UCDAVIS VETERINARY MEDICINE
105 W. Central Avenue, San Bernardino, CA 92408-2113
(909) 383-4287
www.cahfs.ucdavis.edu

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Coordinator: Francisco Uzal, DVM, MSc, PhD, Dipl. ACVP
E-Signed and Authorized by: Uzal, Francisco A. on 10/16/2019 4:13:48PM

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: 02/18/2019 **Date Received:** 02/18/2019

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	BLEA, JEFF A	[redacted]	[redacted]	Sierra Madre	CA	91024
Trainer	Puype, Mike	[redacted]	[redacted]	Arcadia	CA	91066

CHRB - Related Information

Horse's Name:	[redacted]	Human Injury?	No
Tattoo:	[redacted]	Death Related to:	Training
Age:	3.00 Years	Track Surface:	Dirt
Gender:	Neutered Male	Location on Track:	Past Wire
Taxonomy:	Thoroughbred Horse	Insured?	N

Medications: Lasix (Furosemide);

Laboratory Findings/Diagnosis

Gelding, history of not working well and dying

Presumptive acute heart failure with severe pulmonary edema

Other lab test results
1-Arsenic detected in liver (low concentration; likely incidental)
2-Other heavy metals within normal range
3-No bacterial pathogens isolated from liver or lung
4-Negative Salmonella spp. PCR on liver
5-No parasite eggs detected in feces

Case Summary

2-19-19: The cause of death of this horse was not evident on gross examination and is currently under investigation. A full diagnostic work up is currently under way. I will keep you posted with our results. In the meantime, please do not hesitate to contact me if you have any questions about this report.

3-7-19: The cause of death of this horse was not yet determined despite extensive laboratory testing. Arsenic was detected at low concentration in the liver. Because no lesions compatible with intoxication by this heavy metal were detected, this is considered a likely incidental finding. Heavy metal screen of kidney is under way. Additional toxicology results to follow.

3-13-19: Arsenic was not detected in kidney, which is consistent with the previous comment about arsenic detected in liver being an incidental finding. Testing is now concluded.

Clinical History

Horse was working-rider said did not feel right (was not interested in working) around the quarter pole-at the 1/16 pole rider eased to jog-horse was wobbly, then the horse collapsed just past the wire (sudden death). DOA

Gross Observations

Necropsy of a 473 kg [redacted] with [redacted] began at 11:40 am on February 18, 2019. Chip: [redacted]; [redacted]

The carcass was in good nutritional condition, with adequate amount of fat reserves, well fleshed and in fresh to mild state of post-mortem decomposition.

The lungs were congested and firm with a diffuse fleshy consistency. There was a small amount of stable froth in the trachea and lower airways. No other significant gross abnormalities were observed in the rest of the carcass. In particular, thorough examination of the heart and paramedial section of the head did not reveal gross abnormalities.

Bacteriology

BACTERIAL AEROBIC CULTURE

Animal/Source	Specimen	Specimen Type	Results
[redacted]	[redacted]	Liver Swab	No growth after 48 hours
[redacted]	[redacted]	Lung Swab	No growth after 48 hours

Salmonella RT PCR Screen & culture

Animal/Source	Specimen	Specimen Type	Results
[redacted]	[redacted]	Liver Swab	Negative

Histology

Sections of heart, skeletal muscle, kidney, spleen, liver, lung, stomach, jejunum, colon, tongue, duodenum, and adrenal gland are examined.

Changes found:

1-Lung: congestion, acute, diffuse, severe

Parasitology

FECAL EXAM - FLOTATION

Animal/Source	Specimen	Specimen Type	Results
[redacted]	[redacted]	Feces	No parasite eggs detected

Toxicology

Reporting Limit (Rep. Limit): The lowest routinely quantified concentration of an analyte in a sample. The analyte may be detected, but not quantified, at concentrations below the reporting limit. Sample volumes less than requested might result in reporting limits that are higher than those listed.

Note the detection of arsenic in the tested liver sample. The other detected liver mineral results are within acceptable or non-diagnostic ranges for this species.

ADDENDUM (3/12/19): Arsenic was not detected in the tested kidney sample.

Heavy Metals Screen-CHRB

Animal/Source	Specimen	Specimen Type
[redacted]	[redacted]	Liver Tissue

Analyte	Result	Units	Rep. Limit	Units
Lead	Not Detected	ppm	1	ppm
Manganese	1.9	ppm	0.1	ppm
Iron	150	ppm	1	ppm
Mercury	Not Detected	ppm	1	ppm
Arsenic	0.13	ppm	0.05	ppm
Molybdenum	0.67	ppm	0.4	ppm
Zinc	54	ppm	0.3	ppm
Copper	6.3	ppm	0.3	ppm
Cadmium	0.57	ppm	0.3	ppm
Cobalt	0.057	ppm	0.01	ppm
Selenium	0.56	ppm	0.02	ppm

[redacted]	[redacted]	Kidney Tissue

Analyte	Result	Units	Rep. Limit	Units
Lead	Not Detected	ppm	1	ppm
Manganese	0.95	ppm	0.1	ppm
Iron	110	ppm	1	ppm
Mercury	Not Detected	ppm	1	ppm
Arsenic	Not Detected	ppm	0.05	ppm
Molybdenum	Not Detected	ppm	0.4	ppm
Zinc	27	ppm	0.3	ppm
Copper	8.6	ppm	0.3	ppm
Cadmium	7.5	ppm	0.3	ppm
Cobalt	0.03	ppm	0.01	ppm
Selenium	1.4	ppm	0.02	ppm

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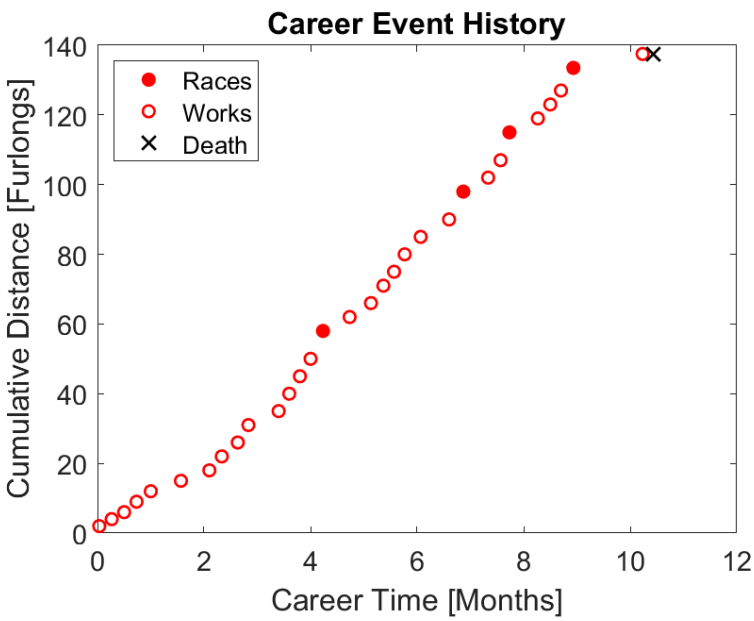
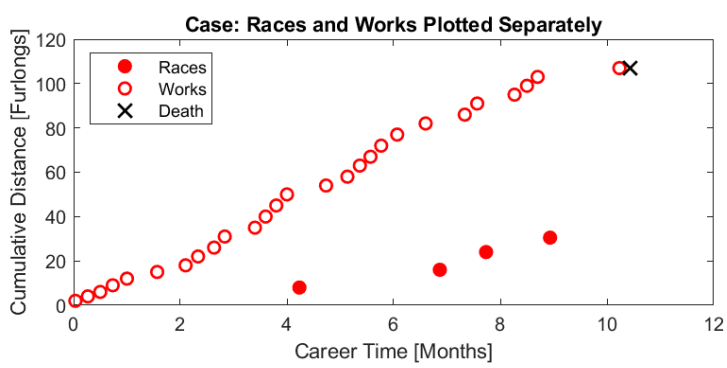
Part 1: Graphical Representation of Individual High-Speed Exercise Histories

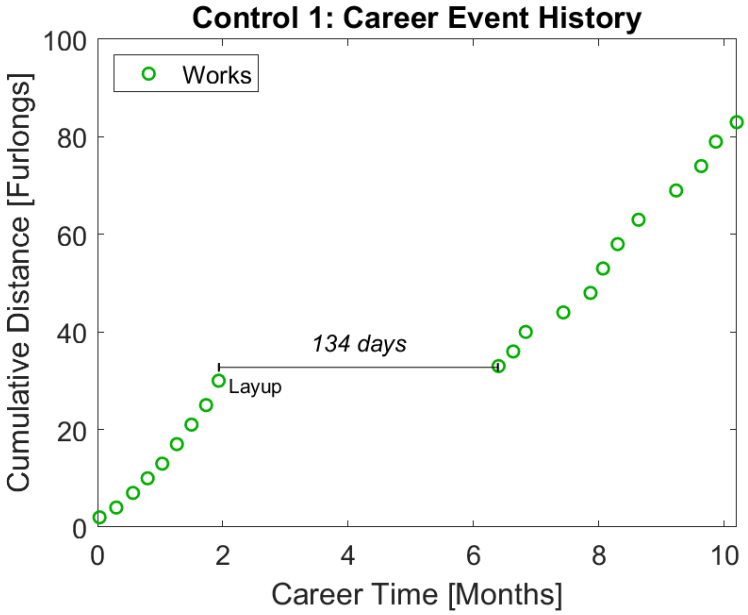
Races (filled circles), officially timed high-speed works (open circles), layups (line with endcaps, periods of time greater than 60 days in length without a race or timed work), and time of death (X) are illustrated over time (Career Time in months). With each event (race or work), the number of furlongs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

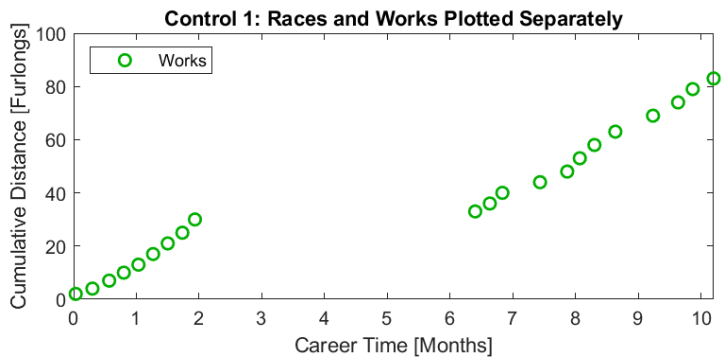
Case Horse High Speed Exercise History



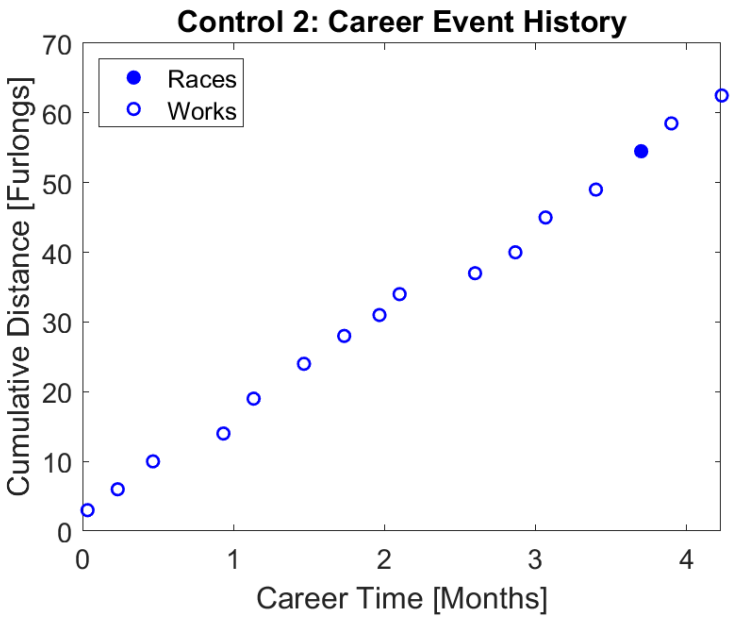


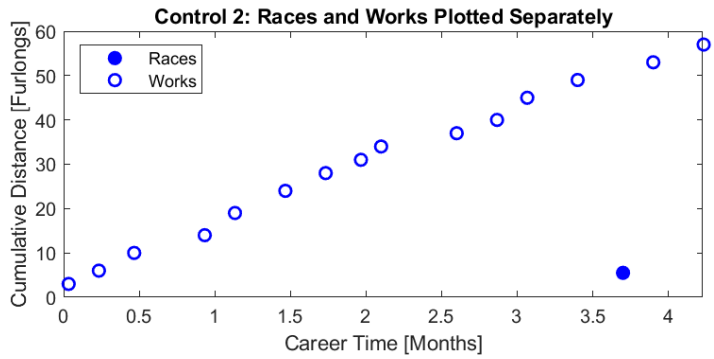
Control 1 High Speed Exercise History



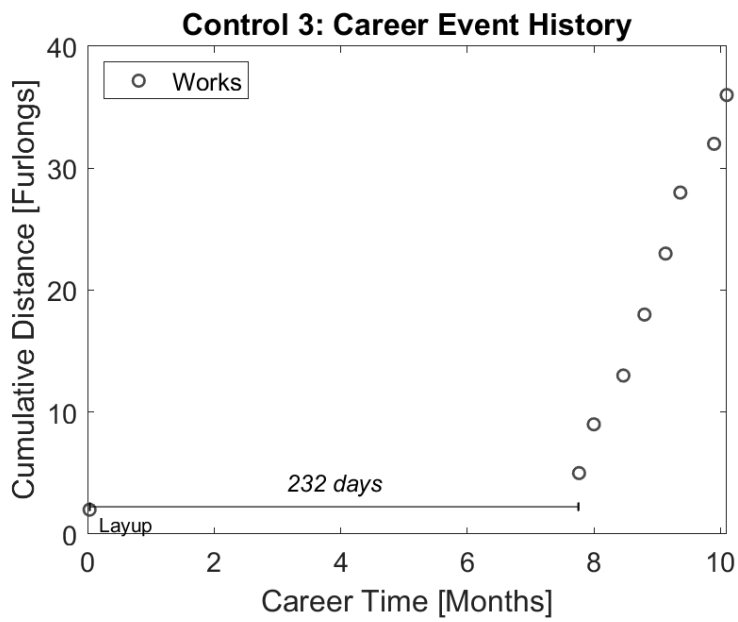


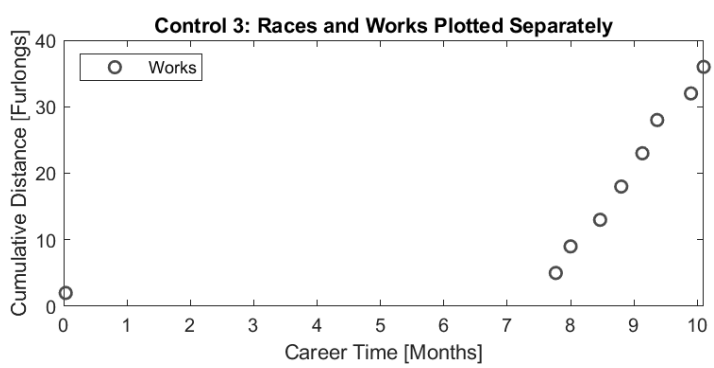
Control 2 High Speed Exercise History



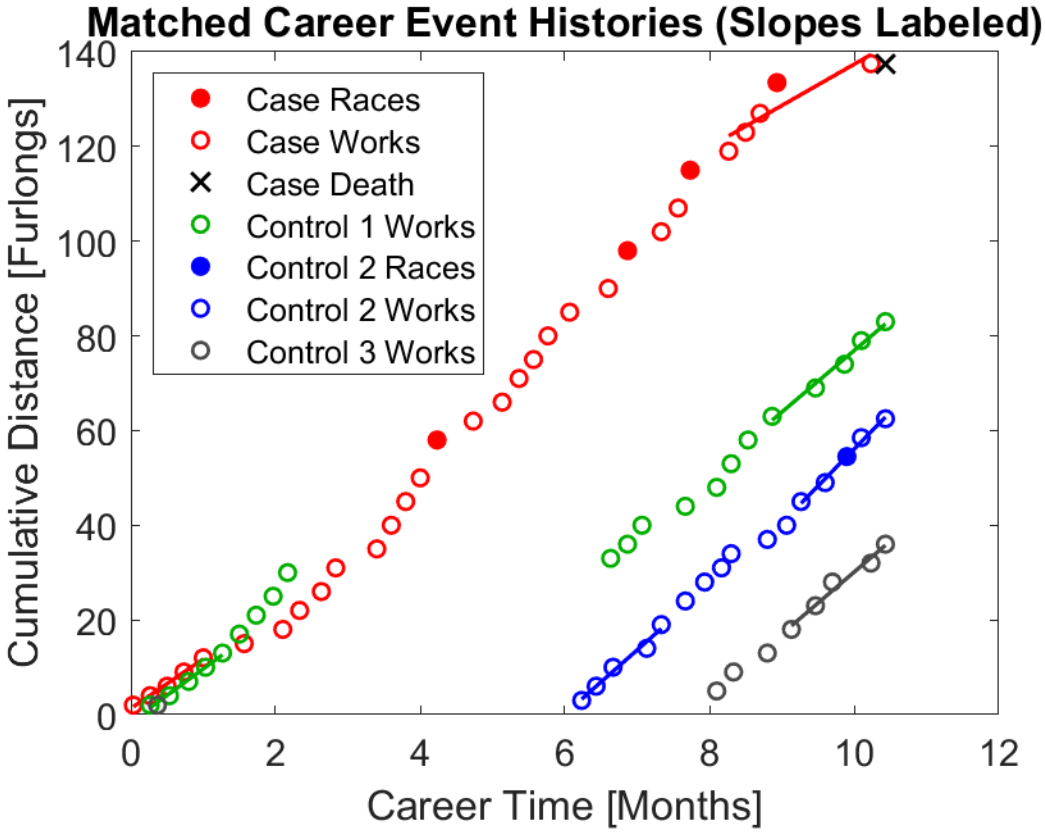


Control 3 High Speed Exercise History

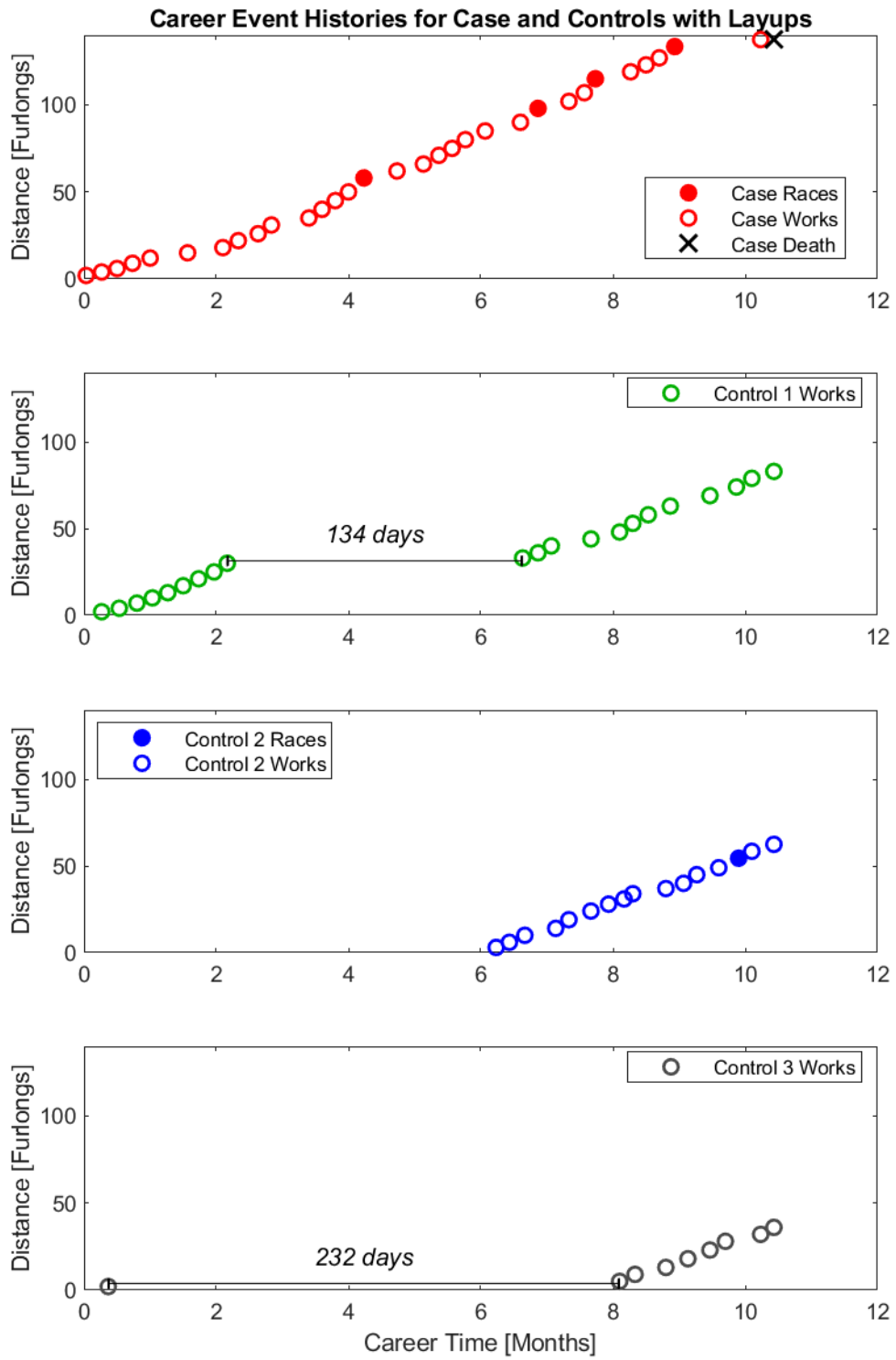


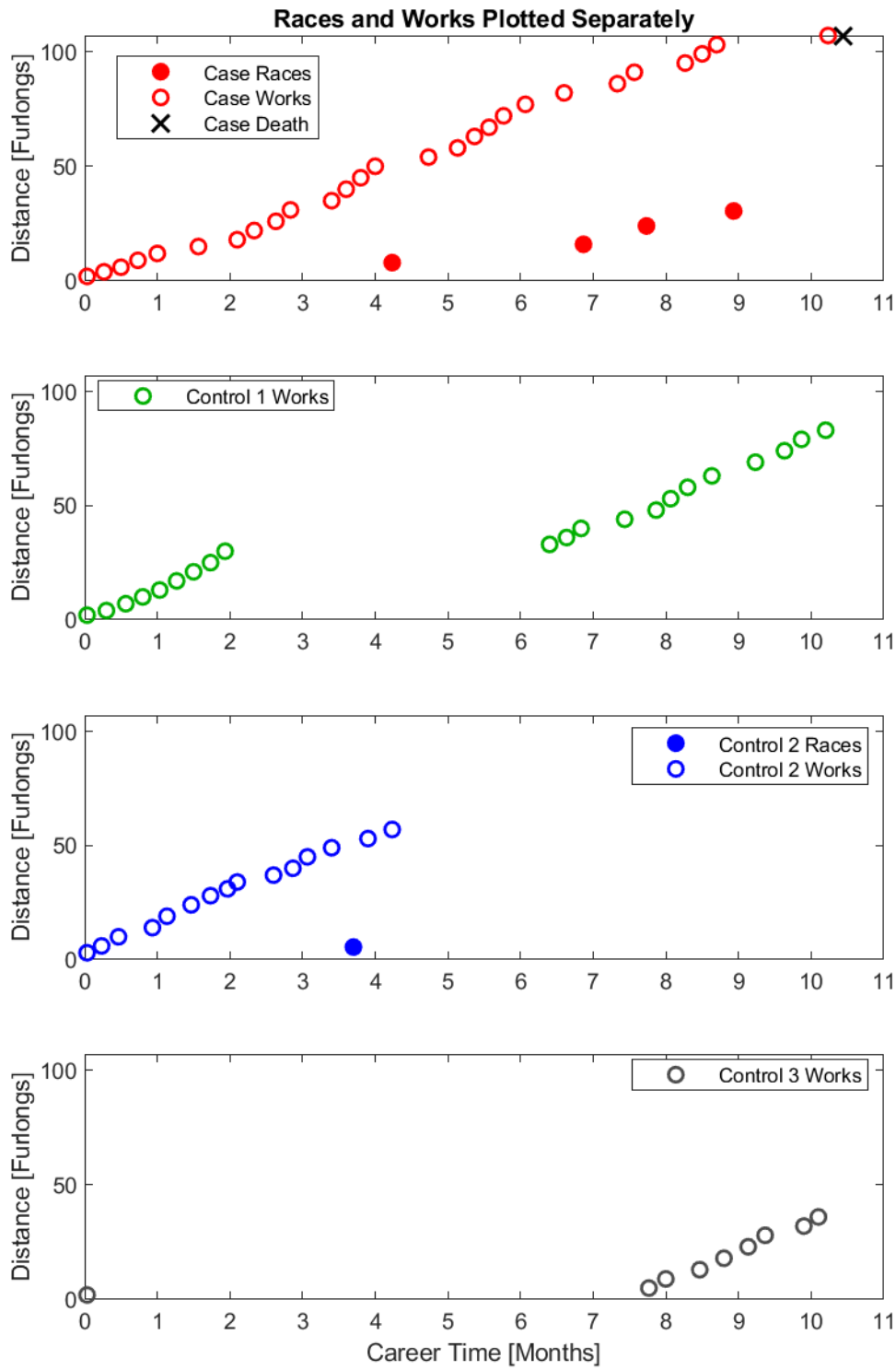


Part 2: Case and Control Horses Plotted Together



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 Works
134 days
Control 2 Races
Control 2 Works
Control 3 Works
232 days
Career Time [Months]

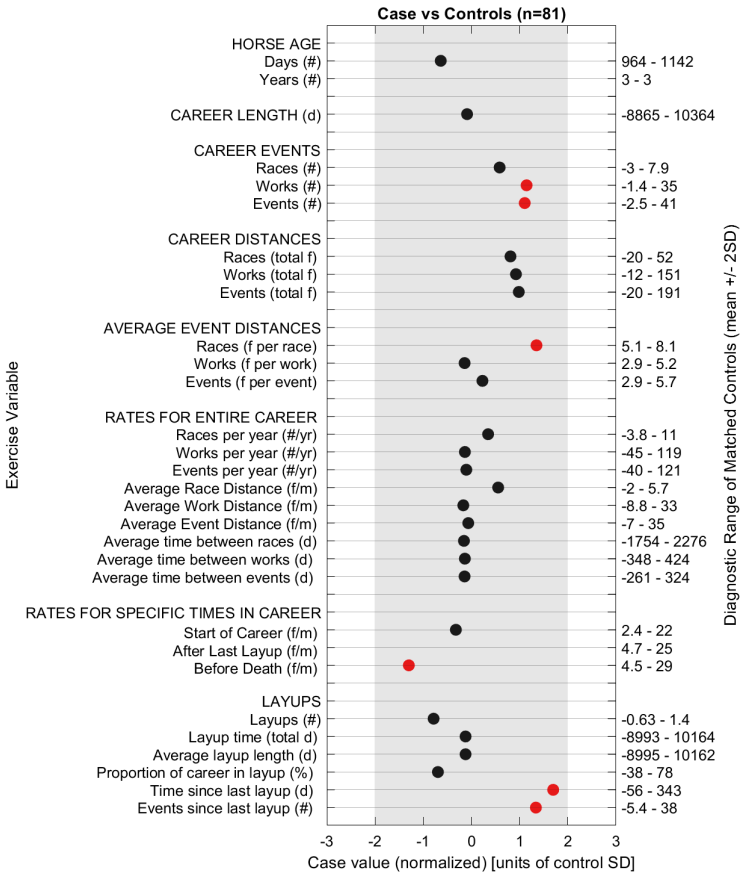

Races and Works Plotted Separately
Case Races
Case Works
Case Death
Control 1 Works
Control 2 Races
Control 2 Works
Control 3 Works
Distance [Furlongs]
Career Time [Months]
0
50
100
0
1
2
3
4
5
6
7
8
9
10
11

Part 3: Case Horse's Event History

Date	Race/ Work	Fur-longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn-ings	Finish
2/12/2019	W	4.0	SA	Dirt	Fast	:49.00				
1/4/2019	R	6.5	SA	Turf	Firm		3	(S) Msw	6600	3
12/28/2018	W	4.0	SA	Dirt	Fast	:50.00				
12/22/2018	W	4.0	SA	Dirt	Fast	:49.60				
12/15/2018	W	4.0	SA	Dirt	Fast	:49.60				
11/29/2018	R	8.0	DMR	Dirt	Wet Fast		2	(S) Msw	10600	2
11/24/2018	W	5.0	SA	Dirt	Fast	01:02.0				
11/17/2018	W	4.0	SA	Dirt	Fast	:49.20				
11/3/2018	R	8.0	SA	Turf	Firm		2	(S) Msw	6000	3
10/26/2018	W	5.0	SA	Dirt	Fast	01:03.8				
10/10/2018	W	5.0	SA	Dirt	Fast	01:03.0				
10/1/2018	W	5.0	SA	Dirt	Fast	01:03.6				
9/25/2018	W	4.0	SA	Dirt	Fast	:50.20				
9/19/2018	W	5.0	SA	Dirt	Fast	01:03.4				
9/12/2018	W	4.0	SA	Dirt	Fast	:50.00				
8/31/2018	W	4.0	DMR	Dirt	Fast	:50.00				
8/16/2018	R	8.0	DMR	Turf	Firm		2	(S) Msw	7200	3
8/9/2018	W	5.0	DMR	Dirt	Fast	01:03.0				
8/3/2018	W	5.0	DMR	Dirt	Fast	01:02.0				
7/28/2018	W	5.0	DMR	Dirt	Fast	01:02.8				
7/22/2018	W	4.0	DMR	Dirt	Fast	:52.00				
7/5/2018	W	5.0	SA	Dirt	Fast	01:04.4				
6/29/2018	W	4.0	SA	Dirt	Fast	:50.60				
6/20/2018	W	4.0	SA	Dirt	Fast	:50.80				
6/13/2018	W	3.0	SA	Dirt	Fast	:37.20				
5/28/2018	W	3.0	SA	Dirt	Fast	:37.00				
5/11/2018	W	3.0	SA	Dirt	Fast	:38.00				
5/3/2018	W	3.0	SA	Dirt	Fast	:37.00				
4/26/2018	W	2.0	SA	Dirt	Fast	:25.00				
4/19/2018	W	2.0	SA	Dirt	Fast	:25.40				

Date	Race/ Work	Fur-longs	Track	Surface	Track Cond.	Time	Age/ Sex	Race Class	Earn-ings	Finish
4/12/2018	W	2.0	SA	Dirt	Fast	:26.20				

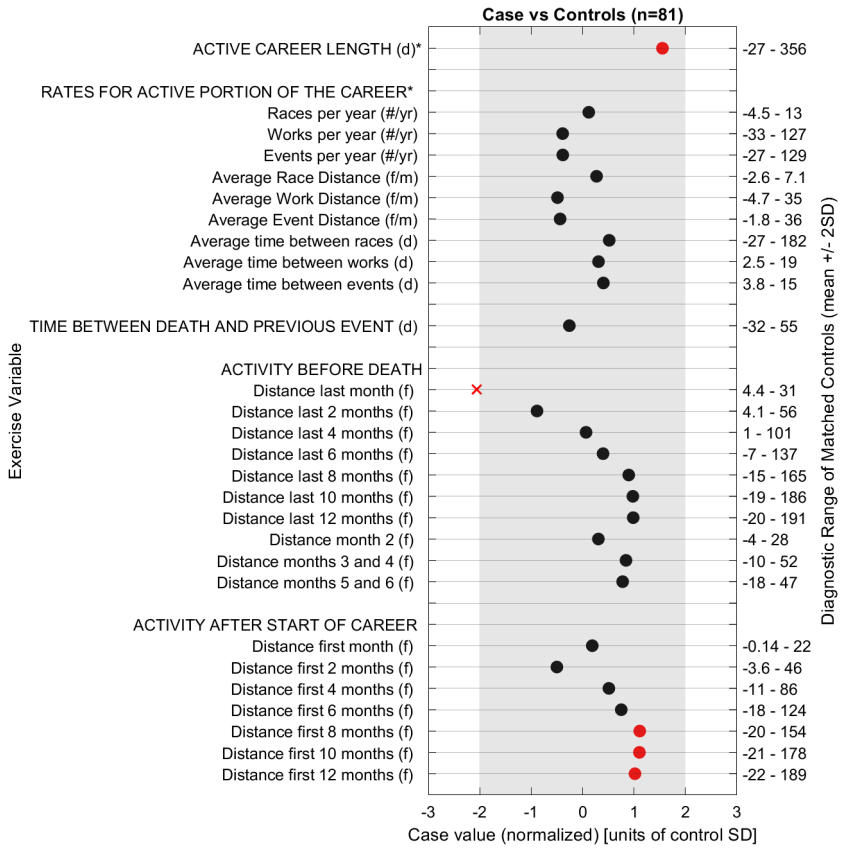
Part 4: Comparison of Exercise Variables between Case Horse and 81 Control Horses (3 year old, male, Thoroughbred)



Case Horse values are indicated by black or red symbols: circles indicate values considered normal for 95% of 3 year old, male, Thoroughbreds (n=81) (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.



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