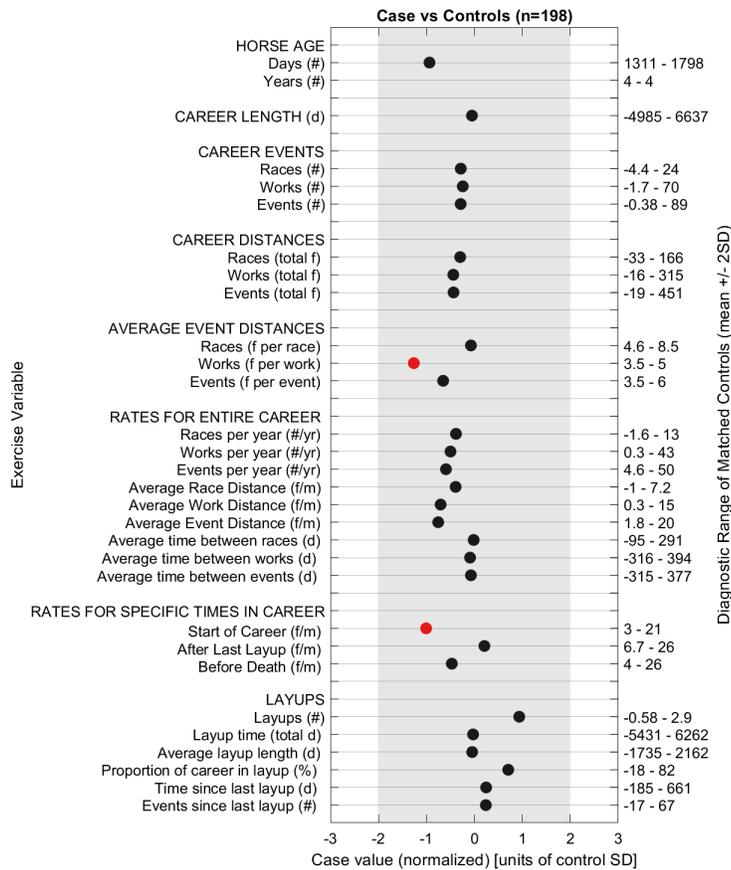
Part 3: Case Horse's Event History

Date	Race/Work	Furlongs	Track	Surface	Track Cond.	Time	Age/Sex	Race Class	Earnings	Finish
4/22/2018	W	4.0	GG	AllWthr	Fast	:51.00				
4/15/2018	W	3.0	GG	AllWthr	Fast	:39.80				
4/8/2018	W	3.0	GG	AllWthr	Fast	:40.80				
8/19/2017	W	5.0	GG	AllWthr	Fast	01:04.0				
8/6/2017	W	5.0	GG	AllWthr	Fast	01:01.0				
7/30/2017	W	4.0	GG	AllWthr	Fast	:49.40				
7/23/2017	W	4.0	GG	AllWthr	Fast	:49.80				
7/16/2017	W	3.0	GG	AllWthr	Fast	:37.80				
7/9/2017	W	3.0	GG	AllWthr	Fast	:40.40				
3/26/2017	W	2.0	GG	AllWthr	Fast	:26.00				
3/18/2017	W	2.0	GG	AllWthr	Fast	:27.60				
Date	Race/Work	Furlongs	Track	Surface	Track Cond.	Time	Age/Sex	Race Class	Earnings	Finish
12/31/2018	R	8.5	GG	Turf	Good		3U	Str50000nw2/L/x	225	9
12/24/2018	W	5.0	GG	AllWthr	Fast	01:02.4				
12/16/2018	W	3.0	GG	AllWthr	Fast	:39.80				
11/24/2018	R	5.5	GG	AllWthr	Fast		3U	Str50000nw2/L/x	225	7
11/19/2018	W	4.0	GG	AllWthr	Fast	:52.40				
11/11/2018	W	3.0	GG	AllWthr	Fast	:40.80				
10/28/2018	R	6.0	GG	AllWthr	Fast		3U	Clm40000 (40-35)	500	5
10/20/2018	W	4.0	GG	AllWthr	Fast	:48.40				
10/13/2018	W	3.0	GG	AllWthr	Fast	:37.80				
10/6/2018	W	3.0	GG	AllWthr	Fast	:37.60				
9/22/2018	R	8.0	GG	Turf	Firm		3U	Alw27000nw1\$225x	225	6
9/16/2018	W	4.0	GG	AllWthr	Fast	:49.40				
9/9/2018	W	3.0	GG	AllWthr	Fast	:36.40				
8/26/2018	R	6.0	GG	AllWthr	Fast		3U	Alw27000nw1\$225x	225	8
8/19/2018	W	5.0	GG	AllWthr	Fast	01:02.2				
8/11/2018	W	3.0	GG	AllWthr	Fast	:37.60				

Part 3: Case Horse's Event History

Date	Race/Work	Furlongs	Track	Surface	Track Cond.	Time	Age/Sex	Race Class	Earnings	Finish
8/5/2018	W	4.0	GG	AllWthr	Fast	:48.60				
7/29/2018	W	4.0	GG	AllWthr	Fast	:50.20				
7/15/2018	R	6.0	SAC	Dirt	Fast		3U	Msw	15600	1
7/8/2018	W	4.0	GG	AllWthr	Fast	:49.40				
6/24/2018	R	6.0	OTP	Dirt	Fast		3U	Msw	3120	3
6/7/2018	R	6.0	GG	AllWthr	Fast		3U	Msw	1560	4
6/3/2018	W	4.0	GG	AllWthr	Fast	:49.00				
5/20/2018	W	5.0	GG	AllWthr	Fast	01:02.0				
5/13/2018	W	5.0	GG	AllWthr	Fast	01:02.2				
5/6/2018	W	5.0	GG	AllWthr	Fast	01:03.6				
4/29/2018	W	4.0	GG	AllWthr	Fast	:50.60				
4/22/2018	W	4.0	GG	AllWthr	Fast	:51.00				
4/15/2018	W	3.0	GG	AllWthr	Fast	:39.80				
4/8/2018	W	3.0	GG	AllWthr	Fast	:40.80				
8/19/2017	W	5.0	GG	AllWthr	Fast	01:04.0				
8/6/2017	W	5.0	GG	AllWthr	Fast	01:01.0				
7/30/2017	W	4.0	GG	AllWthr	Fast	:49.40				
7/23/2017	W	4.0	GG	AllWthr	Fast	:49.80				
7/16/2017	W	3.0	GG	AllWthr	Fast	:37.80				
7/9/2017	W	3.0	GG	AllWthr	Fast	:40.40				
3/26/2017	W	2.0	GG	AllWthr	Fast	:26.00				
3/18/2017	W	2.0	GG	AllWthr	Fast	:27.60				

Part 4: Comparison of Exercise Variables between Case Horse and 198 Control Horses (4 year old, male, Thoroughbred)

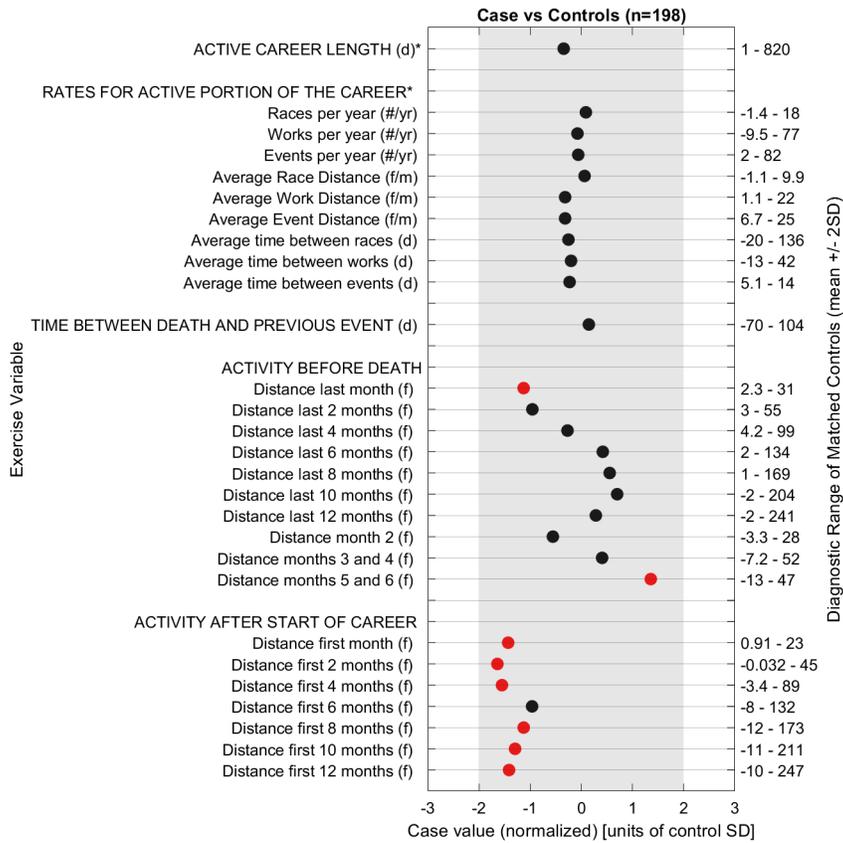


Case Horse values are indicated by black or red symbols: circles indicate values considered normal for 95% of 4 year old, male, Thoroughbreds (n=198) (gray region) (black and red indicate within 1 and 2 SD, respectively, of mean value of controls), X's indicate values outside of the normal range. Two 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 198 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=198) (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.