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CAHFS Accession #: [redacted]

FINAL REPORT

Ref.#: [redacted]

Coordinator: Monika Samol, DVM, Resident
E-Signed and Authorized by: Samol, Monika on 2/7/2019 10:39:59AM

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: 01/21/2019 **Date Received:** 01/22/2019

Comments: CHRB - [redacted]

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
Report To	UZAL, FRANCISCO	[redacted]	[redacted]	San Bernardino	CA	92408
Report To	ARTHUR, RICK	[redacted]	[redacted]	Sierra Madre	CA	91024
Attending Vet	FINLEY, JENNIFER	[redacted]	[redacted]	Pasadena	CA	91105
Trainer	Powell, Leonard	[redacted]	[redacted]	West Hollywood	CA	90069

CHRB - Related Information

Horse's Name:	[redacted]	Human Injury?	No
Tattoo:	[redacted]	Death Related to:	Race
Age:	3.00 Years	Track Surface:	Dirt
Gender:	Neutered Male	Location on Track:	5/8th pole
Taxonomy:	Thoroughbred Horse	Insured?	N

Medications: Banamine (Flunixin); Butazolidin (Phenylbutazone); Dormosedan (Detomidine); Lasix (Furosemide); Pentobarbital; Torbugesic (Butorphanol);

Laboratory Findings/Diagnosis

A 3 year old dark [redacted] Thoroughbred [redacted] ([redacted]) submitted with a history of left front biaxial sesamoid bone fracture during the race

Catastrophic breakdown of left front fetlock with:

LEFT FRONTLIMB

ACUTE CHANGES
1. Fracture of the medial proximal sesamoid bone
a) Closed, comminuted, articular, transverse, displaced, mid-body fracture with brown focus of discoloration/porosity (pre-existing lesion)
2. Severe scoring of the articular surfaces of the proximal sesamoid bones
3. Severe, focal, full thickness cartilage loss in the center of the articular surface of the lateral proximal sesamoid bone
4. Full thickness, transverse rupture of the palmar annular ligament

5. Full thickness, transverse and longitudinal rupture of the intersesamoidean ligament
6. Marked to severe fraying of fibers and hemorrhage of the deep digital flexor tendon
7. Marked fraying of fibers and complete transverse tear of the superficial digital flexor tendon
8. Severe fraying of fibers and hemorrhage of the lateral and medial short and cruciate ligaments
9. Severe fraying of fibers of medial collateral ligament of the proximal sesamoid bones
10. Severe fraying of fibers, complete longitudinal split and hemorrhage of the straight distal sesamoidean ligament
11. Severe scoring of the distal articular surface of MCIII
12. Severe erosion of the dorsal margin of the proximal articular surface of P1
13. Moderate scoring of the proximal articular surface of P1

CHRONIC CHANGES:
1. Mild to moderate, biaxial palmar osteochondrosis with blue, focal subchondral bone discoloration visible through the flattened and degenerated cartilage of the medial and lateral condyles of the distal articular surface of MCIII

RIGHT FORELIMB

CHRONIC CHANGES
1. Mild to moderate, biaxial palmar osteochondrosis with blue, focal subchondral bone discoloration visible through the flattened and degenerated cartilage of the medial and lateral condyles of the distal articular surface of MCIII
2. Mild to moderate scoring of the distal articular surface of MCIII
3. Moderate to severe synovial hyperplasia with red discoloration underneath the bases of the proximal sesamoid bones
4. Moderate, biaxial apical modeling with irregular bony outgrowth of the proximal sesamoid bones
5. Mild scoring lines of the articular surface of the proximal sesamoid bones
6. Moderate lipping of the dorsal and palmar margin of the proximal articular surface of P1
7. Moderate scoring of the proximal articular surface of P1

Other findings
- Pulmonary congestion and edema (euthanasia artifact)
- Splenomegaly (euthanasia artifact)

Case Summary

01/31/19: The most important finding in the left forelimb is fracture of the medial proximal sesamoid bone. The injury resulted in loss of support of the fetlock joint of the left forelimb. The reason of the aforementioned fracture may be related to the focal region of brown discoloration and bone porosity/osteopenic focus associated with the fracture surfaces in the medial proximal sesamoid bone. However, besides moderate osteoarthritis affecting the right fetlock, changes of similar nature could not be located in the medial proximal sesamoid bone in contralateral limb.

01/22/19 No significant findings were identified in visceral organs. At the time of necropsy, both front 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

Horse was approx 1/8th mile into race and suddenly went wrong. LF biaxial sesamoid fxs.

Gross Observations

Necropsy of a 3 year old, dark [redacted] Thoroughbred [redacted], 500 kg, with [redacted], tattoo [redacted] is commenced at 9:30 am, January 22, 2019. The carcass is in good nutritional condition, with appropriate musculature development, good deposits of adipose tissue, and in moderate 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. The intestinal tract is unremarkable, and the small colon contains formed feces.
Both front limbs are removed at the level of the chestnut for further examination.

CHRB Musculoskeletal

Both front limbs were examined distally from the chestnut. Following changes were seen:

LEFT FRONTLIMB

A- PROXIMAL SESAMOID BONES
1. Fracture of the medial proximal sesamoid bone
a) Closed, comminuted, articular, transverse, displaced, mid-body fracture with axial component avulsed with intersesamoidean ligament, loose triangular fragment in between axial and abaxial parts of the proximal component and brown focus of discoloration/porosity (pre-existing lesion):
A region of increased porosity is present at the abaxial aspect of the articular surface on both opposing fracture surfaces of the medial proximal sesamoid bone. The fracture line propagates through subchondral focus of brown discoloration surrounded by highly compacted trabecular bone (sclerosis) and adjacent to the cartilage of the articular surface of medial proximal sesamoid bone. The trabecular bone of the flexor surface is also highly compacted (sclerotic).
For better visualization of described fractures, please see attached pictures and drawings.
2. Severe scoring of the articular surfaces of the proximal sesamoid bones
3. Severe, focal, rounded (app. 0.3 mm in diameter) full thickness cartilage loss in the center of the articular surface of the lateral proximal sesamoid bone

B- SOFT TISSUES
1. Full thickness, transverse and longitudinal rupture of the intersesamoidean ligament. The transverse component follows the fracture line of the medial proximal sesamoid bone and courses further in lateral direction above the lateral proximal sesamoid bone. The longitudinal split affects distal third of the ligament and it progresses distally affecting the distal straight sesamoidean ligament resulting in complete longitudinal rupture and severe fraying of its proximal third.
2. Full thickness, transverse rupture of the palmar annular ligament
3. Marked fraying of fibers and hemorrhage of the deep digital flexor tendon at the level of the fetlock
4. Marked fraying of fibers of the dorsal surface, hemorrhage and complete transverse tear (app. 3-4 cm long) of the medial aspect of the superficial digital flexor tendon at the level of the fetlock
5. Marked to severe fraying of fibers and hemorrhage of the deep digital flexor tendon
6. Severe fraying of fibers and hemorrhage of the lateral and medial short and cruciate ligaments
7. Severe fraying of fibers of medial collateral ligament of the proximal sesamoid bones
8. Moderate, focal, dark red discoloration visible in the center of the cross section and extending for app. 4-5 cm at the level of mid-body of the suspensory ligament

C- MCIII
1. Severe scoring of the distal articular surface of MCIII
2. Severe hemorrhage accompanied by soft tissue hypertrophy at the palmar aspect of the supracondylar region of MCIII
3. Severe hemorrhage with soft tissue erosion at the dorsal aspect of the supracondylar region of MCIII
4. Mild to moderate, biaxial palmar osteochondrosis with blue, focal subchondral bone discoloration visible through the flattened and degenerated cartilage of the medial and lateral condyles of the distal articular surface of MCIII

D- P1
1. Severe erosion of the dorsal and palmar margins of the proximal articular surface of P1
2. Mild lipping with red discoloration of the palmar margin of the proximal articular surface of P1

RIGHT FRONTLIMB
A- P1
1. Mild lipping of the dorsal margin of the proximal articular surface of P1
2. Moderate scoring of the proximal articular surface of P1
3. Mild, focal, cartilage ulceration of the dorsolateral aspect of the proximal articular surface of P1

B- PROXIMAL SESAMOID BONES
1. Moderate to severe synovial hyperplasia with red discoloration underneath the bases of the proximal sesamoid bones
2. Moderate, biaxial apical modeling with irregular bony outgrowth of the proximal sesamoid bones
3. Moderate scoring lines of the articular surface of the proximal sesamoid bones

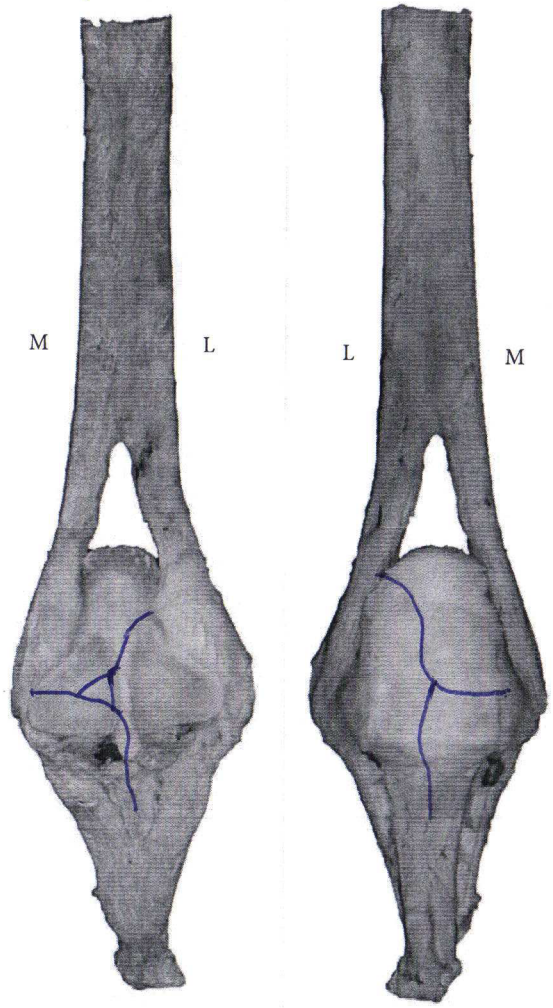
C- MCIII
1. Mild to moderate, biaxial palmar osteochondrosis with blue, focal subchondral bone discoloration visible through the flattened and degenerated cartilage of the medial and lateral condyles of the distal articular surface of MCIII
2. Mild to moderate scoring of the distal articular surface of MCIII
3. Moderate hemorrhage accompanied by soft tissue hypertrophy at the palmar aspect of the supracondylar region of MCIII
4. Moderate hemorrhage with soft tissue erosion at the dorsal aspect of the supracondylar region of MCIII

No gross lesions/ abnormalities were identified in other bones of both distal front limbs examined from the chestnut to the hoof.

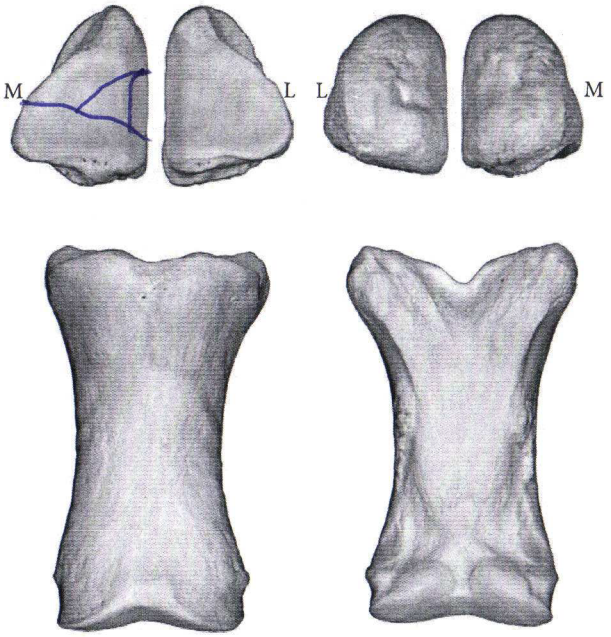
Accession # [redacted]
CC: MAS
Date: 1/31/13

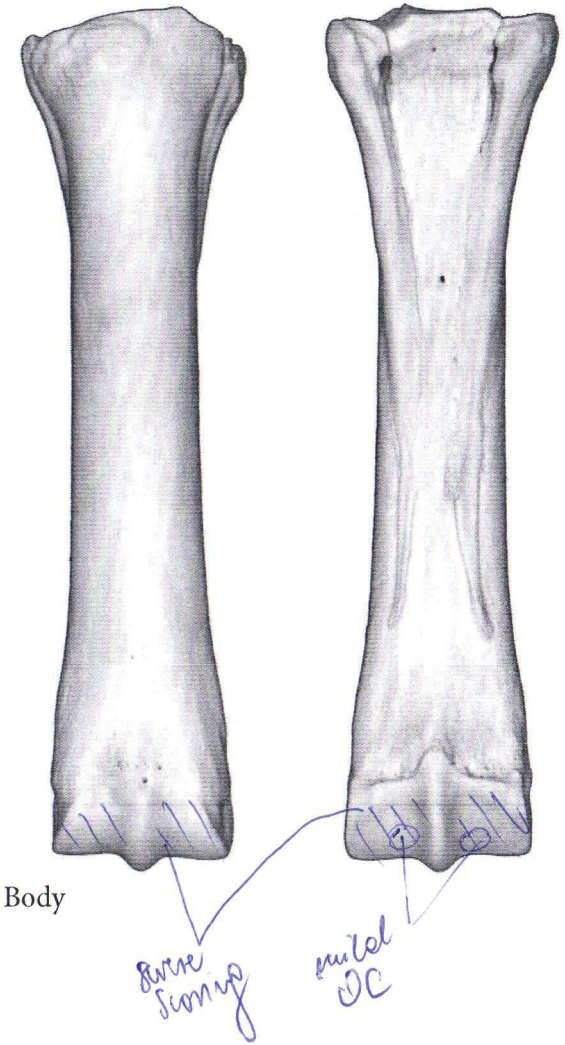
Left Fetlock

Please circle affected leg
foreleg
hindleg



Susp. App. (dorsal) Susp. App. (palmar/plantar)





Involved Structures

SDF tendon: (Yes) No DDF tendon: (Yes) No

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

Open wound? Yes (No)

Joint capsule intact? Yes (No)

Joint luxated? Yes (No)

Exercise History Report (Full)

[redacted]

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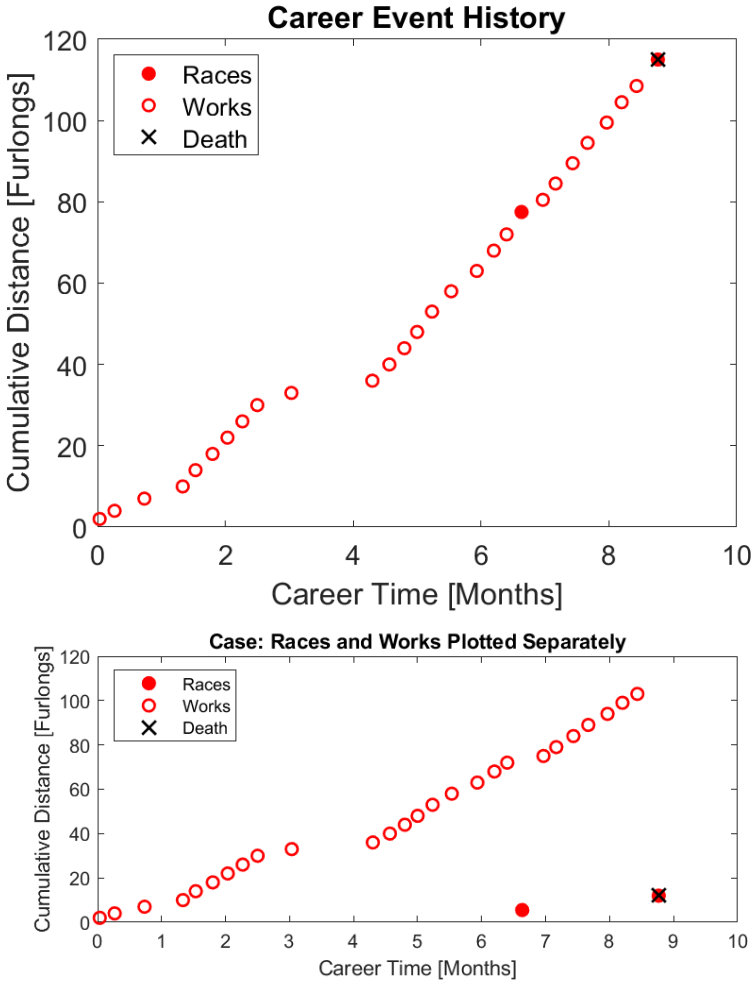
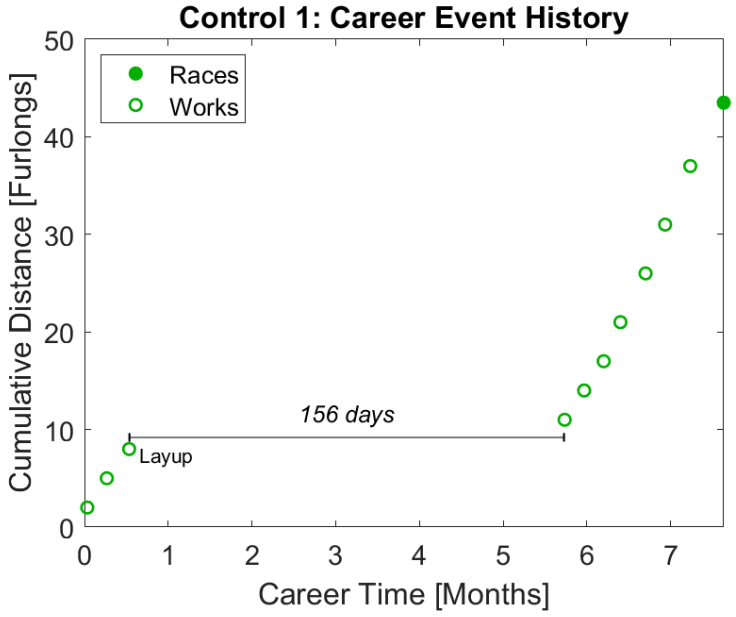
Part 1: Graphical Representation of Individual High-Speed Exercise Histories

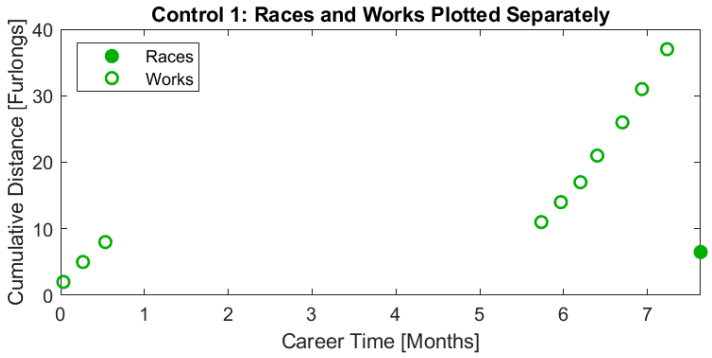
Races (filled circles), officially timed high-speed works (open circles), layups (line with endcaps, periods of time greater than 60 days in length without a race or timed work), and time of death (X) are illustrated over time (Career Time in months). With each event (race or work), the number of furlongs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

Case Horse High Speed Exercise History

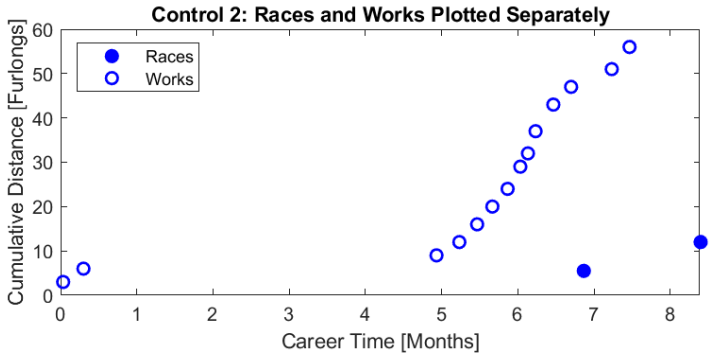


Control 1 High Speed Exercise History

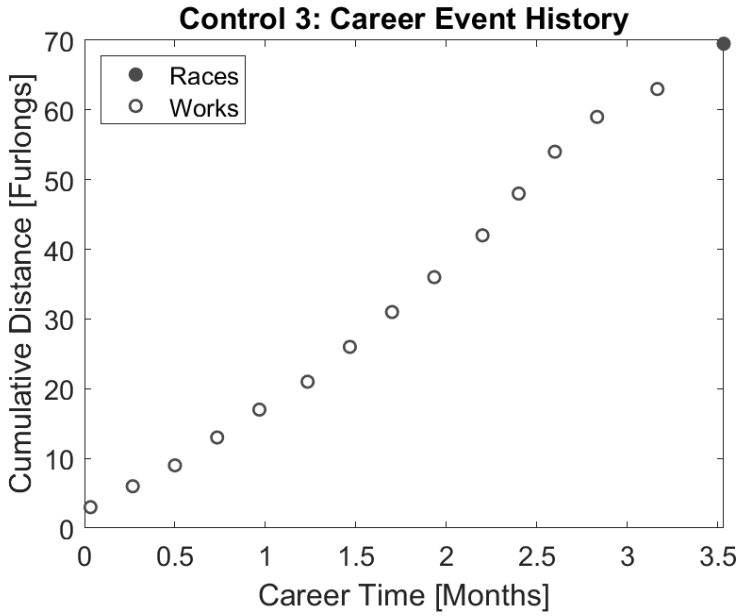


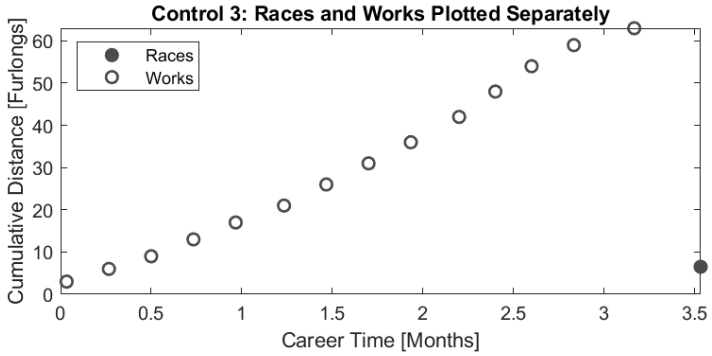


Control 2 High Speed Exercise History

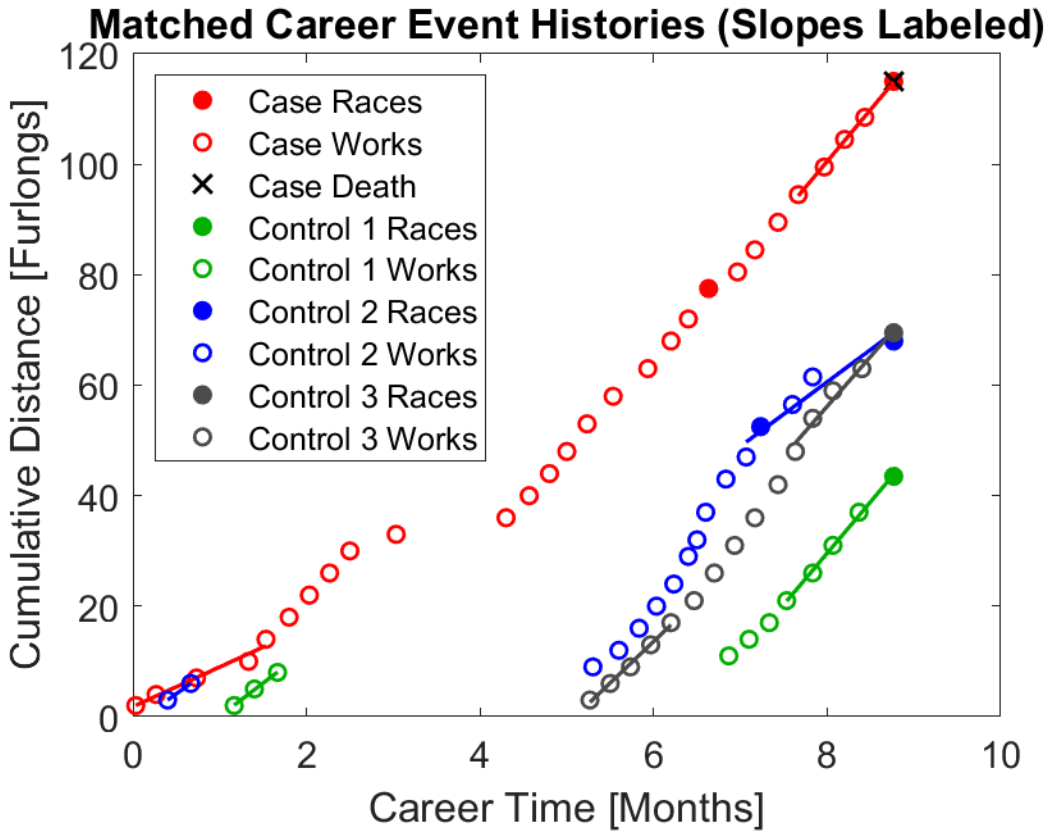


Control 3 High Speed Exercise History

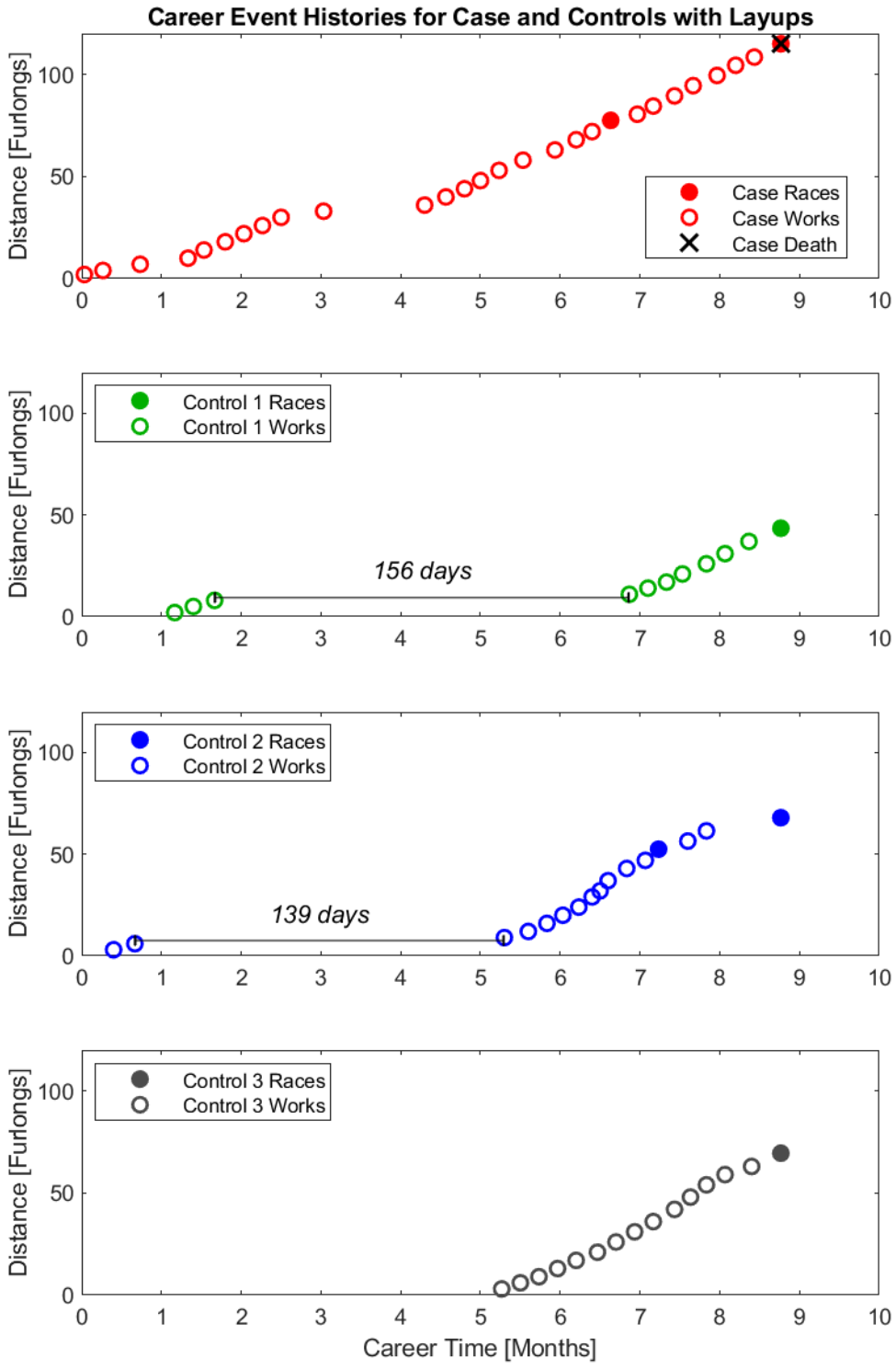


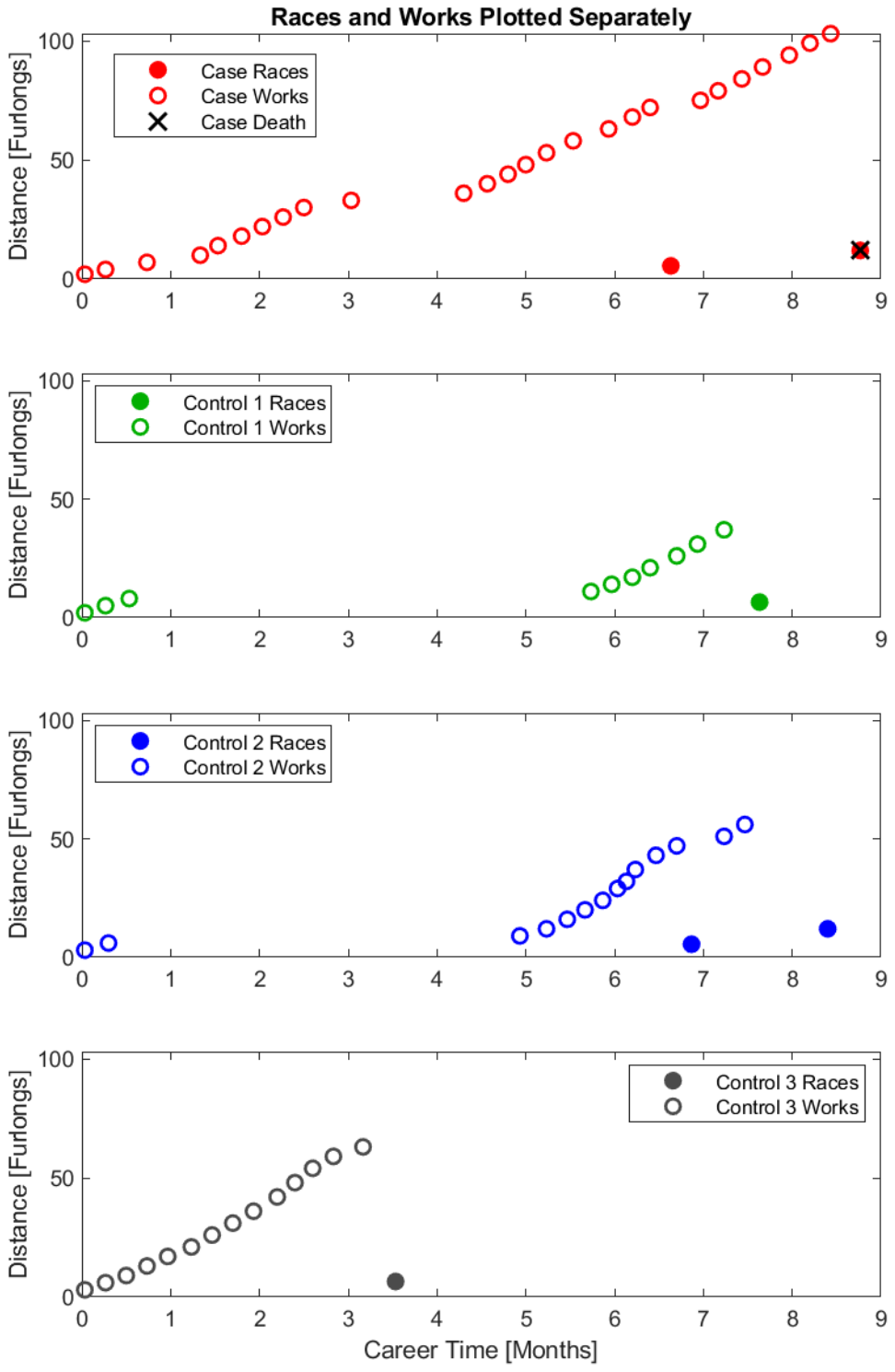


Part 2: Case and Control Horses Plotted Together



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.

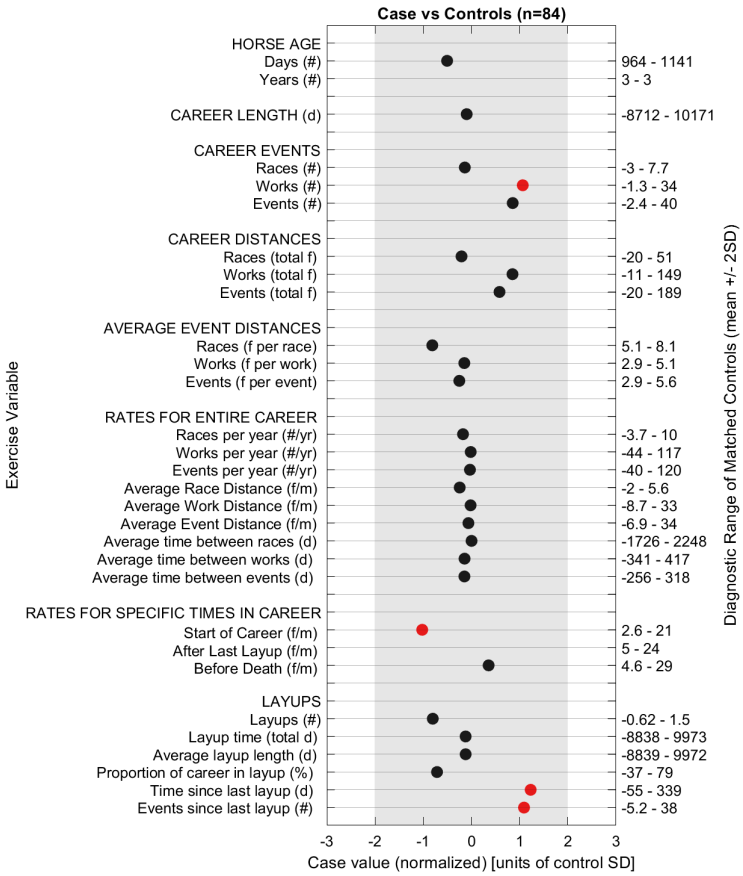

Career Event Histories for Case and Controls with Layups
Distance [Furlongs]
Case Races
Case Works
Case Death
Control 1 Races
Control 1 Works
156 days
Control 2 Races
Control 2 Works
139 days
Control 3 Races
Control 3 Works
Career Time [Months]


Races and Works Plotted Separately
Distance [Furlongs]
Case Races
Case Works
Case Death
Control 1 Races
Control 1 Works
Control 2 Races
Control 2 Works
Control 3 Races
Control 3 Works
Career Time [Months]

Part 3: Case Horse's Event History

Date	Race/ Work	Fur-longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn-ings	Finish
1/21/2019	R	6.5	SA	Dirt	Fast		3	(S) Mcl50000 (50-45)	351	8
1/11/2019	W	4.0	SA	Dirt	Fast	:50.00				
1/4/2019	W	5.0	SA	Dirt	Fast	01:05.0				
12/28/2018	W	5.0	SA	Dirt	Fast	01:02.0				
12/19/2018	W	5.0	SA	Dirt	Fast	01:03.2				
12/12/2018	W	5.0	SA	Dirt	Fast	01:02.2				
12/4/2018	W	4.0	SA	Dirt	Fast	:48.40				
11/28/2018	W	3.0	SA	Dirt	Fast	:36.00				
11/18/2018	R	5.5	DMR	Dirt	Fast		2	(S) Msw	1060	5
11/11/2018	W	4.0	SA	Dirt	Fast	:50.80				
11/5/2018	W	5.0	SA	Dirt	Fast	01:01.6				
10/28/2018	W	5.0	SA	Dirt	Fast	01:02.0				
10/16/2018	W	5.0	SA	Dirt	Fast	01:03.4				
10/7/2018	W	5.0	SA	Dirt	Fast	01:02.4				
9/30/2018	W	4.0	SA	Dirt	Fast	:50.60				
9/24/2018	W	4.0	SA	Dirt	Fast	:50.00				
9/17/2018	W	4.0	SA	Dirt	Fast	:49.00				
9/9/2018	W	3.0	SA	Dirt	Fast	:37.20				
8/2/2018	W	3.0	DMR	Dirt	Fast	:37.80				
7/17/2018	W	4.0	DMR	Dirt	Fast	:51.20				
7/10/2018	W	4.0	SA	Dirt	Fast	:49.80				
7/3/2018	W	4.0	SA	Dirt	Fast	:49.80				
6/26/2018	W	4.0	SA	Dirt	Fast	:51.00				
6/18/2018	W	4.0	SA	Dirt	Fast	:51.60				
6/12/2018	W	3.0	SA	Dirt	Fast	:38.00				
5/25/2018	W	3.0	SA	Dirt	Fast	:37.40				
5/11/2018	W	2.0	SA	Dirt	Fast	:25.00				
5/4/2018	W	2.0	SA	Dirt	Fast	:25.40				

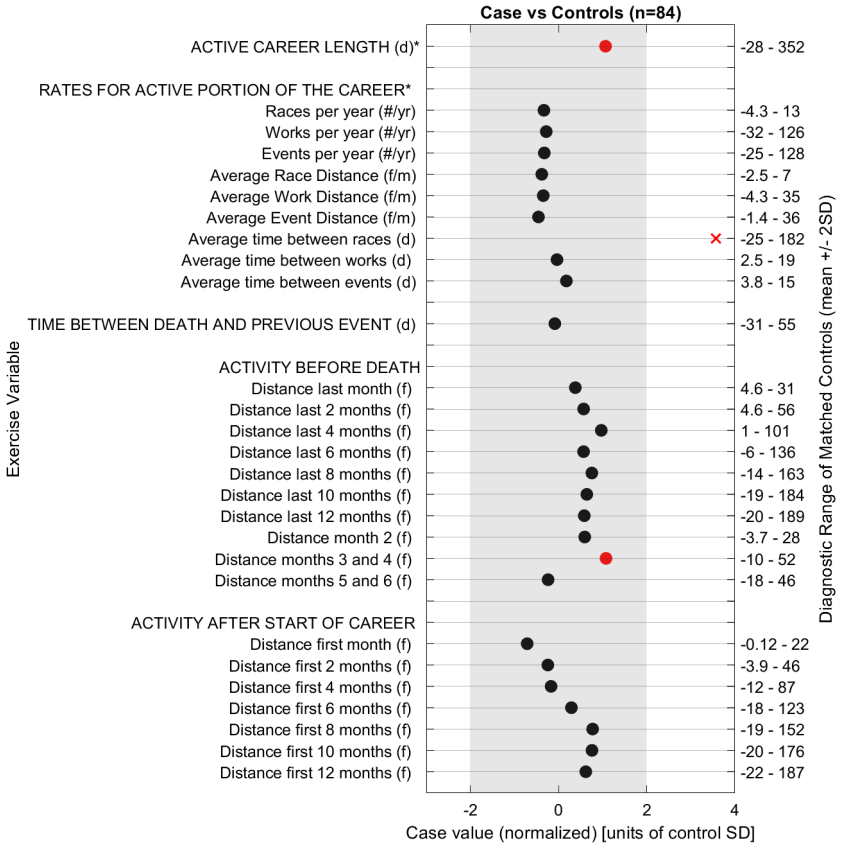
Part 4: Comparison of Exercise Variables between Case Horse and 84 Control Horses (3 year old, male, Thoroughbred)



Case Horse values are indicated by black or red symbols: circles indicate values considered normal for 95% of 3 year old, male, Thoroughbreds (n=84) (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.



Case Horse values are indicated by black or red symbols: circles indicate values considered normal for 95% of 3 year old, male, Thoroughbreds (n=84) (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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