



UC DAVIS VETERINARY MEDICINE

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Addendum Version 1

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Coordinator: Monika Samol, DVM, Resident

E-Signed and Authorized by: Samol, Monika on
3/19/2019 9:17:36AM

Email To:
ARTHUR, RICK
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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: 01/11/2019 Date Received: 01/13/2019

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]
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	GOMEZ, RUBEN	[REDACTED]	[REDACTED]	Sylmar	CA	91342

CHRB - Related Information

Horse's Name:	[REDACTED]	Human Injury?	No
Tattoo:	[REDACTED]	Death Related to:	Race
Age:	4.00 Years	Track Surface:	Dirt
Gender:	Female	Location on Track:	
Taxonomy:	Thoroughbred Horse	Insured?	N

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

Laboratory Findings/Diagnosis

A 4 year old [REDACTED] Thoroughbred [REDACTED] submitted with a history of right front biaxial sesamoid bone fracture with suspensory apparatus failure and disarticulation of metacarpophalangeal joint

Catastrophic breakdown of right front fetlock with

**RIGHT FRONT
ACUTE CHANGES**

- Fracture of the proximal sesamoid bones (PSB), likely associated with a focal area of subchondral porosity/osteopenia at the fracture surface of the medial proximal sesamoid bones, with:
 - Open, articular, mid-body, simple, transverse fracture of the lateral proximal sesamoid bone
 - Open, articular, mid-body, comminuted, transverse fracture of the medial proximal sesamoid bone
- Complete, open luxation of the fetlock joint with lateral displacement of the distal MCIII

3. Full thickness, transverse rupture of the palmar annular ligament
4. Full thickness, transverse rupture of the intersesamoidean ligament
5. Severe fraying of fibers of the short and cruciate ligaments
6. Severe fraying of fibers and complete transverse rupture of the lateral collateral ligaments of fetlock
7. Severe fraying of fibers and complete longitudinal rupture of the collateral ligaments of the proximal sesamoid bones
8. Severe fraying of fibers and complete, multiple longitudinal splits of the lateral and medial branches of the suspensory ligament
9. Severe, two foci of full thickness cartilage loss of the distal articular surface of MCIII
10. Moderate scoring of the distal articular surface of MCIII
11. Moderate scoring of the proximal articular surface of P1
12. Severe erosion of the palmar margins of the proximal articular surface of P1

CHRONIC CHANGES:

1. Irregular periosteal proliferation/exostosis on the palmar aspect of the mid-MCIII
2. Moderate, focal, biaxial, red cartilage discoloration adjacent to the mid-sagittal ridge and transverse ridge accompanied by mild to moderate fibrillation and cartilage pitting
3. Mild to moderate lipping of the dorsal aspect of the proximal articular surface of P1

LEFT FORELIMB

CHRONIC CHANGES

1. Moderate, focal, rounded, grey subchondral bone discoloration with subtle cartilage fibrillation located in the middle of the abaxial margin of the medial proximal sesamoid bone (location analogous to the pre-existing lesion in proximal sesamoid bone in contralateral limb)
2. Mild to moderate, biaxial, apical, irregular bony outgrowth of the proximal sesamoid bones
3. Irregular periosteal proliferation/exostosis on the palmar aspect of the mid-MCIII
4. Moderate lipping of the dorsal and palmar aspect of the proximal articular surface of P1
5. Irregular, osteochondral outgrowth of the dorsal articular margin of the distal articular surface of radial (severe, with chip fracture) and intermediate carpal bones (mild to moderate)
6. Moderate lipping and cartilage pitting and irregularities along the dorsal articular margin of the proximal articular surface of third carpal bone

Other findings:

- Mild to moderate, multifocal gastric hyperkeratosis of non-glandular mucosa along the margo plicatus (incidental)
- Pulmonary congestion and edema (euthanasia artifact)
- Splenomegaly (euthanasia artifact)

Case Summary

03/19/19 Case was re-opened due to minor corrections in diagnosis and CHRB Musculoskeletal field (typographical errors). Further testing is concluded.

01/19/19 The most important findings in the right forelimb is biaxial fracture of the proximal sesamoid bones. The injuries of the proximal sesamoid bones resulted in loss of support of the fetlock joint of the right forelimb. 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 medial proximal sesamoid bone. Changes of similar nature could be located in the proximal sesamoid bones in contralateral limb.

01/13/18 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: suspensory apparatus failure, disarticulation metacarpophalangeal joint, biaxial proximal sesamoid bone fractures; injury was originally closed but was rendered open when removed from equine ambulance; horse also sustained laceration on ventral midline pectoral region (horse fell during running of race).

Gross Observations

Necropsy of a 4 year old, [REDACTED] Thoroughbred [REDACTED] ([REDACTED]), 407 kg, with [REDACTED], tattoo [REDACTED] is

commenced at 10:35 am, January 13, 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 stable 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 mildly to moderately hyperkeratotic. 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:

RIGHT FRONT

A- PROXIMAL SESAMOID BONES

1. Fracture of the proximal sesamoid bones (PSB)

a) Open, articular, mid-body, simple, transverse fracture of the lateral proximal sesamoid bone

b) Open, articular, mid-body, comminuted, transverse fracture of the medial proximal sesamoid bone

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 distal opposing surface is comminuted within the region of discoloration. The fracture line propagates through subchondral focus of marked dark red/brown discoloration surrounded by highly compacted trabecular bone (sclerosis) and adjacent to the cartilage of the articular surface of medial proximal sesamoid bone. The distal opposing surface is comminuted within the region of discoloration. The subchondral bone of the lateral proximal sesamoid bone and the trabecular bone adjacent to the abaxial surface/lateral suspensory branch insertion appear to be highly compacted (sclerotic) on both opposing surfaces of the fracture.

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

2. Severe scoring of the articular surfaces of the proximal sesamoid bones

B- SOFT TISSUES

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

2. Full thickness, transverse rupture of the intersesamoidean ligament, roughly in the middle, following the fracture line affecting proximal sesamoid bones

3. Complete, open luxation of the fetlock joint with lateral displacement of the distal MCIII

4. Mild fraying of fibers of the dorsal surface of the deep digital flexor tendon at the level of the fetlock

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

6. Severe fraying of fibers and complete transverse rupture of the lateral collateral ligaments of fetlock

7. Severe fraying of fibers and complete longitudinal rupture of the collateral ligaments of the proximal sesamoid bones

8. Mild, biaxial fraying of the distal oblique sesamoidean ligaments

9. Mild fraying of the distal straight sesamoidean ligament

10. Severe fraying of fibers and complete, multiple longitudinal splits of the lateral and medial branches of the suspensory ligament- splits propagate all the way up from the insertion on the proximal sesamoid bone to bifurcation of the suspensory ligament. Both branches are attached to the body of the suspensory ligament only with few fibers. Lateral branch seems to be slightly more affected in comparison to the medial.

C- MCIII

1. Irregular periosteal proliferation/exostosis (prominent, 2 cm x 0.5-1 cm) on the palmar aspect of the mid-MCIII (app. 0.5 cm underneath the bifurcation of the suspensory ligament)

2. Severe hemorrhage accompanied by soft tissue hypertrophy at the palmar aspect of the supracondylar region of MCIII

3. Severe hemorrhage and soft tissue erosion with bone exposure at the dorsal aspect of the supracondylar region of MCIII

4. Severe, extensive, full thickness cartilage loss of the dorsomedial articular margin of the distal articular surface of MCIII

5. Moderate, focal, biaxial, red cartilage discoloration adjacent to the mid-sagittal ridge and transverse ridge accompanied by mild to moderate fibrillation and cartilage pitting

6. Moderate, focal, rounded (app. 0.2 cm in diameter) full thickness cartilage loss in the middle of mid-sagittal ridge of the distal articular surface of MCIII

D- P1

1. Mild to moderate scoring of the proximal articular surface of P1

2. Severe erosions of axial margins of the palmar eminences of the proximal articular surface of P1 (medial palmar eminence is

slightly more affected)

3. Moderate, focal, transverse cartilage ulceration along the dorsomedial margin of the proximal articular surface of P1

4. Mild to moderate lipping of the dorsal margin of the proximal articular surface of P1

LEFT FRONT

A- CARPUS

1. Irregular, osteochondral outgrowth of the dorsal articular margin of the distal articular surface of radial (severe, with chip fracture) and intermediate carpal bones (mild to moderate)

2. Moderate lipping and cartilage pitting and irregularities along the dorsal articular margin of the proximal articular surface of third carpal bone

B- PROXIMAL SESAMOID BONES

1. Moderate, focal, rounded, grey subchondral bone discoloration with subtle cartilage fibrillation located in the middle of the abaxial margin of the medial proximal sesamoid bone (location analogous to the pre-existing lesion in proximal sesamoid bone in contralateral limb)

2. Mild to moderate, biaxial, apical, irregular bony outgrowth of the proximal sesamoid bones

C- MCIII

1. Irregular periosteal proliferation/exostosis (prominent, 1.5 cm x 0.5 cm) on the palmar aspect of the mid-MCIII (app. 0.5 cm underneath the bifurcation of the suspensory ligament)- comparable to the exostosis on the contralateral limb, only minimally smaller in size

2. Mild to moderate hemorrhage accompanied by soft tissue hypertrophy at the palmar aspect of the supracondylar region of MCIII

3. Mild to moderate hemorrhage and soft tissue erosion with bone exposure at the dorsal aspect of the supracondylar region of MCIII

D- P1

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

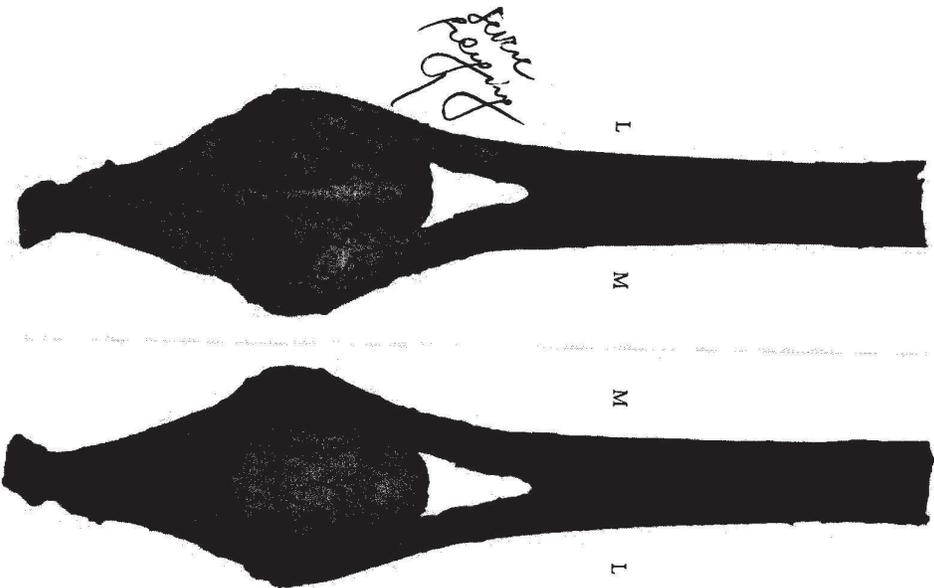
2. Mild, biaxial, transverse, subtle cartilage ulceration along the dorsal margin of the proximal surface of P1

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: *1/18/13*

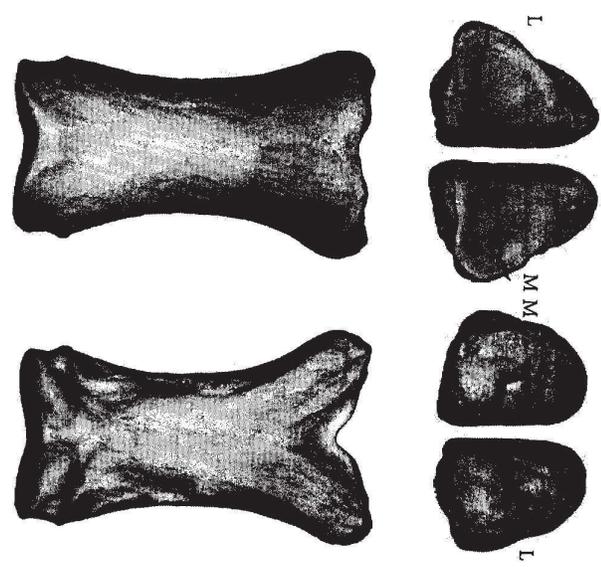
Right Fetlock

Please circle affected leg
 foreleg
 hindleg



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

Open wound? Yes No
 Joint capsule intact? Yes No
 Joint luxated? Yes No



Involved Structures

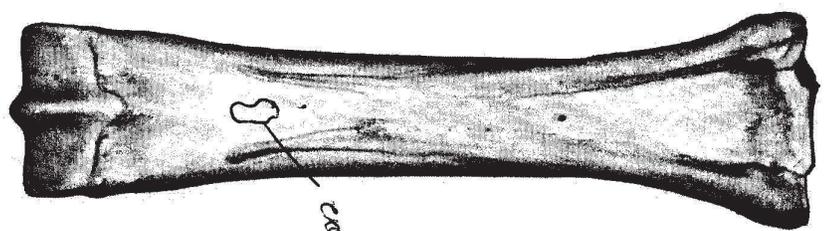
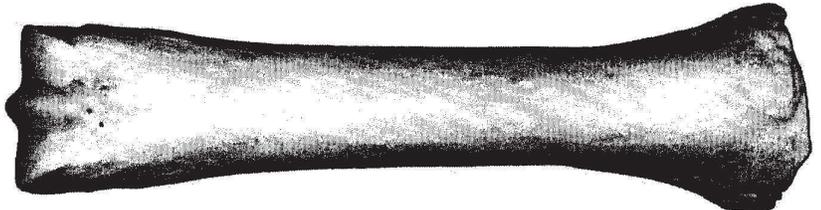
SDF tendon: Yes No DDF tendon: Yes No

Suspensory ligament: Yes No

SL Medial branch SL Lateral branch

Intersesamoidian ligament: Yes No
 Longitudinal Transverse

SL Body



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)



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.

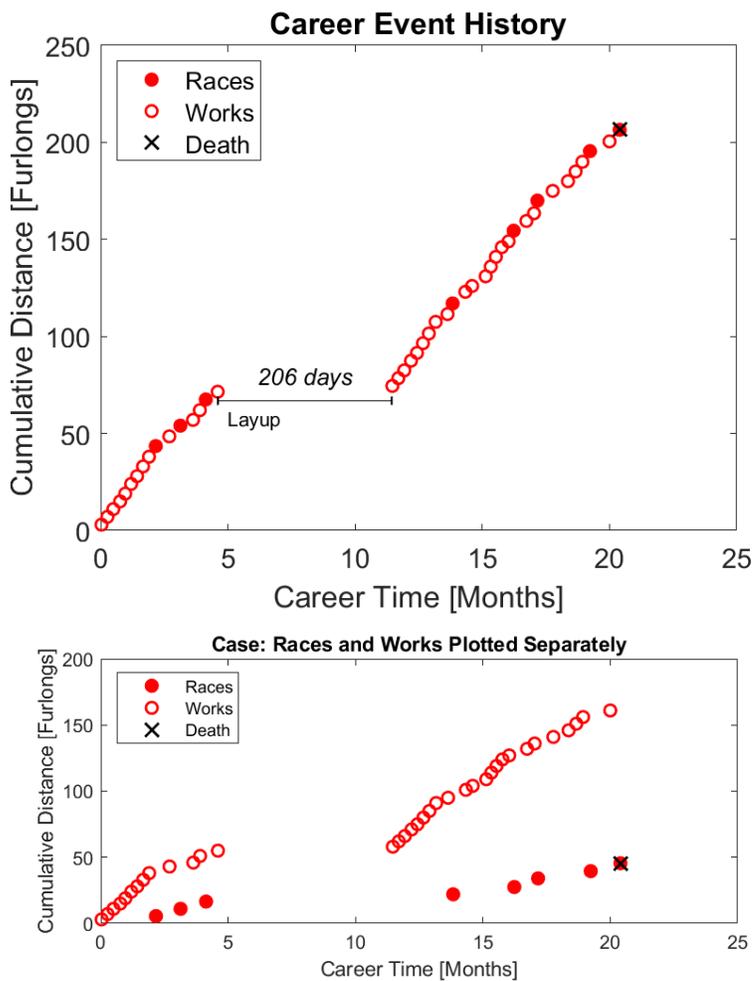
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Part 1: Graphical Representation of Individual High-Speed Exercise Histories

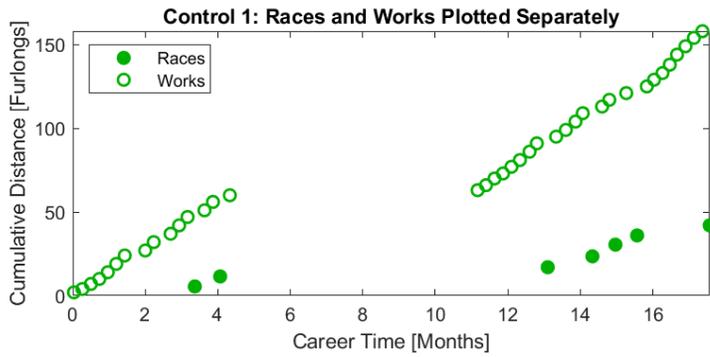
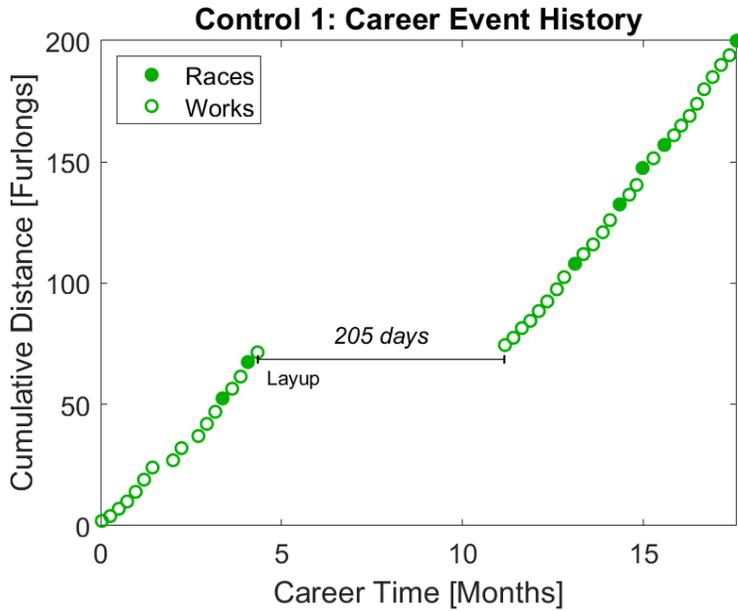
Races (filled circles), officially timed high-speed works (open circles), layups (line with endcaps, periods of time greater than 60 days in length without a race or timed work), and time of death (X) are illustrated over time (Career Time in months). With each event (race or work), the number of furlongs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

Case Horse High Speed Exercise History

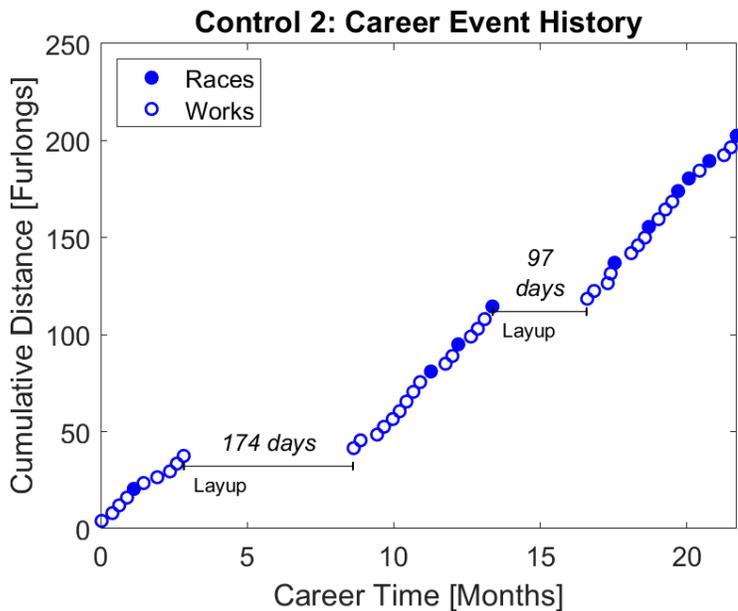


Part 1: Graphical Representation of Individual High-Speed Exercise Histories

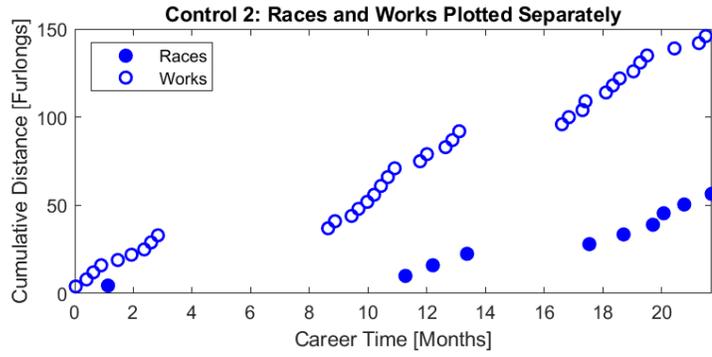
Control 1 High Speed Exercise History



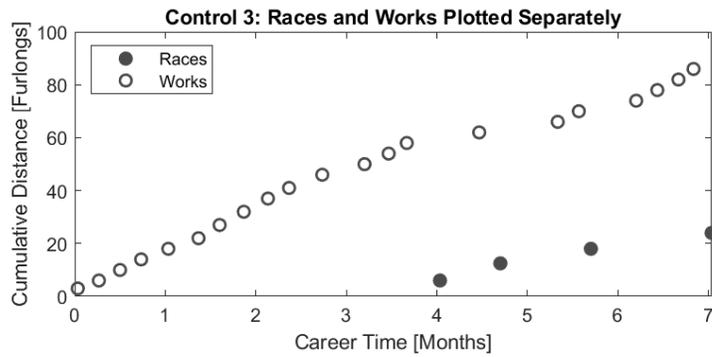
Control 2 High Speed Exercise History



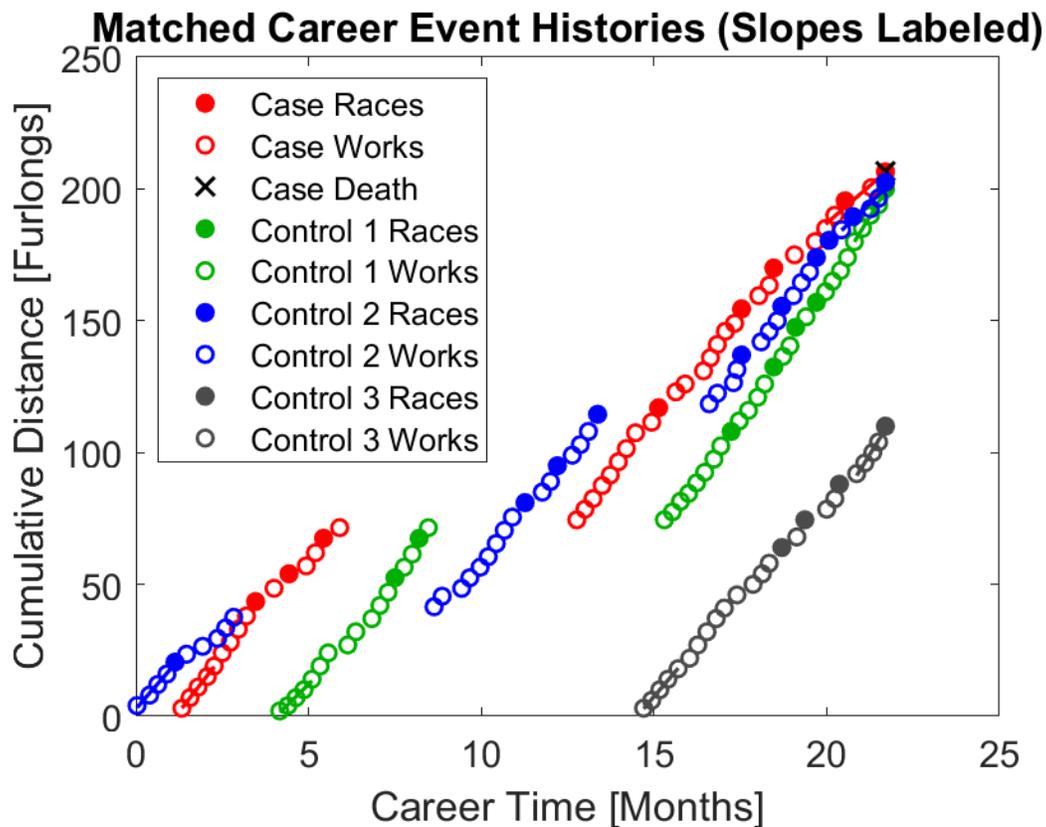
Part 1: Graphical Representation of Individual High-Speed Exercise Histories



Control 3 High Speed Exercise History

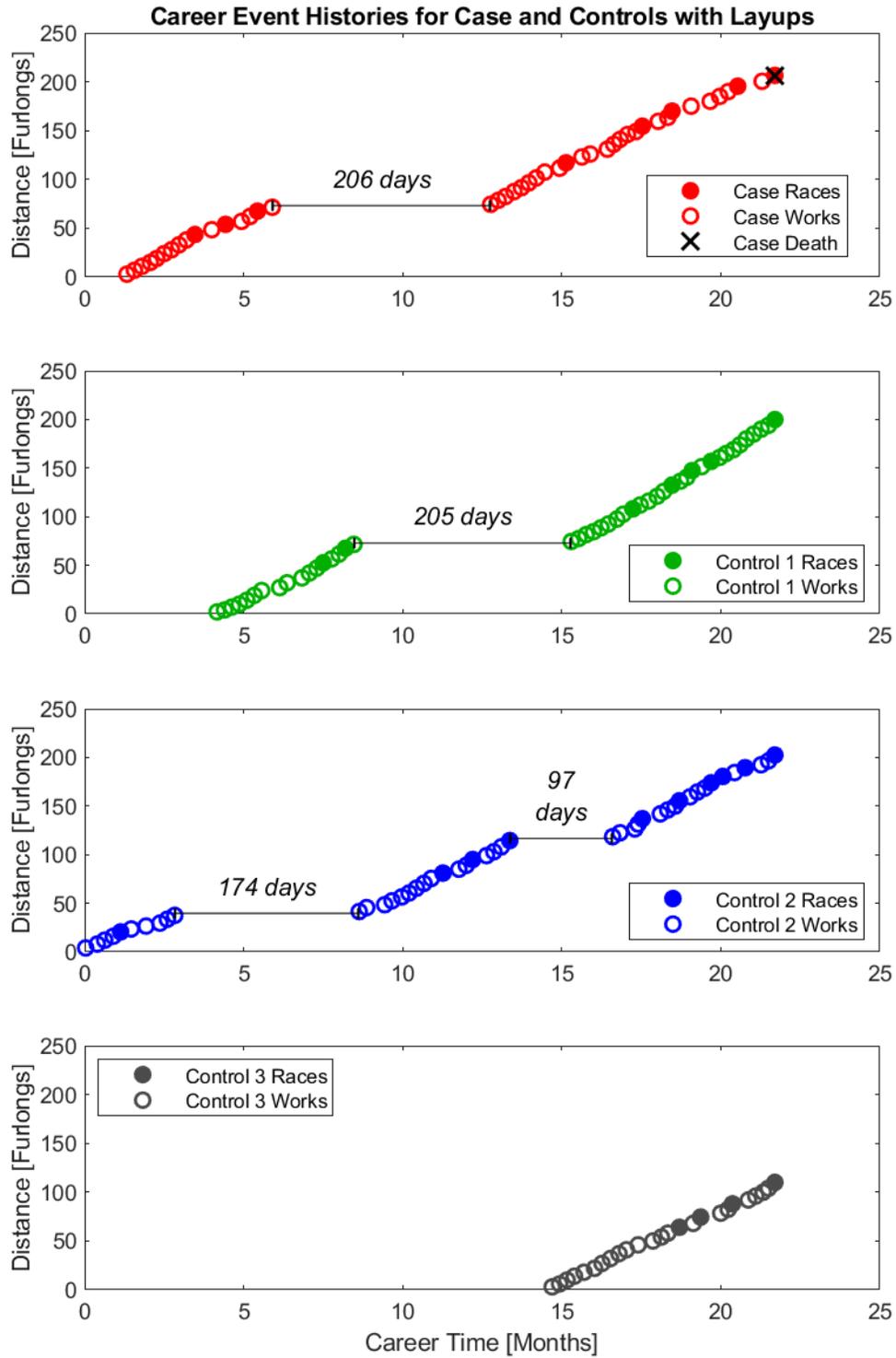


Part 2: Case and Control Horses Plotted Together

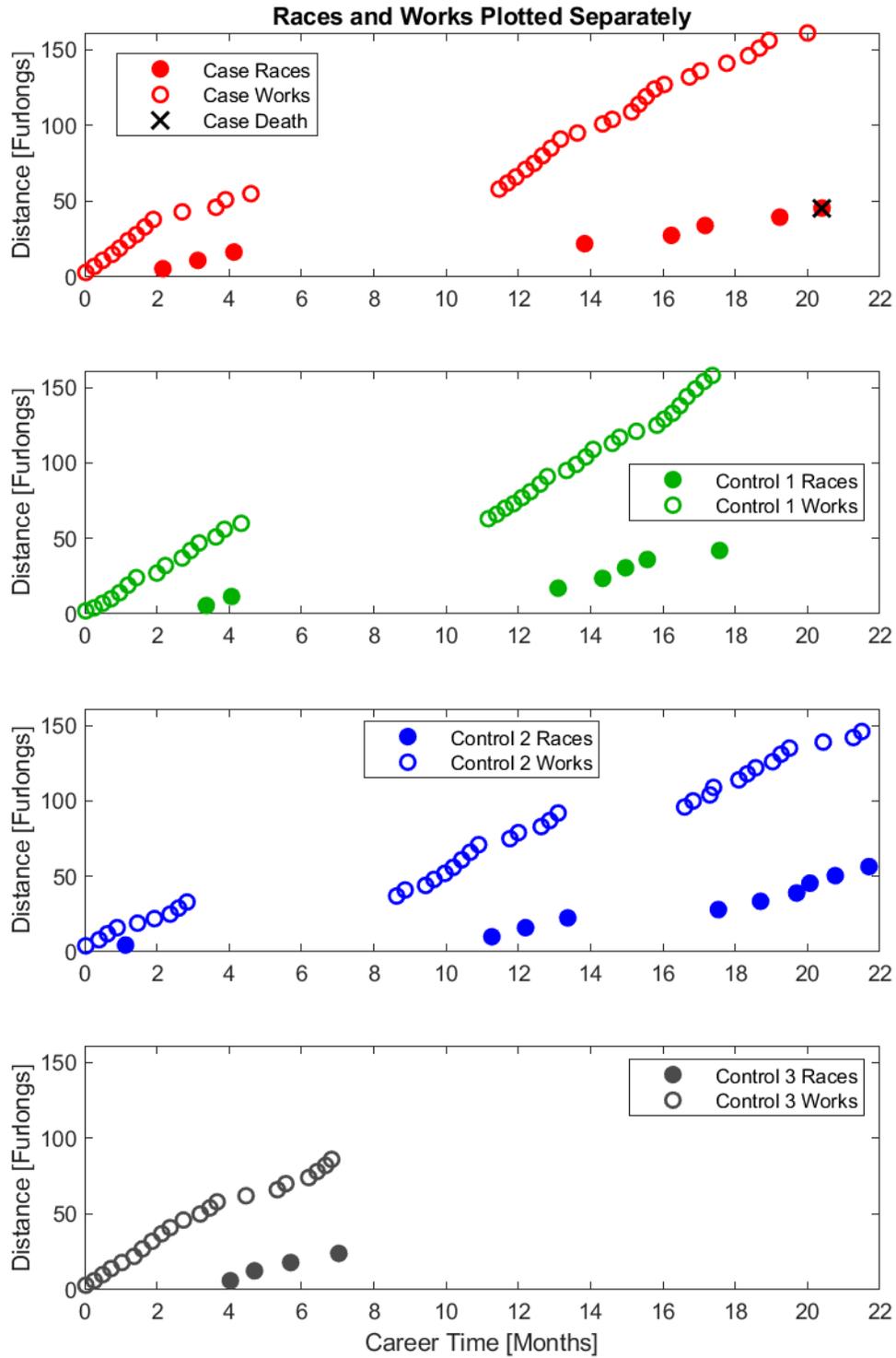


Case and Control Horses' exercise event histories are plotted on the same axes. The plots are aligned by the match date (equal to the date of death of Case Horse). Lines segments indicate specific rates of exercise at the start of career, end of career (for Case Horse), and match date (for Control Horses). Event rates are calculated as the slopes of the plots over 2 to 5 events not spanning a layup period, in units of furlongs per month.

Part 2: Case and Control Horses Plotted Together



Part 2: Case and Control Horses Plotted Together



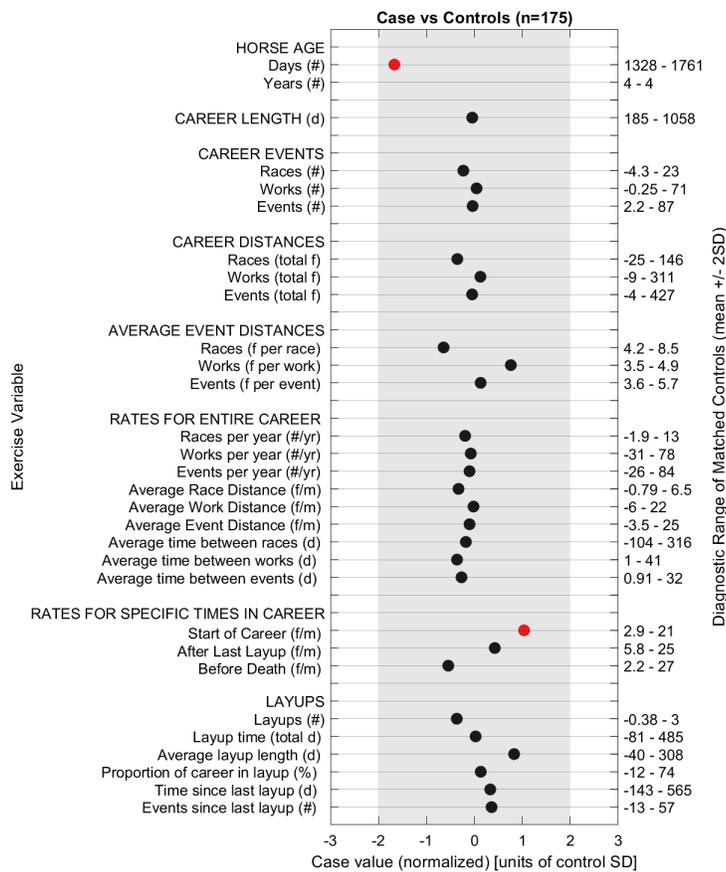
Part 3: Case Horse's Event History

Date	Race/Work	Furlongs	Track	Surface	Track Cond.	Time	Age/Sex	Race Class	Earnings	Finish
1/11/2019	R	6.0	SA	Dirt	Fast		4U/FM	Mcl30000	351	8
12/30/2018	W	5.0	LA	Dirt	Fast	01:00.6				
12/7/2018	R	5.5	LRC	Dirt	Good		3U/FM	Mcl20000	900	4
11/28/2018	W	5.0	LA	Dirt	Fast	:59.40				
11/20/2018	W	5.0	LA	Dirt	Fast	01:01.8				
11/11/2018	W	5.0	LA	Dirt	Fast	01:01.4				
10/24/2018	W	5.0	SA	Dirt	Fast	01:05.2				
10/6/2018	R	6.5	SA	Dirt	Fast		3U/FM	Mcl20000	345	9
10/2/2018	W	4.0	LA	Dirt	Fast	:48.00				
9/23/2018	W	5.0	LA	Dirt	Fast	01:02.6				
9/8/2018	R	5.5	LRC	Dirt	Fast		3U/FM	Mcl20000	345	5
9/2/2018	W	3.0	LA	Dirt	Fast	:35.20				
8/25/2018	W	5.0	DMR	Dirt	Fast	01:03.4				
8/18/2018	W	5.0	DMR	Dirt	Fast	01:02.8				
8/12/2018	W	5.0	DMR	Dirt	Fast	01:04.6				
8/6/2018	W	5.0	DMR	Dirt	Fast	01:04.4				
7/21/2018	W	3.0	LA	Dirt	Fast	:37.00				
7/13/2018	W	6.0	LA	Dirt	Fast	01:15.6				
6/28/2018	R	5.5	LRC	Dirt	Fast		3/F	Mcl30000	345	9
6/22/2018	W	4.0	LA	Dirt	Fast	:48.60				
6/8/2018	W	6.0	LA	Dirt	Fast	01:16.2				
5/31/2018	W	5.0	LA	Dirt	Fast	01:03.2				
5/24/2018	W	5.0	LA	Dirt	Fast	01:01.0				
5/17/2018	W	4.0	LA	Dirt	Fast	:47.80				
5/10/2018	W	5.0	LA	Dirt	Fast	01:01.4				
5/2/2018	W	4.0	LA	Dirt	Fast	:46.00				
4/25/2018	W	4.0	LA	Dirt	Fast	:48.00				
4/18/2018	W	3.0	LA	Dirt	Fast	:35.40				

Part 3: Case Horse's Event History

Date	Race/ Work	Fur- longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn- ings	Finish
9/24/2017	W	4.0	LA	Dirt	Fast	:47.80				
9/10/2017	R	5.5	LRC	Dirt	Fast		2/F	Mcl30000	380	5
9/3/2017	W	5.0	LA	Dirt	Fast	01:00.2				
8/26/2017	W	3.0	LA	Dirt	Fast	:34.40				
8/11/2017	R	5.5	DMR	Dirt	Fast		2/F	Mcl32000 (32-28)	345	9
7/29/2017	W	5.0	LA	Dirt	Fast	01:03.4				
7/13/2017	R	5.5	LRC	Dirt	Fast		2/F	Mcl40000 (40-35)	1200	4
7/5/2017	W	5.0	LA	Dirt	Fast	01:01.6				
6/28/2017	W	5.0	LA	Dirt	Fast	01:01.8				
6/21/2017	W	4.0	LA	Dirt	Fast	:48.20				
6/14/2017	W	5.0	LA	Dirt	Fast	01:00.0				
6/7/2017	W	4.0	LA	Dirt	Fast	:47.40				
6/1/2017	W	4.0	LA	Dirt	Fast	:48.00				
5/24/2017	W	4.0	LA	Dirt	Fast	:48.20				
5/17/2017	W	4.0	LA	Dirt	Fast	:53.80				
5/10/2017	W	3.0	LA	Dirt	Fast	:39.20				

Part 4: Comparison of Exercise Variables between Case Horse and 175 Control Horses (4 year old, female, Thoroughbred)

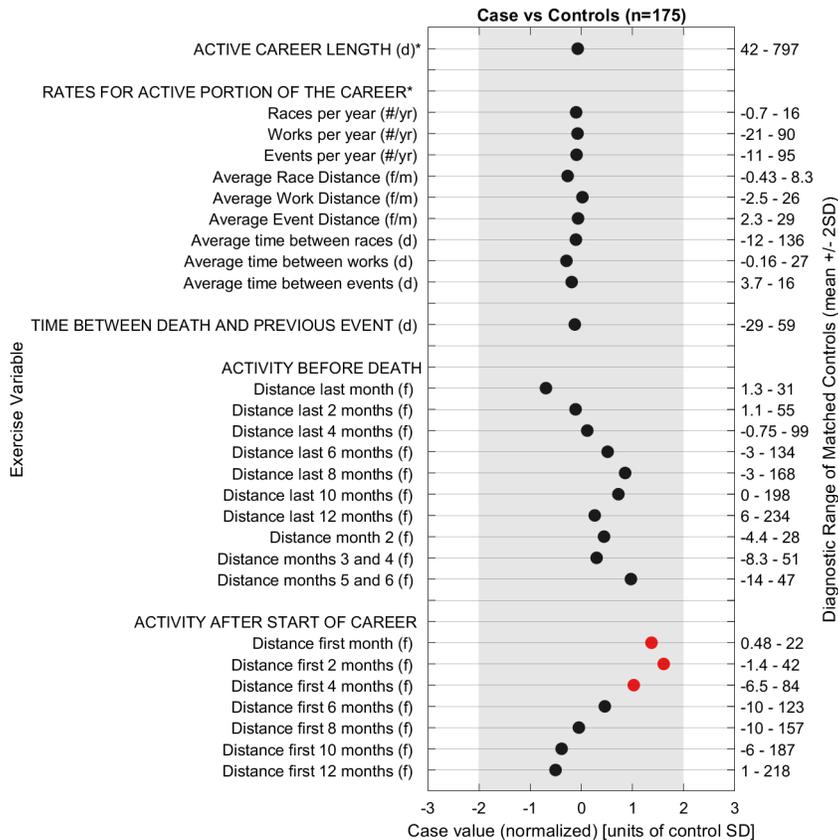


Case Horse values are indicated by black or red symbols: circles indicate values considered normal for 95% of 4 year old, female, Thoroughbreds (n=175) (gray region) (black and red indicate within 1 and 2 SD, respectively, of mean value of controls), X's indicate values outside of the normal range. Two 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 175 Control Horses (4 year old, female, Thoroughbred)



Case Horse values are indicated by black or red symbols: circles indicate values considered normal for 95% of 4 year old, female, Thoroughbreds (n=175) (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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