



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
3/14/2019 8:31:20AM

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: 02/23/2019 Date Received: 02/23/2019

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	Birch, Sarah	[REDACTED]	[REDACTED]	Arcadia	CA	91066
Trainer	BAROCIO, LIBRADO	[REDACTED]	[REDACTED]	Culver City	CA	90231

CHRB - Related Information

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

Medications: Rompun (Xylazine);

Laboratory Findings/Diagnosis

A 4 year old [REDACTED] Thoroughbred [REDACTED] ([REDACTED]) submitted with history of right front open, biaxial proximal sesamoid bone fracture and disarticulated metacarpophalangeal joint

Catastrophic breakdown of right front fetlock with

RIGHT FORELIMB

ACUTE CHANGES

- Fracture of the proximal sesamoid bones
- Open, biaxial, simple, articular, transverse, displaced, mid-body fracture of the lateral and medial proximal sesamoid bones
- Suspensory ligament failure: complete, transverse rupture of the lateral branch and medial branch with severe hemorrhage and moderate fraying of fibers of lateral branch
- Complete luxation of the fetlock joint- MCIII bone completely perforated the skin, which resulted in complete exposure of

distal third of the cannon bone

4. Open, simple, non-articular, transverse, displaced fracture of the MCII
5. Severe, complete, transverse rupture of medial and lateral collateral ligaments of the fetlock
6. Full thickness, transverse and longitudinal rupture of the intersesamoidean ligament
7. Severe fraying of fibers, hemorrhage and incomplete transverse rupture of the deep digital flexor tendons
8. Moderate fraying of fibers and hemorrhage of the superficial digital flexor tendon
9. Severe fraying of fibers of the lateral and medial short and cruciate ligaments
10. Moderate fraying of fibers and incomplete transverse rupture of the lateral and medial collateral ligaments of proximal sesamoid bones
11. Severe, longitudinal, full-thickness split, fraying of fibers and hemorrhage of the straight distal sesamoidean ligament
12. Severe, deep, biaxial, erosions of the dorsal and palmar aspect of the proximal articular surface of P1
13. Severe, deep erosion of the mid-sagittal ridge of the distal articular surface of MCIII
14. Severe, longitudinal, full thickness cartilage loss of the abaxial margin of the medial condyle of the distal articular surface of MCIII

CHRONIC CHANGES:

1. Mild exostosis ('blind splint') of the medial MCII accompanied by expansion of the palmar aspect of MCIII

LEFT FORELIMB

CHRONIC CHANGES

1. Chip fracture of the abaxial margin (insertion of the lateral branch of suspensory ligament) of the medial proximal sesamoid bone
2. Mild to moderate exostosis ('blind splint') of the medial MCII accompanied by expansion of the palmar aspect of MCIII

Other findings:

- Severe, extensive gastric hyperkeratosis of non-glandular mucosa with mild gastric ulceration along the margo plicatus (incidental)
- Pulmonary congestion and edema (euthanasia artifact)

Case Summary

03/06/19: The most important findings in the right forelimb are biaxial fractures of the proximal sesamoid bones and suspensory ligament failure. The latter injuries resulted in loss of support of the fetlock joint in the right forelimb. The aforementioned fractures may be related to the stress fractures surrounded by sclerotic trabecular bone visible on opposing surfaces of the fractured proximal sesamoid bones. Most likely, they were caused by the 'pulling' force created by suspensory branches (consequence of fetlock overextension). Interestingly, the lesions of similar nature were identified in the medial proximal sesamoid bone of the intact forelimb.

02/23/19 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

Right Foreleg: Open biaxial proximal sesamoid fractures, disarticulated metacarpophalangeal joint.

Gross Observations

Necropsy of a 4 year old, [REDACTED] Thoroughbred [REDACTED] ([REDACTED]), 540 kg, with a [REDACTED] [REDACTED], microchip [REDACTED] is commenced at 1:00 pm, February 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 stable foam, the lungs are mottled pink to red, spongy and wet (euthanasia artifact). On the left kidney, there are multifocal to coalescing, white/grey, irregular areas (app. 1 cm x 2 cm) of capsular thickening (presumably interstitial fibrosis). The stomach contains green, soft roughage and grain particles. Non-glandular gastric mucosa is extensively hyperkeratotic with mild, shallow ulcers along the margo plicatus. 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 radiocarpal joint. Following changes were seen:

RIGHT FRONT**A- PROXIMAL SESAMOID BONES****1. Fracture of the proximal sesamoid bones**

- Open, biaxial, simple, articular, transverse, displaced, mid-body fracture of the lateral and medial proximal sesamoid bones
The subchondral bone of opposing surfaces of both proximal sesamoid bones is highly compacted (sclerotic). The abaxial margins along the suspensory branches insertion are irregular. On the proximal component of medial proximal sesamoid bone and distal component of lateral proximal sesamoid bone, there are short (app. 0.3 cm long) stress fractures, which originate from the level of suspensory branch insertion. Both are surrounded by highly compacted trabecular bone.

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

2. Moderate scoring of the articular surfaces of the proximal sesamoid bones**B- SOFT TISSUES**

1. Full thickness, transverse intersesamoidean ligament rupture with sagittal component affecting straight distal sesamoidean ligament- 'T' shaped, the tear is following the fracture lines of the proximal sesamoid bones

2. Suspensory ligament failure with complete, transverse rupture of the lateral branch and medial branches with severe hemorrhage and moderate fraying of fibers of the palmar surface of lateral branch. The body is markedly hemorrhagic in its lateral aspect.

3. Severe, complete, transverse rupture of medial and lateral collateral ligaments of the fetlock

4. Full thickness, transverse and longitudinal rupture of the intersesamoidean ligament

5. Severe fraying of fibers, hemorrhage and incomplete transverse rupture of the deep digital flexor tendons

6. Moderate fraying of fibers and hemorrhage of the superficial digital flexor tendon

7. Severe fraying of fibers of the lateral and medial short and cruciate ligaments

8. Moderate fraying of fibers and incomplete transverse rupture of the lateral and medial collateral ligaments of proximal sesamoid bones

9. Moderate to severe proliferative synovitis of the fetlock joint

C- MCII

1. Open, simple, complete, non-articular, transverse, displaced fracture of the MCII- fracture resulted in complete separation of the button of the splint bone

2. Mild exostosis ('blind splint') of the medial MCII at the level of the mid-shaft accompanied by expansion of the palmar aspect of MCII

D- MCIII

1. Severe, deep erosion of the mid-sagittal ridge of the distal articular surface of MCIII

2. Severe, longitudinal, full thickness cartilage loss of the abaxial margin of the medial condyle of the distal articular surface of MCIII

3. Severe scoring of the distal articular surface of MCIII

4. Moderate, focal, full thickness, irregularly shaped cartilage loss on the dorsal aspect of the mid-sagittal ridge of the distal articular surface of MCIII

5. Moderate to severe hemorrhage accompanied by soft tissue hypertrophy at the palmar aspect of the supracondylar region of MCIII

6. Moderate to severe hemorrhage with bone erosion due to compression of the hypertrophic synovial pad (osteoclastic osteolysis) at the dorsal aspect of the supracondylar region of MCIII

7. Mild exostosis ('blind splint') of the medial MCII at the level of the mid-shaft accompanied by expansion of the palmar aspect of MCII

E- P1

1. Severe, biaxial, deep bony erosion of the dorsal and palmar aspect of the proximal articular surface of P1

2. Moderate lipping of the dorsal and palmar aspect of the proximal articular surface of P1

3. Mild scoring lines of the proximal articular surface

LEFT FRONT

A- PROXIMAL SESAMOID BONES

1. Chip fracture of the abaxial margin of the medial proximal sesamoid bone- the fragment separates from the level of suspensory branch insertion (roughly from its lower third). There is a white rim created by sclerotic subchondral bone proximally from the chip. The same white rim is present on the lateral proximal sesamoid bone, at the same location.
2. Moderate, biaxial, apical bone remodeling with irregular bony outgrowth

B- MCII

1. Mild to moderate exostosis ('blind splint') of the medial MCII at the level of the mid-shaft accompanied by expansion of the palmar aspect of MCII- the exostosis is app. 4 cm long and it is more prominent in distal half

C- MCIII

1. Mild to moderate fibrillation of the abaxial margin of the medial condyle of the distal articular surface of MCIII
2. Mild, biaxial, longitudinal fissures of the cartilage of the condylar grooves of the distal articular surface of MCIII
3. Mild to severe hemorrhage accompanied by soft tissue hypertrophy at the palmar aspect of the supracondylar region of MCIII
4. Mild to severe hemorrhage with bone erosion due to compression of the hypertrophic synovial pad (osteoclastic osteolysis) at the dorsal aspect of the supracondylar region of MCIII

D- P1

1. Mild lipping of the dorsal aspect of the proximal articular surface of P1
2. Moderate, focal cartilage ulceration along the dorsomedial margin (app. 2 cm long) of the proximal articular surface of P1.

***Hooves**

- Significant difference between shape and width of both front hooves- left front is wider and flatter (moderate underrun heels); the right front hoof is higher and narrower- for better visualization please see the attached pictures

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

Accession #



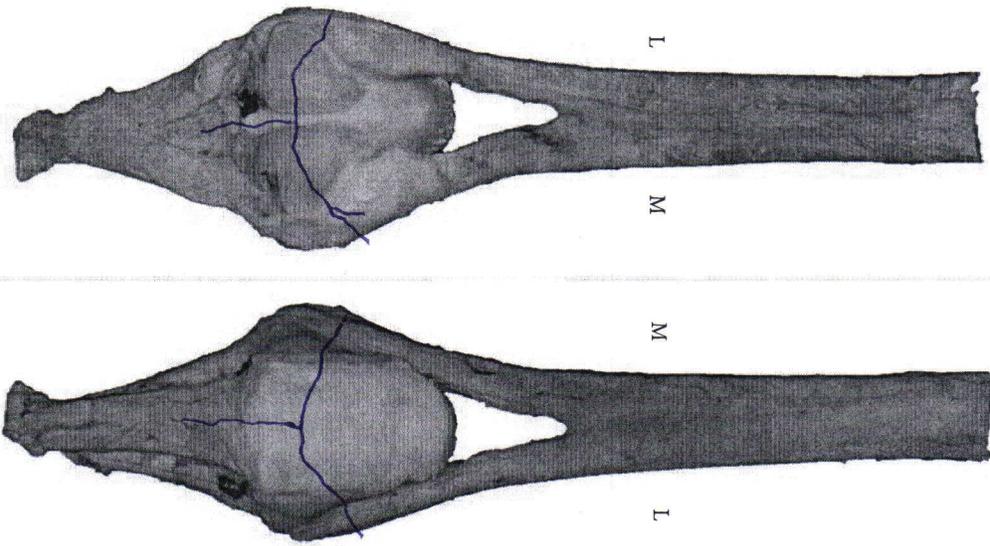
CC: MAS

Date: 03/05/18

Right Fetlock

Please circle affected leg

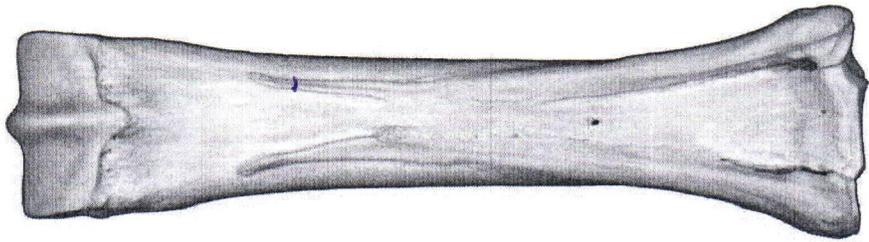
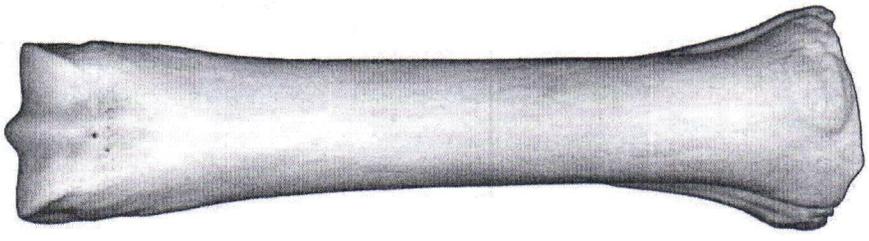
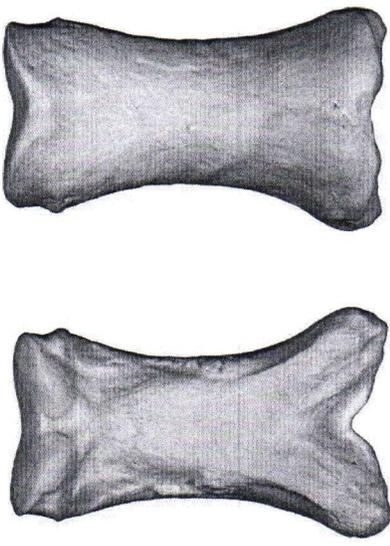
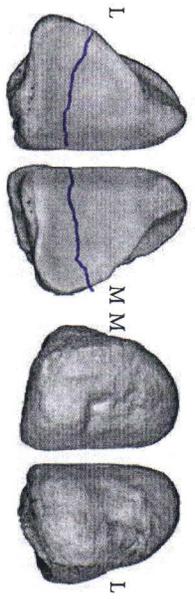
foreleg
hindleg



Open wound? Yes No

Joint capsule intact? Yes No

Joint luxated? Yes No



Involved Structures

SDF tendon: Yes No DDF tendon: Yes No

Suspensory ligament: Yes No

SL Medial branch

SL Lateral branch

SL Body

Interseamoidian ligament: Yes No

Longitudinal

Transverse

Distal Sesamoidian ligaments (straight and/or oblique) Yes No

Collateral ligaments: Yes No

Collateral Sesamoidian Ligaments: Yes No

Cruciate and/or Short Sesamoidian Ligaments Yes No

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.

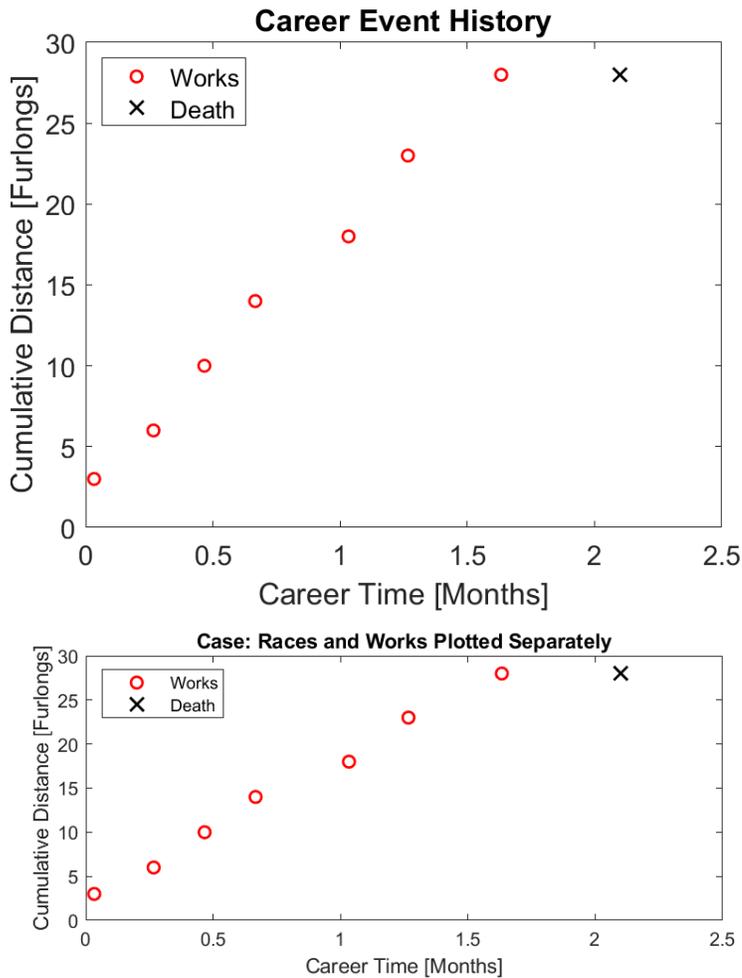
Table of Contents

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 193 Control Horses (4 year old, male, Thoroughbred)	8

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

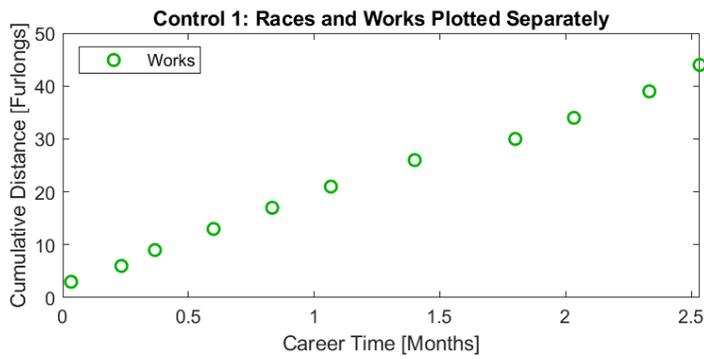
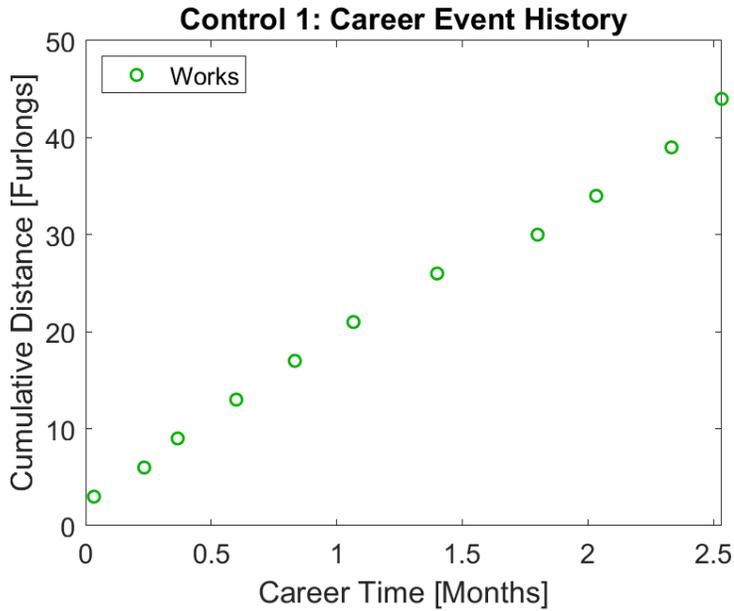
Races (filled circles), officially timed high-speed works (open circles), layups (line with endcaps, periods of time greater than 60 days in length without a race or timed work), and time of death (X) are illustrated over time (Career Time in months). With each event (race or work), the number of furlongs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

Case Horse High Speed Exercise History

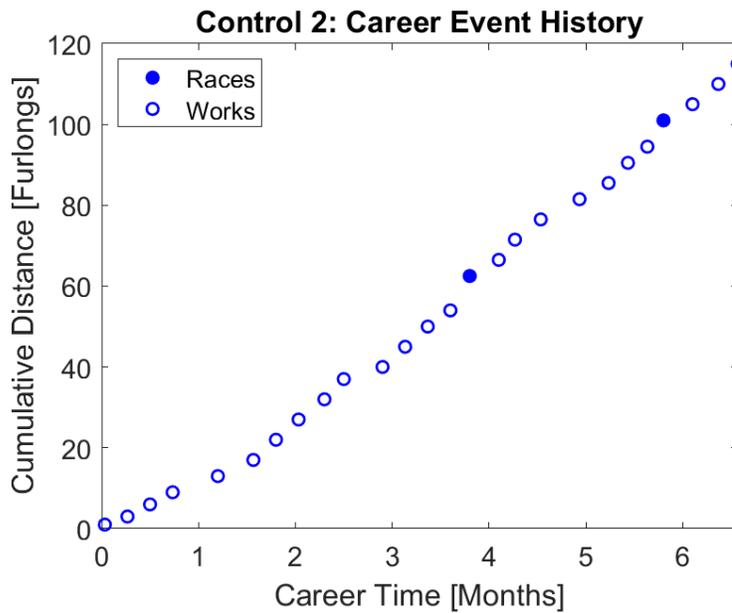


Part 1: Graphical Representation of Individual High-Speed Exercise Histories

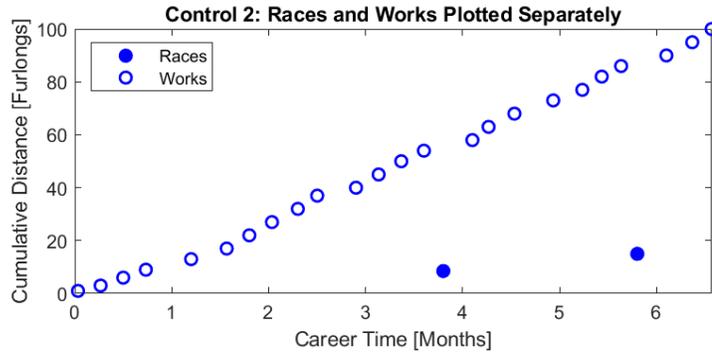
Control 1 High Speed Exercise History



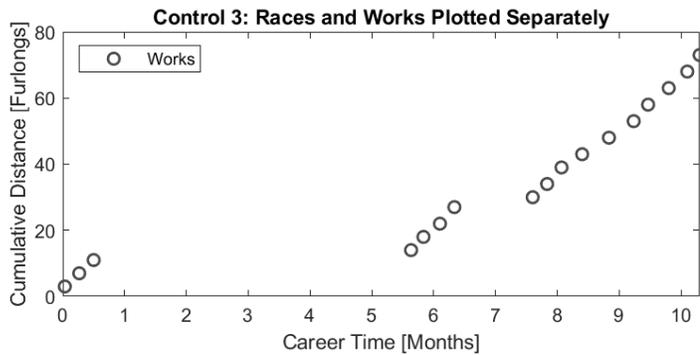
Control 2 High Speed Exercise History



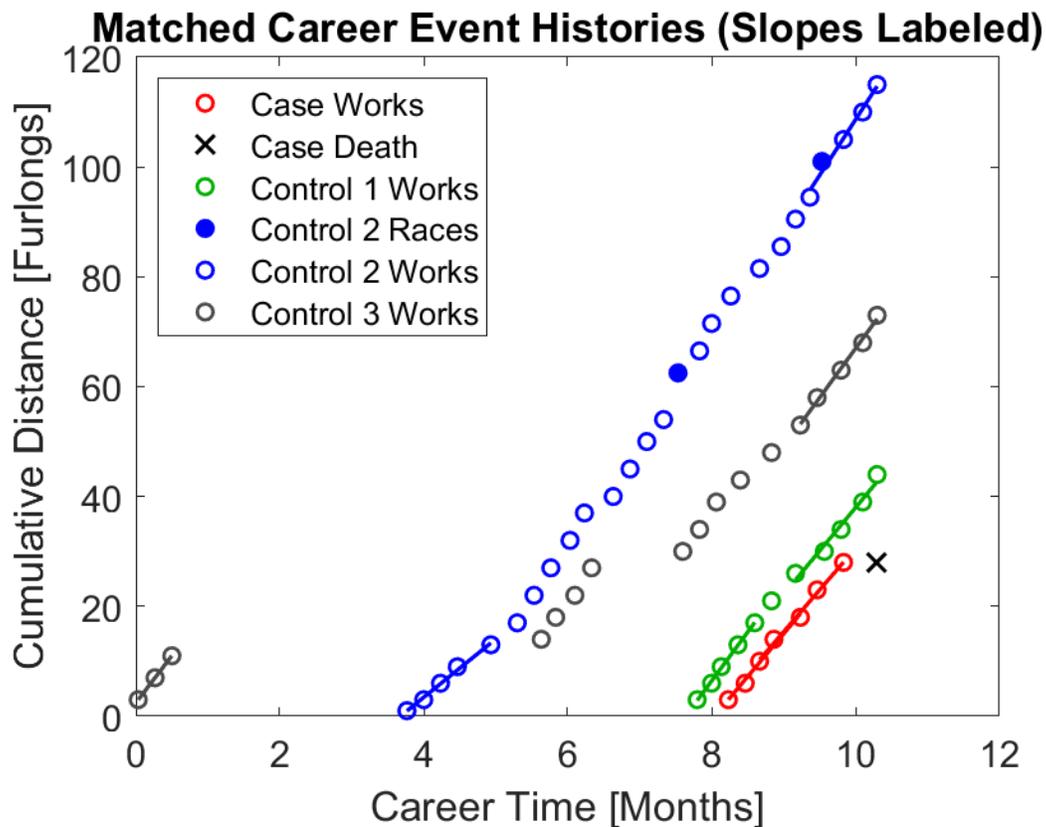
Part 1: Graphical Representation of Individual High-Speed Exercise Histories



Control 3 High Speed Exercise History

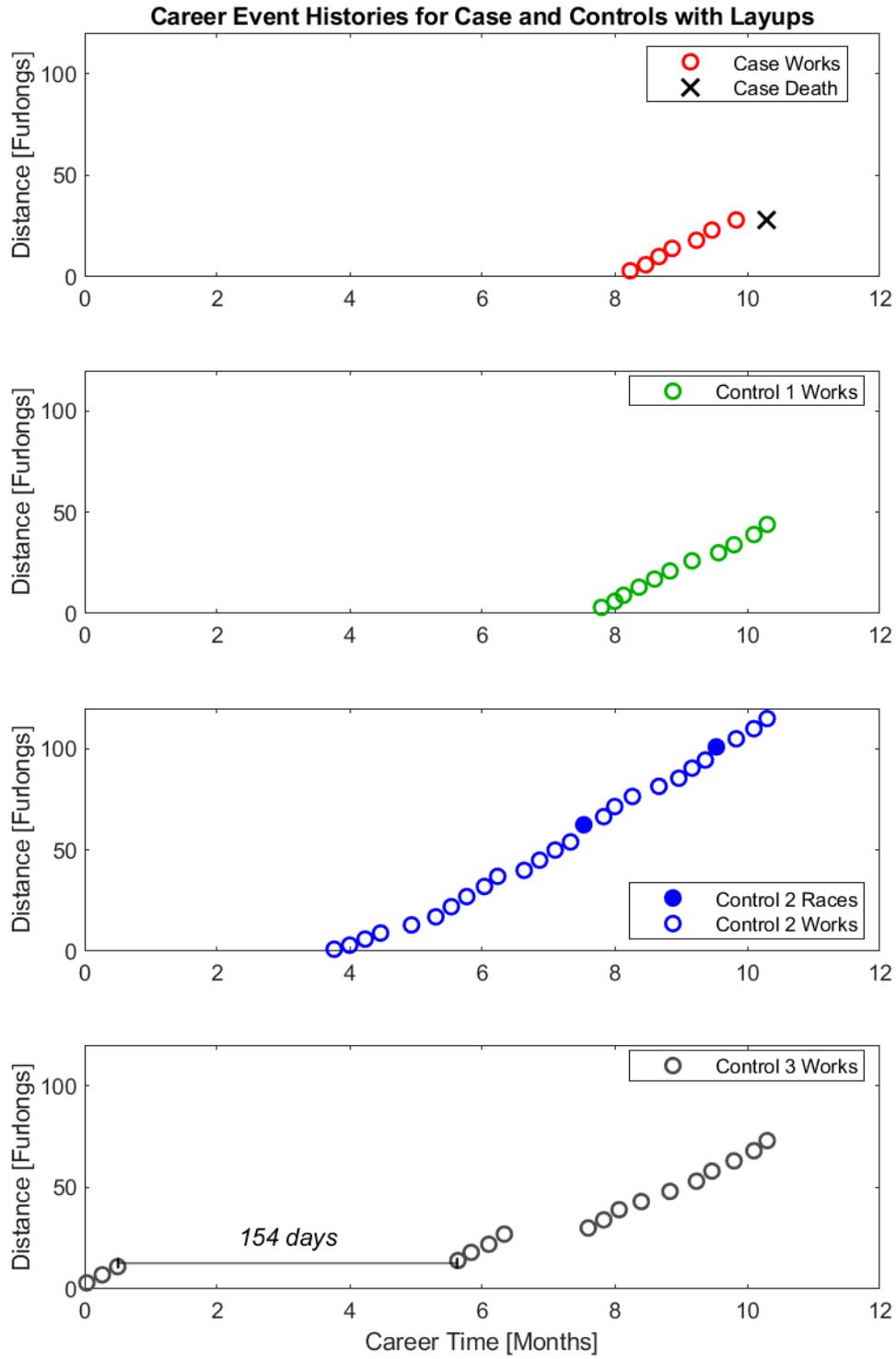


Part 2: Case and Control Horses Plotted Together

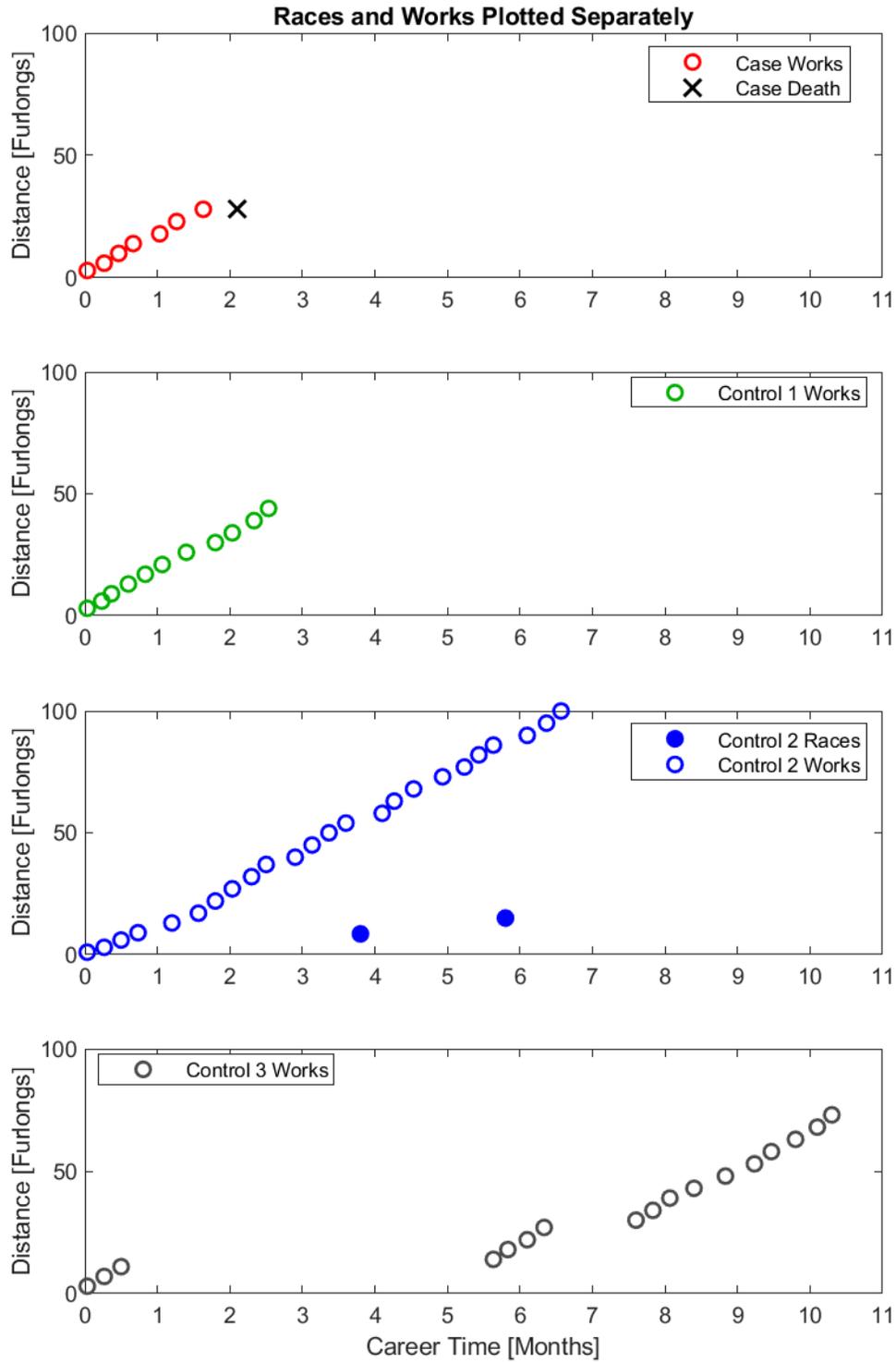


Case and Control Horses' exercise event histories are plotted on the same axes. The plots are aligned by the match date (equal to the date of death of Case Horse). Lines segments indicate specific rates of exercise at the start of career, end of career (for Case Horse), and match date (for Control Horses).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



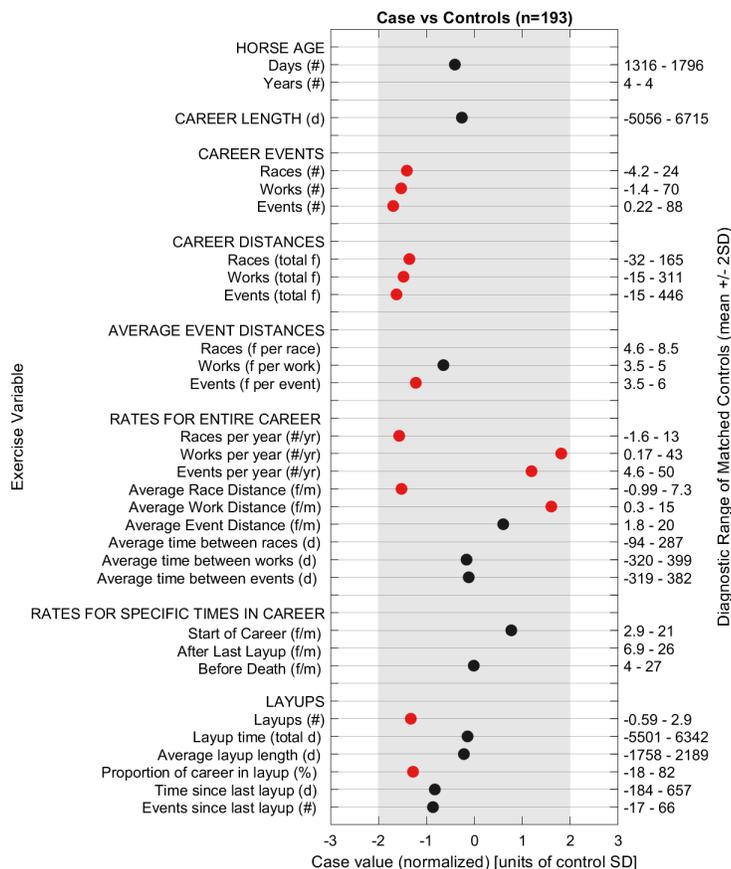
Part 2: Case and Control Horses Plotted Together



Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
2/9/2019	W	5.0	SA	Dirt training	Fast	01:01.4				
1/29/2019	W	5.0	SA	Dirt	Fast	01:03.8				
1/22/2019	W	4.0	SA	Dirt	Fast	:49.60				
1/11/2019	W	4.0	SA	Dirt training	Fast	:51.80				
1/5/2019	W	4.0	SA	Dirt training	Fast	:49.40				
12/30/2018	W	3.0	SA	Dirt training	Fast	:39.00				
12/23/2018	W	3.0	SA	Dirt training	Fast	:38.40				

Part 4: Comparison of Exercise Variables between Case Horse and 193 Control Horses (4 year old, male, Thoroughbred)

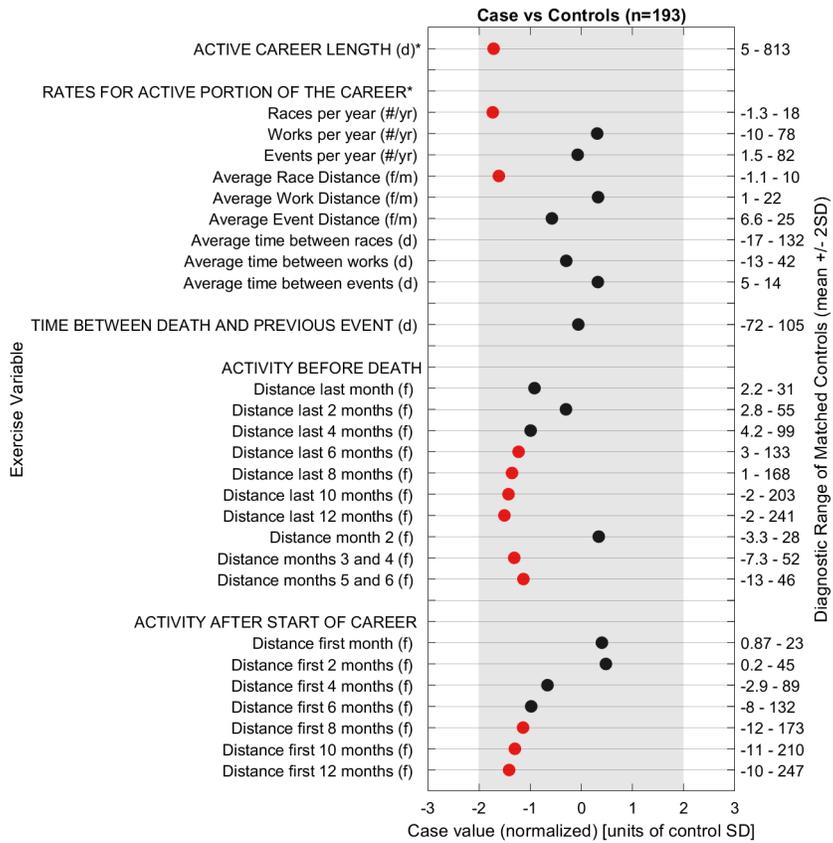


Case Horse values are indicated by black or red symbols: circles indicate values considered normal for 95% of 4 year old, male, Thoroughbreds (n=193) (gray region) (black and red indicate within 1 and 2 SD, respectively, of mean value of controls), X's indicate values outside of the normal range. Two 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 193 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=193) (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.