UCDAVIS VETERINARY MEDICINE
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CAHFS Accession #: [redacted]
Addendum Version 1
Ref.#: [redacted]

Coordinator: Monika Samol, DVM, Resident
E-Signed and Authorized by: Samol, Monika on 3/15/2019 12:26:53PM

Email To:
Baker, Rita L
RitaB@chrb.ca.gov

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: 03/02/2019 **Date Received:** 03/04/2019

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	Baker, Rita L	[redacted]	[redacted]	Sacramento	CA	95825
Report To	ARTHUR, RICK	[redacted]	[redacted]	Sierra Madre	CA	91024
Attending Vet	Birch, Sarah	[redacted]	[redacted]	Arcadia	CA	91066
Trainer	GUTIERREZ, JORGE	[redacted]	[redacted]	Arcadia	CA	91007

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:	3/8th pole
Taxonomy:	Thoroughbred Horse	Insured?	N

Medications: Banamine (Flunixin); Butazolidin (Phenylbutazone); Dormosedan (Detomidine); Lasix (Furosemide); Pentobarbital; Rompun (Xylazine);

Laboratory Findings/Diagnosis

A 4 year old [redacted] Thoroughbred [redacted] submitted with a history of right front medial proximal sesamoid bone comminuted fracture with rupture of suspensory apparatus

Catastrophic breakdown of right front fetlock with:

RIGHT FORELIMB

ACUTE CHANGES
1. Closed, comminuted, articular, transverse, displaced, basilar/mid-body fracture of the medial proximal sesamoid bone with abaxial avulsion fracture component and possible predisposing lesion identified in abaxial aspect of the distal fracture fragment
2. Severe scoring of articular surfaces of the proximal sesamoid bones
3. Suspensory ligament failure with complete, transverse rupture of the medial branch, mild to moderate fraying of the palmar

surface of the medial branch, and moderate thickening of the body
4. Moderate fraying and hemorrhage of the palmar surface of the deep digital flexor tendon
5. Severe, full thickness, transverse and longitudinal rupture of the intersesamoidean ligament
6. Severe fraying of fibers of the lateral and medial short and cruciate ligaments
7. Severe, longitudinal, full-thickness split, fraying of fibers and hemorrhage of the straight distal sesamoidean ligament
8. Moderate fraying of fibers and incomplete transverse rupture of the lateral and medial collateral ligaments of proximal sesamoid bones
9. Severe, extensive, full thickness cartilage loss of the medial condyle of the distal articular surface of MCIII
10. Severe scoring of the distal articular surface of MCIII
11. Severe scoring of the proximal articular surface of P1

LEFT FORELIMB

CHRONIC CHANGES
1. Moderate, focal, blue subchondral bone discoloration visible through the cartilage on the abaxial aspect of the medial proximal sesamoid bone (analogous location as the pre-existing lesion in medial proximal sesamoid bone in fractured limb)
2. Moderate, focal, blue subchondral bone discoloration visible through the cartilage of the dorsal aspect of the mid-sagittal ridge of the distal articular surface of distal MCIII
3. Moderate, biaxial apical modeling with irregular bony outgrowth of the proximal sesamoid bones

Other findings:
- Mild, shallow gastric ulceration of non-glandular mucosa along the margo plicatus (incidental)
- Pulmonary congestion and edema (euthanasia artifact)
- Splenomegaly (euthanasia artifact)

Case Summary

03/08/19: The most important findings are fracture of the medial proximal sesamoid bones and complete rupture of the medial branch of suspensory ligament of the right forelimb. The latter injuries resulted in loss of support of the fetlock joint in the right forelimb. The aforementioned fractures may be related to the focal region of discoloration and bone porosity/osteopenic focus associated with the distal fracture surface in the medial proximal sesamoid bone. Furthermore, changes of similar nature were identified in the proximal sesamoid bones in contralateral limb.

03/04/19 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: comminuted medial proximal sesamoid bone fracture with rupture of the suspensory apparatus.
Track surface was sealed/sloppy.

Gross Observations

Necropsy of a 4 year old, chestnut Thoroughbred [redacted] 525 kg, with [redacted], tattoo [redacted] is commenced at 9:40 am, March 4, 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 has very shallow and small (app. 0.5cm long) 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 bone
a) Closed, comminuted, articular, transverse, displaced, basilar/mid-body fracture of the medial proximal sesamoid bone with abaxial avulsion fracture components, and probable predisposing lesion identified in abaxial aspect of the distal fracture fragment – The proximal fracture segment is divided into four fragments. Two of them are avulsed with medial branch of suspensory ligament. Other two are wedge shaped, loose fragments at the mid-body. A possible region of increased porosity is present at the abaxial aspect of the distal fracture surface of the medial proximal sesamoid bone. The fracture line propagates through a subchondral focus of red discoloration surrounded by highly compacted trabecular bone (sclerosis) and adjacent to the cartilage of the articular surface of medial proximal sesamoid bone. The subchondral and trabecular bone is highly compacted (sclerotic) on both opposing surfaces of the fracture.
For better visualization of described fractures, please see attached pictures and drawings.

B- SOFT TISSUES
1. Full thickness, transverse intersesamoidean ligament rupture with short sagittal component affecting straight distal sesamoidean ligament- 'F' shaped; the tear follows the main fracture line of the proximal sesamoid bones
2. Suspensory ligament failure with complete, transverse rupture of the medial branch, mild to moderate fraying of the palmar surface of the medial branch and moderate thickening and dark red discoloration visible on the cross section of the body
3. Moderate to severe proliferative synovitis of the fetlock joint
4. Moderate fraying and hemorrhage of the palmar 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, longitudinal, full-thickness split, fraying of fibers and hemorrhage of the straight distal sesamoidean ligament
7. Moderate fraying of fibers and incomplete transverse rupture of the lateral and medial collateral ligaments of proximal sesamoid bones

C- MCIII
1. Severe, extensive, full thickness cartilage loss of the medial condyle of the distal articular surface of MCIII- palmar to the transverse ridge the cartilage is completely degenerated
2. Severe scoring of the distal articular surface of MCIII with multiple clefts of variable depth and width
3. Severe hemorrhage accompanied by soft tissue proliferation at the palmar aspect of the supracondylar region of MCIII
4. 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. Severe scoring lines of the proximal articular surface of P1
2. Mild lipping of the dorsal and palmar margins of the proximal articular surface of P1
3. Mild, shallow, biaxial cartilage erosion of the dorsal margins of the proximal articular surface of P1

LEFT FRONT

A- PROXIMAL SESAMOID BONES
1. Moderate, focal, blue subchondral bone discoloration visible through the cartilage of the abaxial aspect of the medial proximal sesamoid bone -analogous location as the pre-existing lesion in medial proximal sesamoid bone in fractured limb
2. Moderate, biaxial apical modeling with irregular bony outgrowth of the proximal sesamoid bones

B- SOFT TISSUES
1. Moderate proliferative synovitis and hemarthrosis of the fetlock joint

C- MCIII
1. Moderate, focal, blue subchondral bone discoloration visible through the cartilage of the dorsal aspect of the mid-sagittal ridge of the distal articular surface of distal MCIII
2. Moderate scoring of the distal articular surface of MCIII

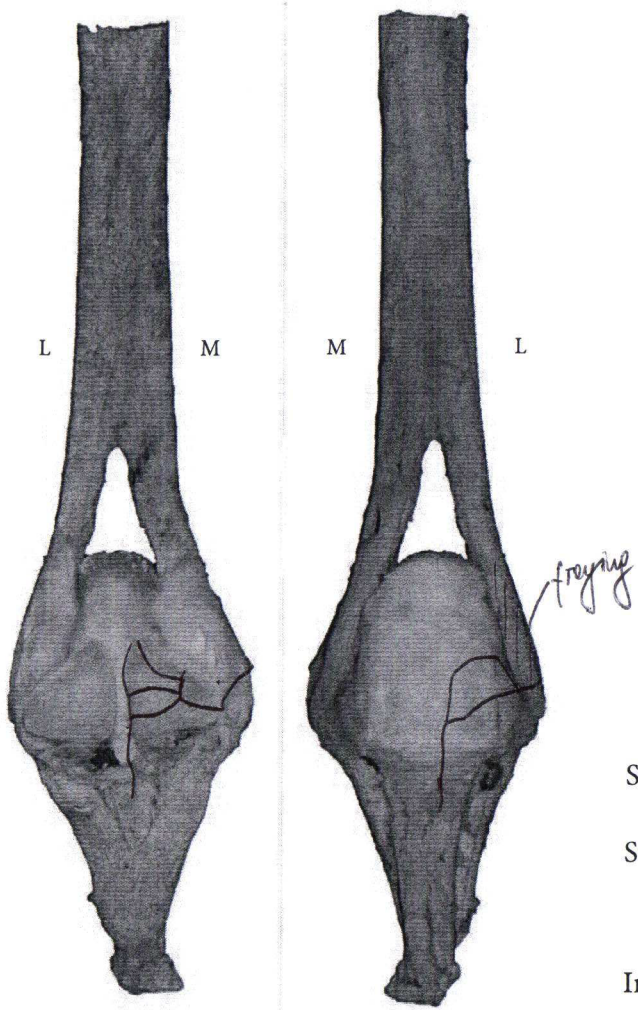
D- P1
1. Mild to moderate lipping of the dorsal aspect of the proximal articular surface of P1
2. Mild scoring of the proximal articular surface
3. Mild, biaxial, shallow cartilage erosions of the dorsal margin of the proximal surface of P1

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

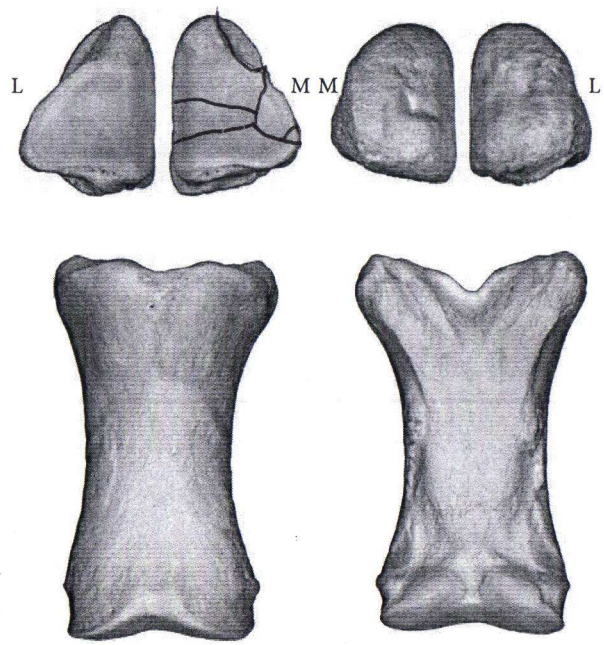
Accession # [redacted]
CC: MAS
Date: 03/11/19

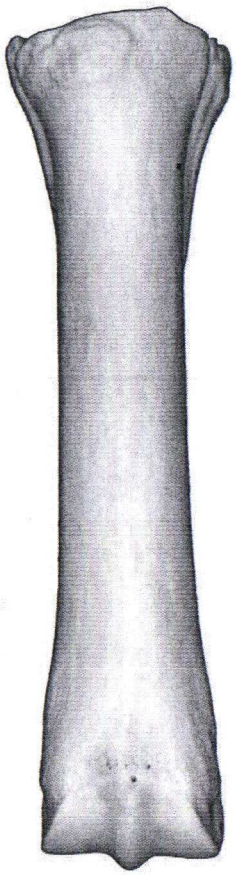
Right Fetlock

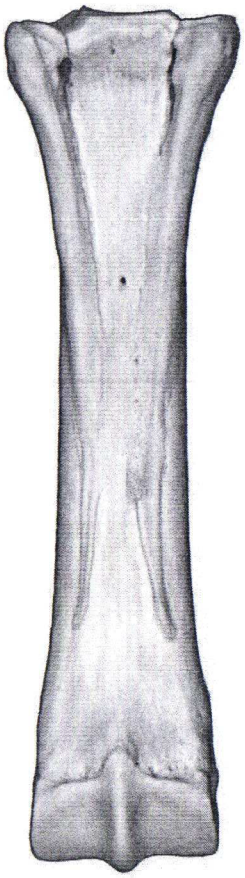
Please circle affected leg
foreleg
hindleg



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 (straight and/or oblique) (Yes) No

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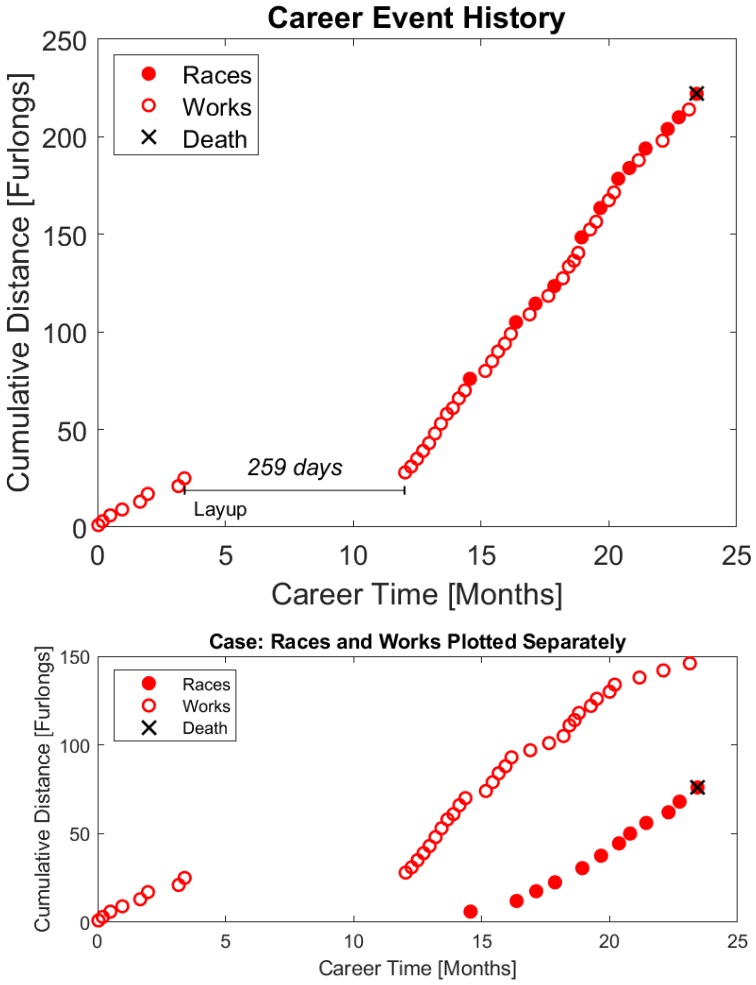
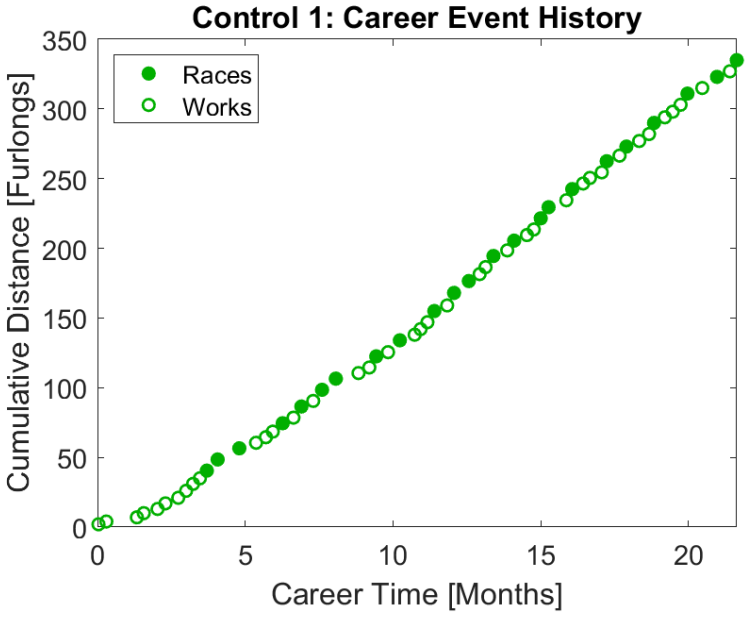
Part 1: Graphical Representation of Individual High-Speed Exercise Histories

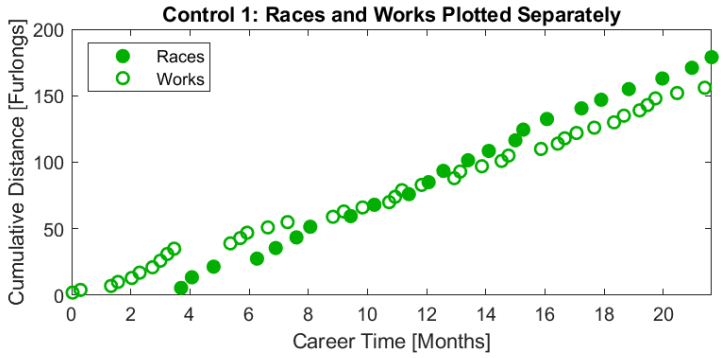
Races (filled circles), officially timed high-speed works (open circles), layups (line with endcaps, periods of time greater than 60 days in length without a race or timed work), and time of death (X) are illustrated over time (Career Time in months). With each event (race or work), the number of furlongs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

Case Horse High Speed Exercise History

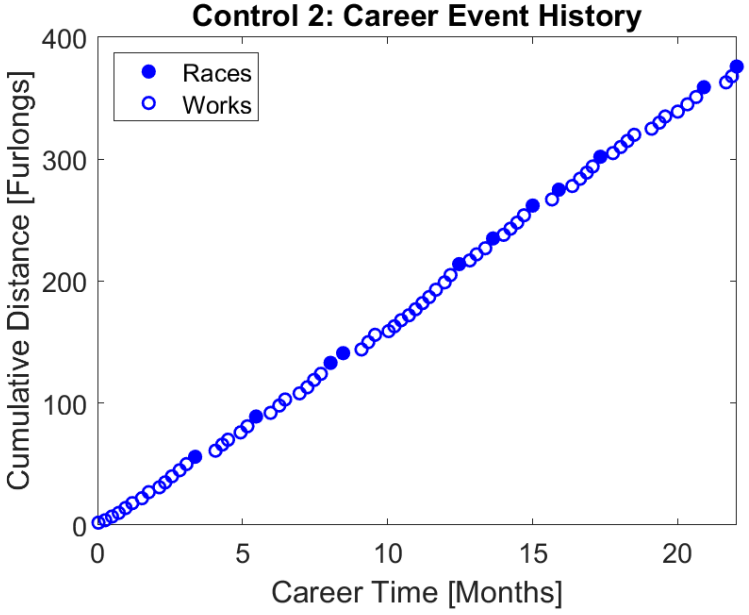


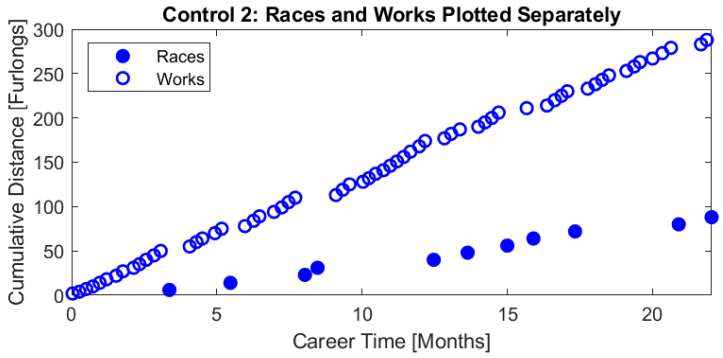
Control 1 High Speed Exercise History



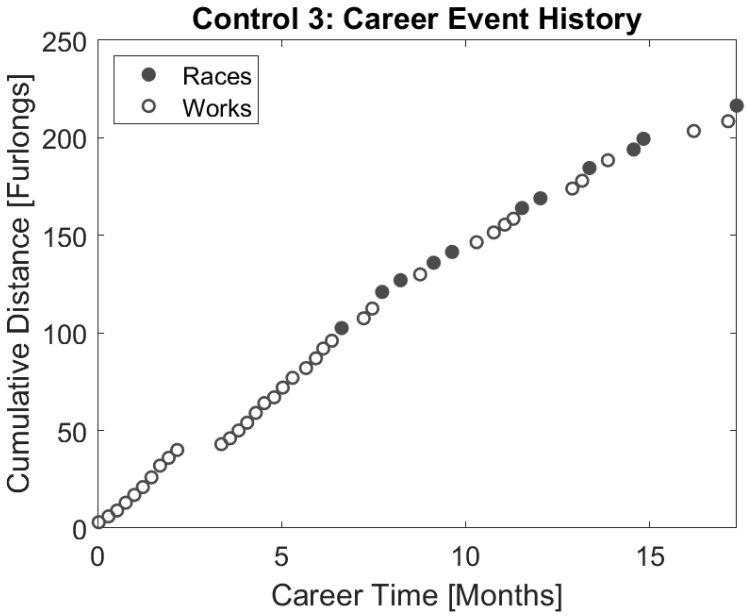


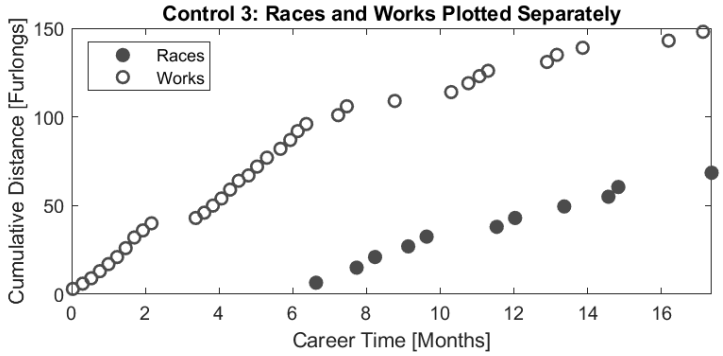
Control 2 High Speed Exercise History



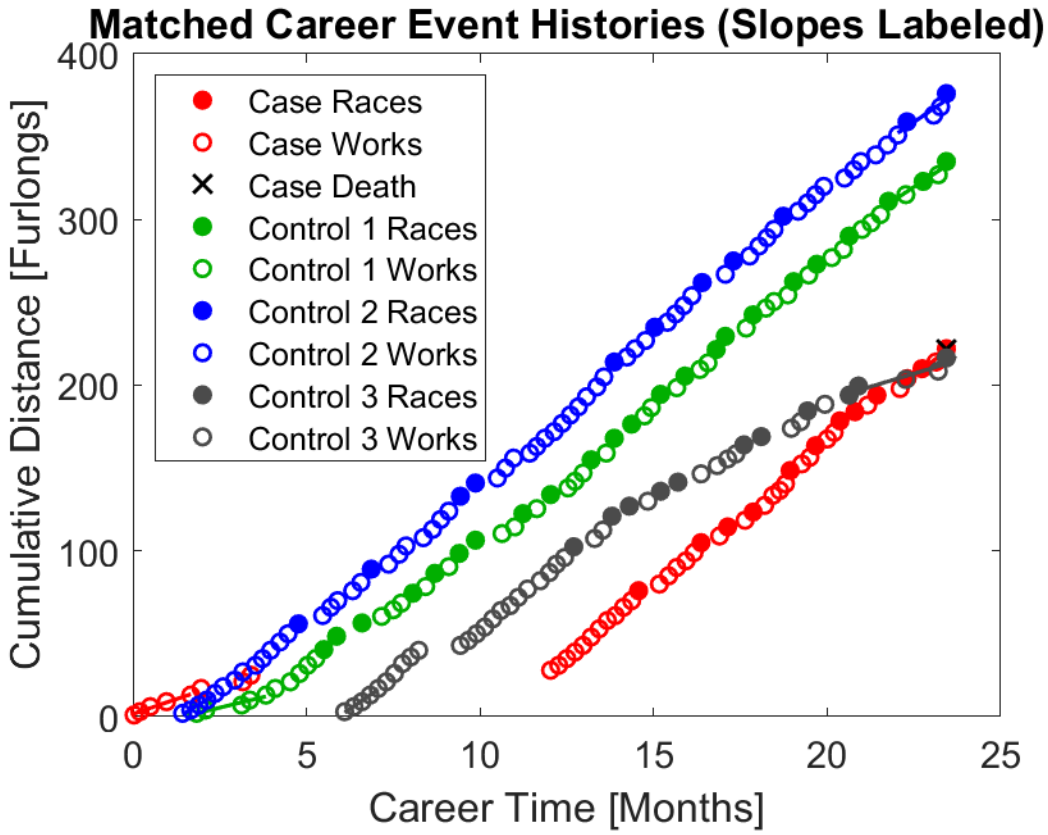


Control 3 High Speed Exercise History

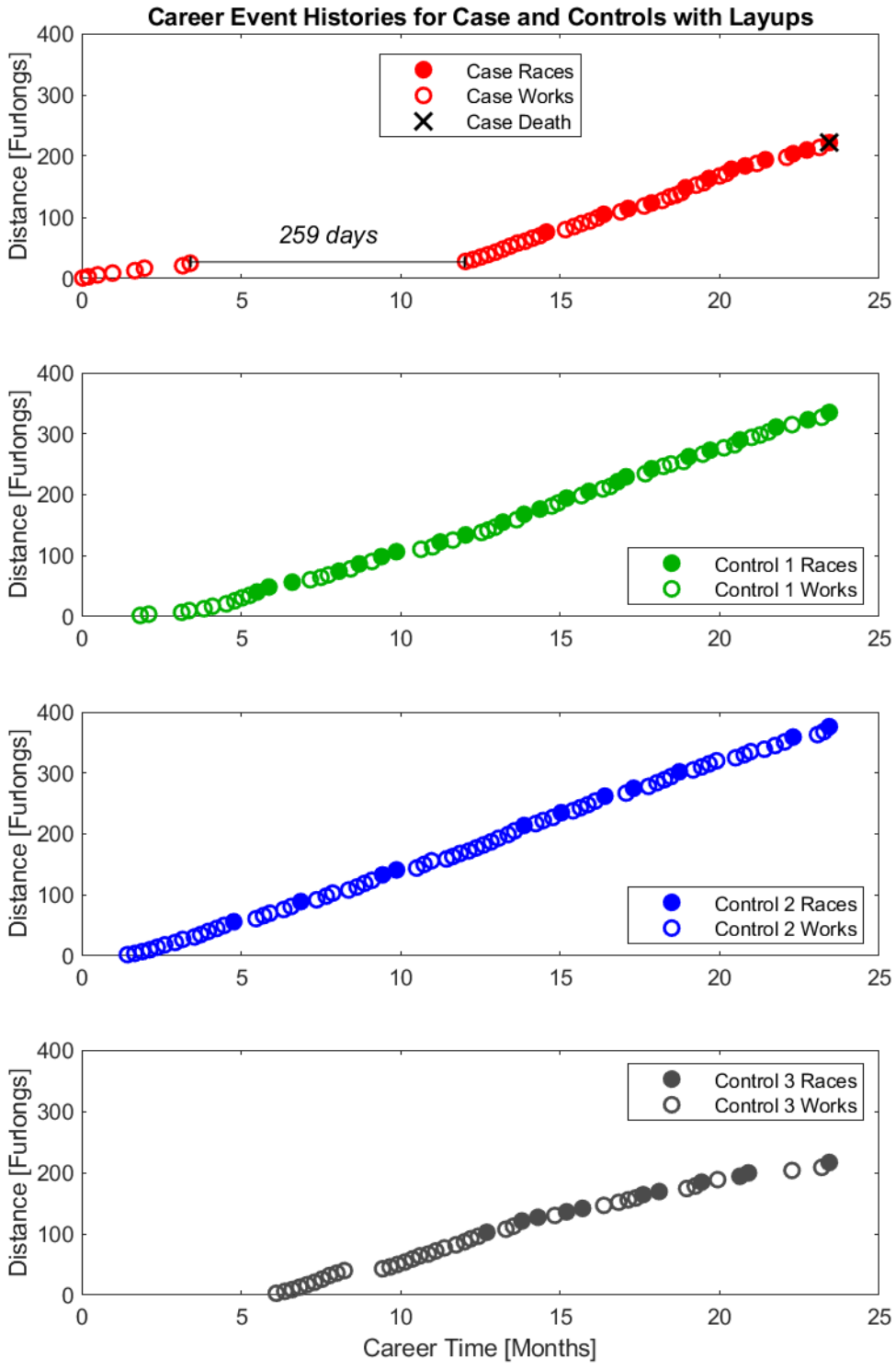


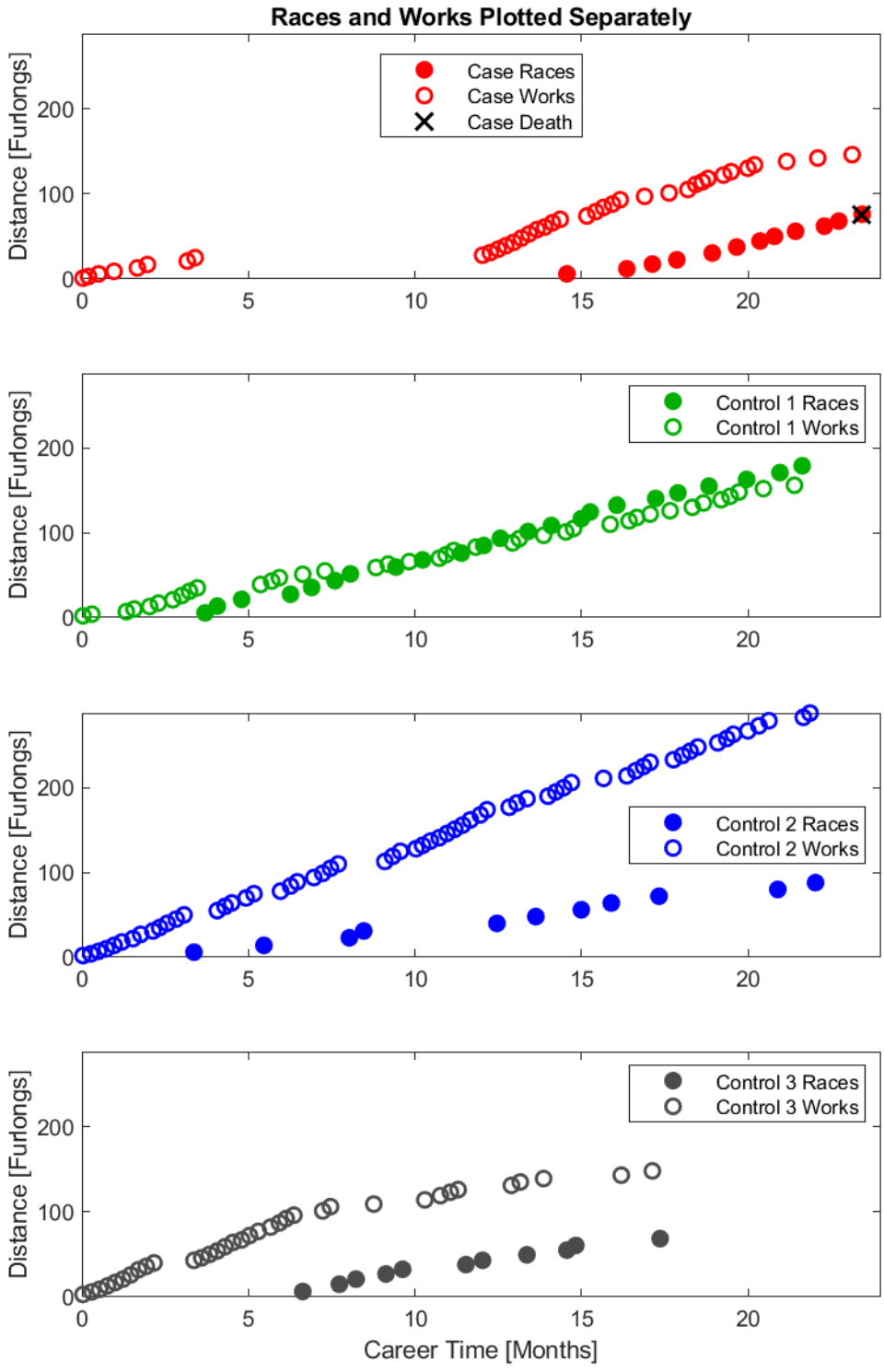


Part 2: Case and Control Horses Plotted Together



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
259 days
Control 1 Races
Control 1 Works
Control 2 Races
Control 2 Works
Control 3 Races
Control 3 Works
Career Time [Months]

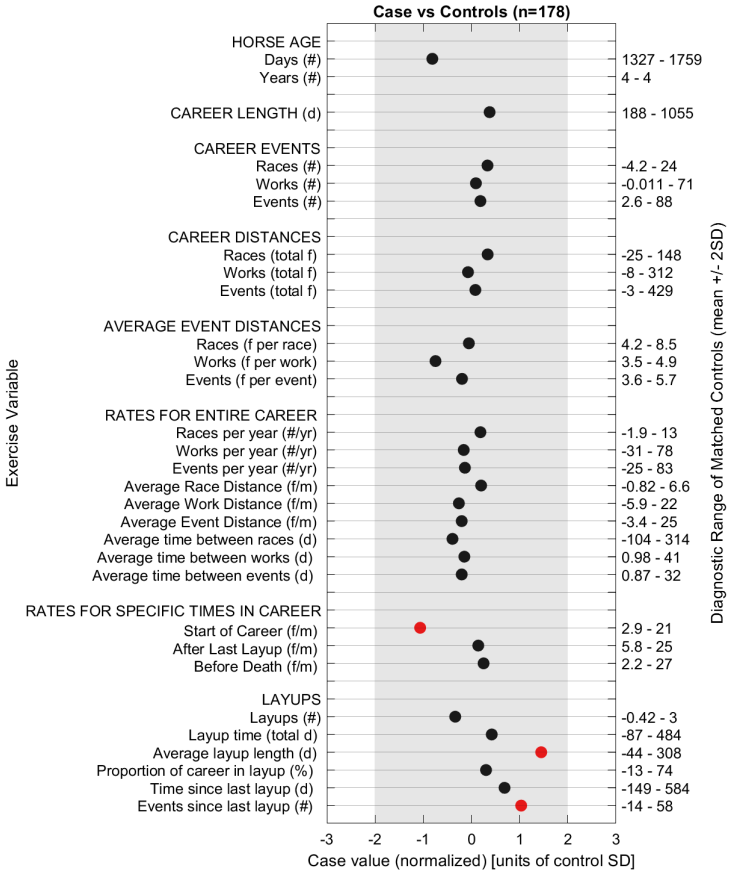

Races and Works Plotted Separately
Case Races
Case Works
Case Death
Control 1 Races
Control 1 Works
Control 2 Races
Control 2 Works
Control 3 Races
Control 3 Works
Distance [Furlongs]
Career Time [Months]
0
5
10
15
20
100
200

Part 3: Case Horse's Event History

Date	Race/ Work	Fur-longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn-ings	Finish
3/2/2019	R	8.0	SA	Dirt	Sloppy		4U/ FM	Clm16000nw3/ L	351	6
2/21/2019	W	4.0	SA	Dirt	Fast	:50.20				
2/9/2019	R	6.0	SA	Dirt	Good		4U/ FM	Wcl8000	3600	2
1/27/2019	R	6.0	SA	Dirt	Fast		4U/ FM	Clm10000	1760	4
1/21/2019	W	4.0	SA	Dirt	Fast	:47.40				
1/1/2019	R	6.0	SA	Dirt	Fast		4U/ FM	Clm8000	3600	2
12/24/2018	W	4.0	SA	Dirt	Fast	:50.00				
12/13/2018	R	5.5	LRC	Dirt	Fast		3U/ FM	Clm6250nw2/ L/x-c	7200	1
11/30/2018	R	7.0	DMR	Dirt	Fast		3/F	Clm16000 (16-14)	345	6
11/25/2018	W	4.0	DMR	Dirt	Fast	:50.60				
11/19/2018	W	4.0	DMR	Dirt	Fast	:48.60				
11/9/2018	R	7.0	DMR	Dirt	Fast		3U/ FM	Mcl20000	10800	1
11/4/2018	W	4.0	SA	Dirt	Fast	:49.80				
10/28/2018	W	4.0	SA	Dirt	Fast	:51.00				
10/18/2018	R	8.0	SA	Dirt	Fast		3U/ FM	Mcl20000	3600	2
10/14/2018	W	4.0	SA	Dirt	Fast	:49.60				
10/9/2018	W	3.0	SA	Dirt	Fast	:38.40				
10/3/2018	W	6.0	SA	Dirt	Fast	01:13.0				
9/26/2018	W	4.0	SA	Dirt	Fast	:49.40				
9/16/2018	R	5.0	LRC	Dirt	Fast		3U/ FM	Mcl20000	3000	2
9/9/2018	W	4.0	SA	Dirt	Fast	:50.80				
8/25/2018	R	5.5	DMR	Dirt	Fast		3U/ FM	Mcl20000-c	4000	2
8/18/2018	W	4.0	DMR	Dirt	Fast	:48.60				

Date	Race/ Work	Fur-longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn-ings	Finish
8/2/2018	R	6.0	DMR	Dirt	Fast		3U/ FM	Mcl40000 (40-35)	345	6
7/27/2018	W	5.0	DMR	Dirt	Fast	01:01.2				
7/20/2018	W	4.0	DMR	Dirt	Fast	:49.00				
7/12/2018	W	5.0	GG	AllWthr	Fast	01:02.0				
7/5/2018	W	5.0	GG	AllWthr	Fast	01:01.4				
6/27/2018	W	4.0	GG	AllWthr	Fast	:48.00				
6/9/2018	R	6.0	GG	AllWthr	Fast		3/F	Msw	1560	4
6/3/2018	W	4.0	GG	AllWthr	Fast	:51.00				
5/27/2018	W	5.0	GG	AllWthr	Fast	01:01.4				
5/20/2018	W	3.0	GG	AllWthr	Fast	:36.80				
5/13/2018	W	5.0	GG	AllWthr	Fast	01:04.8				
5/6/2018	W	5.0	GG	AllWthr	Fast	01:02.6				
4/29/2018	W	5.0	GG	AllWthr	Fast	01:01.8				
4/22/2018	W	4.0	GG	AllWthr	Fast	:48.80				
4/15/2018	W	4.0	GG	AllWthr	Fast	:50.00				
4/8/2018	W	4.0	GG	AllWthr	Fast	:49.80				
4/1/2018	W	3.0	GG	AllWthr	Fast	:38.80				
3/25/2018	W	3.0	GG	AllWthr	Fast	:39.00				
7/9/2017	W	4.0	GG	AllWthr	Fast	:52.20				
7/2/2017	W	4.0	GG	AllWthr	Fast	:51.00				
5/27/2017	W	4.0	DXD	Dirt	Fast	:49.60				
5/18/2017	W	4.0	DXD	Dirt	Fast	:49.20				
4/27/2017	W	3.0	DXD	Dirt	Fast	:37.20				
4/13/2017	W	3.0	DXD	Dirt	Fast	:38.00				
4/4/2017	W	2.0	DXD	Dirt	Fast	:24.60				
3/30/2017	W	1.0	DXD	Dirt	Fast	:12.20				

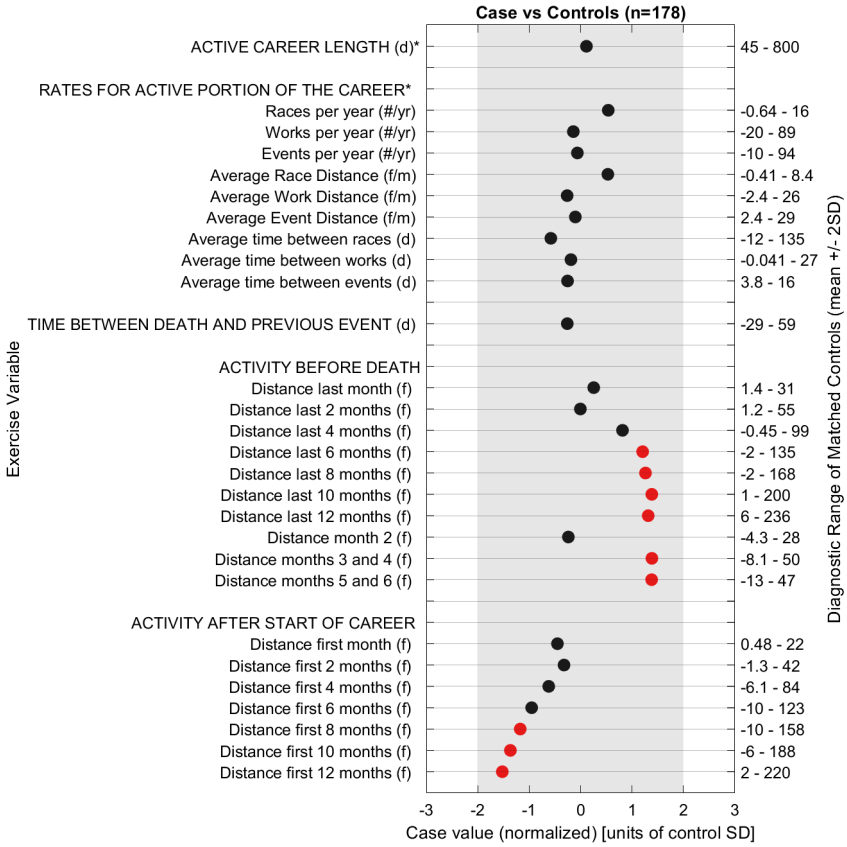
Part 4: Comparison of Exercise Variables between Case Horse and 178 Control Horses (4 year old, female, Thoroughbred)



Case Horse values are indicated by black or red symbols: circles indicate values considered normal for 95% of 4 year old, female, Thoroughbreds (n=178) (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 4 year old, female, Thoroughbreds (n=178) (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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