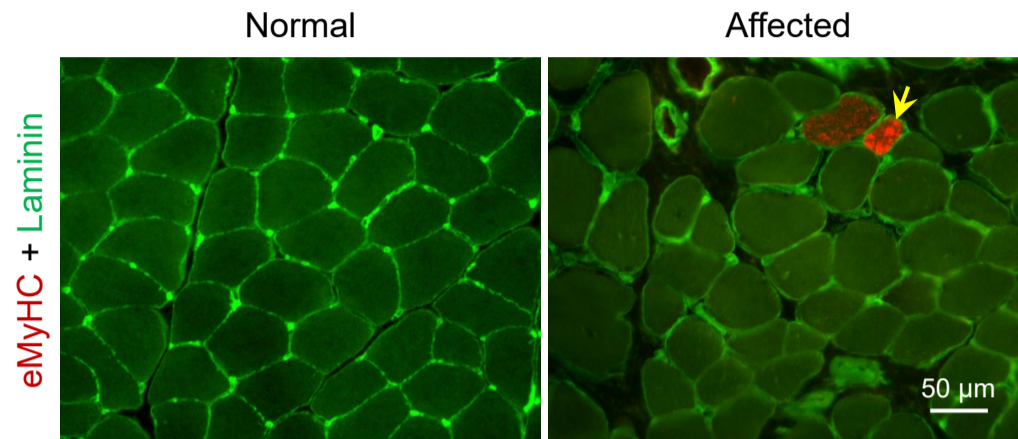**Fig. S1. Correlation between the body weight and the muscle weight, and between the body weight and the physiological cross-sectional area (pCSA) of the extensor carp ulnaris (ECU) muscle in normal (n=15) and affected (n=15) dogs.**

Fig. S2. Affected dog extensor carp ulnaris muscle shows low-level fresh regeneration.
Representative embryonic myosin heavy chain (eMyHC) immunofluorescence staining images from normal and affected ECU muscles. Individual myofibers were outlined by laminin immunostaining. Yellow arrow, a myofiber containing eMyHC.
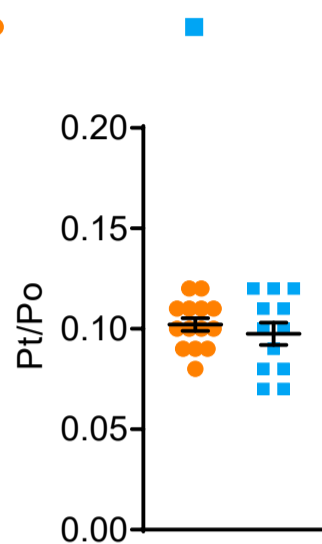
Fig. S3. The twitch (Pt) to tetanic (Po) force ratio in normal (n=14) and affected (n=12) dogs.
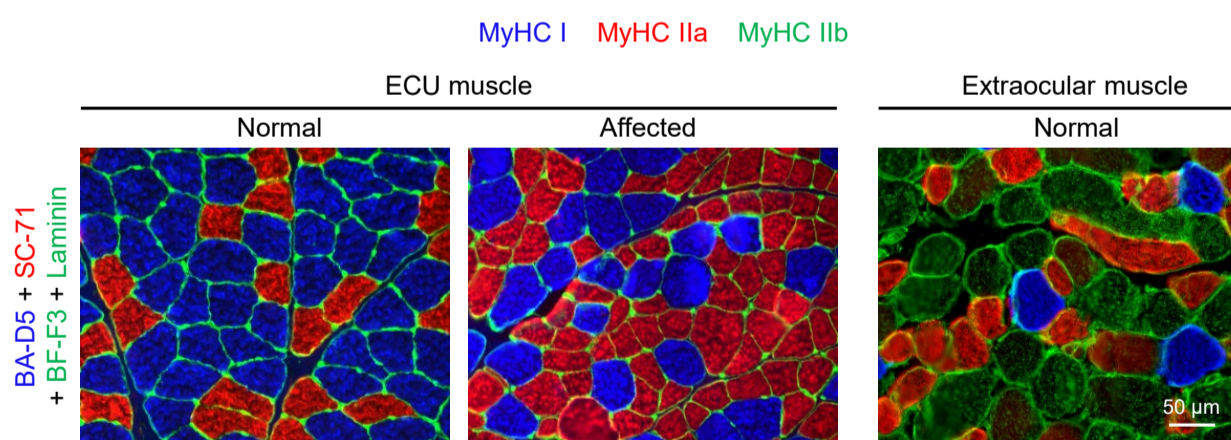
Fig. S4. Type IIb myofiber is absent in the dog ECU muscle. Representative myosin heavy chain isoform (MyHC) immunostaining photomicrographs from normal and affected ECU muscles, and a normal extraocular muscle. Type I myofibers (blue) were stained with antibody BA-D5. Type IIa myofibers (red) were stained with antibody SC-71. Type IIb myofibers (green) were stained with antibody BF-F3. The muscle cell membrane (green) was stained with a polyclonal antibody against laminin.
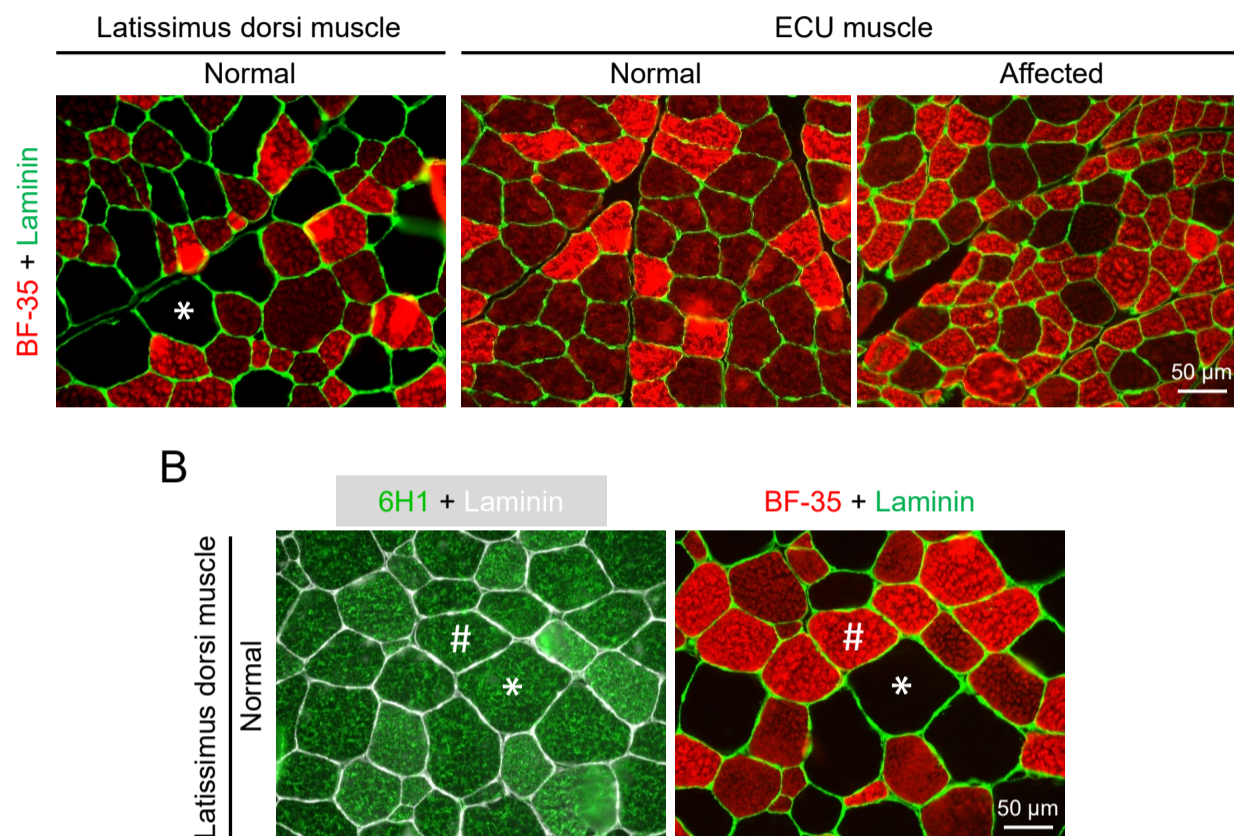
Fig. S5. Evaluation of type IIx fibers in dog muscle. (A) Representative myosin heavy chain isoform immunostaining using antibody BF-35. The BF-35 antibody stains all myosin heavy chain isoforms except type IIx. Type IIx fibers can be readily identified in the latissimus dorsi muscle. No type IIx fiber was detected in the dog ECU muscle. Asterisk (*), a type IIx myofiber. **(B)** Representative myosin heavy chain isoform immunostaining of the latissimus dorsi muscle using antibodies 6H1 and BF-35. The 6H1 antibody cannot identify type IIx myofibers in dog muscle. Asterisk (*), a type IIx myofiber. Pound sign (#), a non-type IIx myofiber.
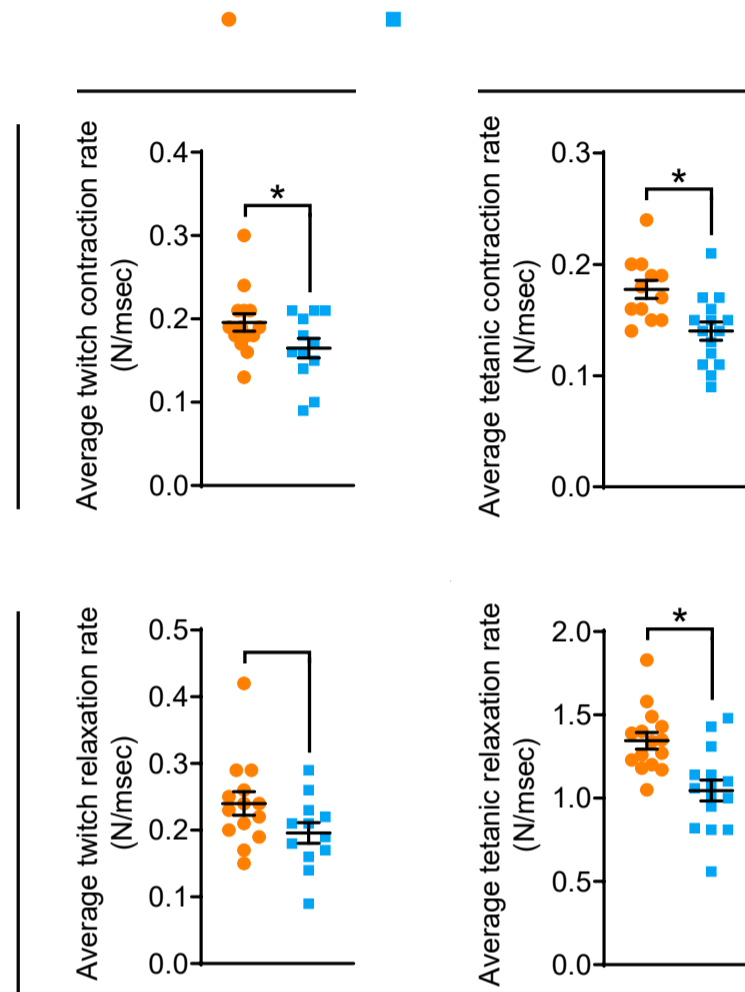
Fig. S6. Quantification of the average contraction and relaxation rate. (A) The average contraction rate of twitch contraction in the normal (n=14) and affected (n=12) ECU muscle. The rate is calculated using the equation Pt/TPT. **(B)** The average contraction rate of tetanic contraction in the normal (n=15) and affected (n=15) ECU muscle. The rate is calculated using the equation Po/TPT. **(C)** The average relaxation rate (based on ½ RT) of twitch contraction in the normal (n=14) and affected (n=12) ECU muscle. The rate is calculated using equation (Pt) / (½ RT). **(D)** The average relaxation rate (based on ½ RT) of tetanic contraction in the normal (n=15) and affected (n=15) ECU muscle. The rate is calculated using equation (Pt) / (½ RT). Asterisk (*), significantly different from each other. P < 0.05, unless noted on the graph.

Table S1. Optimized stimulation parameters of the ECU muscle

		Normal	**Affected**
Sample size		15	15
Gender		M	M
Optimal resting tension (g)	Min	700	300
	Max	2000	1600
	Average	1257.53 ± 352.49	728.57 ± 329.17*
	Majority[a]	1000 to 2000 (80%)	600 to 1600 (73%)
Optimal stimulation current (mA)	Min	20	20
	Max	600	300
	Average	100.67 ± 144.54	77.33 ± 77.04
	Majority[a]	40 to 80 (73%)	20 to 80 (80%)
Optimal stimulation duration (msec)	Min	500	500
	Max	800	800
	Average	760.00 ± 105.56	706.67 ± 122.28
	Majority[a]	800 (87%)	800 (60%), 600 (27%)
Optimal stimulation frequency (Hz)	Min	80	80
	Max	120	120
	Average	101.33 ± 14.07	94.67 ± 14.07
	Majority[a]	100 (53%)	100 (47%), 80 (40%)

ECU, extensor carpi ulnaris muscle; Min, minimum value; Max, maximum value.

*, Significantly different from normal dogs.

a, Optimal condition(s) in most of the dogs in the same column.

Data are presented as mean ± SD

Table S2. Antibodies used in myofiber type immunofluorescence staining

Antibody name	Isotype	MyHC isoform specificity	Dilution	Figure
BA-D5	IgG2b	MyHC I	1:20	Figs 7, S4
SC-71	IgG1	MyHC IIa	1:100	Figs 7, S4
BF-F3	IgM	MyHC IIb	1:40	Figs 7, S4
6H1	IgM	MyHC IIx	1:50	Fig. S5B
BF-35	IgG1	All isoforms except IIx	1:50	Fig. S5
F1.652	IgG1	eMyHC	1:250	Figs 3D, S2

Table S3. Primers and probes used in droplet digital PCR

Gene	NCBI reference sequence #	MyHC isoform	Forward primer (5' - 3')	Reverse primer (5' - 3')	Probe (5' - 3')
MYH7	NM_001113711.1	I	AGAATGACCTCCAGCTTCAAGTG	AGCGCTCCTCTGCATCAG	AAGCGGAACAAGACAAC
MYH2	NM_001076795.1	IIa	TCAGTGTGGCTAGCATTGATGATC	GTGAGCTTGTAGATGGAGACTTTCT	ACAGATAGTGCTATTGATATTT
MYH1	NM_001113717.1	IIx	ACATTGCCGGCTTTGAGATCTT	GTTTCTCATTGGTGAAGTTGATGCA	CAGGCTGTTAAAATCA
MYH4	NM_001076794.1	IIb	CTGATGAGGGTGGAATTCAAGAAGA	CGGACATTGTACTGGATGCAGAAAA	ATGGAGAGGAGAGAGTCC

Table S4. Comparison of the current study and our previous study

		Current study (Hakim *et al.*)		Our previous study (Yang *et al.*)	
		Normal	Affected	Normal	Affected
Sample size		15	15	7	7
Sex		M	M	M	M & F
Age (year)	Min	2.16	2.78	0.74	0.84
	Max	3.54	3.65	2.55	2.52
	Average	2.96 ± 0.43	3.13 ± 0.41	1.64 ± 0.79	1.61 ± 0.78
Body Weight (Kg)	Min	15.38	14.74	13.00	10.90
	Max	34.47	29.84	32.20	22.30
	Average	21.23 ± 4.65	19.28 ± 4.05	20.34 ± 7.29	16.57 ± 4.10
ECU muscle weight (g)	Min	6.09	4.44	3.60	2.95
	Max	12.93	11.72	15.46	10.51
	Average	9.49 ± 2.48	7.49 ± 1.95*	8.37 ± 4.84	6.08 ± 2.47
ECU weight / Body weight ratio (g/kg)	Min	0.32	0.28	0.25	0.27
	Max	0.60	0.49	0.54	0.51
	Average	0.45 ± 0.08	0.39 ± 0.05*	0.39 ± 0.11	0.36 ± 0.09
ECU muscle length (cm)	Min	11.34	11.76	9.70	14.00
	Max	16.38	16.38	19.50	19.00
	Average	14.14 ± 1.54	14.14 ± 1.31	14.48 ± 3.71	16.04 ± 2.13
pCSA (cm^2)	Min	10.10	7.86	7.19	4.39
	Max	17.07	14.89	19.65	11.51
	Average	13.78 ± 2.35	10.91 ± 2.15*	11.37 ± 4.51	7.68 ± 2.16
Po (N)	Min	113.02	56.23	52.80	24.64
	Max	193.38	130.71	159.70	81.80
	Average	147.05 ± 24.11	97.63 ± 21.13*	97.15 ± 43.38	54.94 ± 18.70*
Po / muscle weight (N/g)	Min	12.75	8.86	10.33	7.79
	Max	19.86	16.82	15.54	12.08
	Average	15.95 ± 2.12	13.30 ± 2.41*	12.45 ± 2.16	9.21 ± 1.42*
Po / pCSA (N/cm^2)	Min	9.26	6.08	6.84	5.62
	Max	12.27	11.97	9.81	8.42
	Average	10.72 ± 0.84	9.04 ± 1.82*	8.38 ± 1.08	7.04 ± 0.96*

ECU, extensor carpi ulnaris muscle; M, Male; F, Female; N; newton; Po, tetanic force; pCSA, physiological cross-sectional area; Min, minimum value; Max, maximum value.

*, Significantly different from normal dogs.

Data are presented as mean ± SD

Table S5. Comparison of the parameters used in eccentric contraction in the current study and our previous study

		Current study (Hakim *et al.*)		Our previous study (Yang *et al.*)	
		Normal	Affected	Normal	Affected
% Length stretched	Min	5.00	5.00	4.99	3.13
	Max	5.00	5.00	5.00	5.06
	Average	5.00 ± 0.00	5.00 ± 0.00	5.00 ± 0.00	4.56 ± 0.65
Stretch rate (mm/s)	Min	5.67	5.88	6.58	6.05
	Max	8.19	8.19	10.19	10.35
	Average	7.07 ± 0.77	7.07 ± 0.65	7.90 ± 2.00	7.14 ± 1.72
	Variance	0.59	0.43	3.99	2.98

Min, minimum value; Max, maximum value.

Data are presented as mean ± SD

Dataset 1. Raw data tables

Fig. 2c

% of Centrally nucleated fibers	
Normal	Affected
0.32	47.26
0.00	31.63
2.81	19.82
0.86	18.98

	Normal	Affected
Average:	1.00	29.42
SD:	1.26	13.22
Sample size (n):	4	4

Statistics Analysis
Test: unpaired *t*-test
P value: 0.0052

Fig. 2D

eMyHC (% Area)	
Normal	Affected
0.40	1.78
0.22	1.38
0.18	2.38
0.25	1.22
0.26	0.92
0.13	2.56
0.05	1.31
0.21	1.83
0.19	

	Normal	Affected
Average:	0.21	1.67
SD:	0.10	0.57
Sample size (n):	9	8

Statistics Analysis
Test: unpaired *t*-test
P value: <0.0001

Fig. 2E

Mini-Feret diameter (µm)	Normal						Affected						
	% of myofibers												
20	0	0	0	0	0	0	5	1	2	1	2	5	2
30	0	7	1	12	2	2	14	15	16	10	14	37	15
40	16	38	13	55	28	31	17	34	28	34	35	33	32
50	50	34	41	29	48	50	17	31	31	27	29	16	30
60	28	16	33	4	20	15	20	10	15	17	14	6	14
70	5	5	11	0	2	2	11	6	5	7	4	2	4
80	0	0	1	0	0	0	10	2	2	3	1	0	2
90	0	0	0	0	0	0	3	0	0	1	0	1	1
100	0	0	0	0	0	0	2	0	0	0	0	0	0

Mini-Feret diameter	Normal		Normal	
	Average	SD	Average	SD
20	0.00	0.00	2.57	1.59
30	4.00	4.20	17.29	8.24
40	30.17	14.02	30.43	5.88
50	42.00	8.14	25.86	6.06
60	19.33	9.37	13.71	4.23
70	4.17	3.53	5.57	2.66
80	0.17	0.37	2.86	3.04
90	0.00	0.00	0.86	0.99
100	0.00	0.00	0.29	0.70
Sample size (n):	6		7	

Fig. 2D

Fibrosis (% Area)	
Normal	Affected
7.62	18.65
11.30	15.15
7.25	32.30
12.86	31.66
13.76	19.22
23.07	22.33
11.30	18.54
12.82	27.18
9.78	30.34
11.28	

	Normal	Affected
Average:	12.10	23.93
SD:	4.41	6.52
Sample size (n):	10	9

Statistics Analysis
Test: unpaired *t*-test
P value: 0.0002

Fig. 3B Pt (N)		Fig. 3C sPt (N/cm²)		Fig. 3D TPT (msec)		Fig. 3E 1/2RT (msec)		Fig. 3G Max df/dt (N/msec)		Fig. 3H Max -df/dt (N/msec)		Fig. 3I Time to max df/dt (msec)		Fig. 3J Time to max -df/dt (msec)	
Normal	Affected	Normal	Affected	Normal	Affected	Normal	Affected	Normal	Affected	Normal	Affected	Normal	Affected	Normal	Affected
19.47	5.65	1.49	0.67	93.70	53.87	66.80	41.41	0.48	0.17	-0.21	-0.09	22.10	23.97	39.40	21.27
12.35	12.77	1.11	1.09	76.10	62.27	63.12	49.22	0.34	0.36	-0.14	-0.17	19.85	21.10	35.80	25.40
15.73	10.91	1.23	0.89	75.40	52.90	73.99	48.14	0.45	0.36	-0.14	-0.16	20.50	21.73	31.20	22.20
14.24	5.53	1.07	0.70	75.27	62.43	60.59	64.68	0.38	0.15	-0.16	-0.06	20.40	24.40	27.37	25.30
13.32	9.18	1.05	1.16	76.70	65.40	71.49	58.16	0.35	0.23	-0.13	-0.10	21.20	25.60	27.10	24.47
11.93	10.14	0.96	0.75	90.90	62.40	80.91	55.27	0.28	0.32	-0.10	-0.12	23.03	20.80	32.93	27.87
12.76	7.31	1.06	0.77	69.93	47.07	54.38	34.78	0.34	0.26	-0.16	-0.14	21.00	21.10	32.70	22.10
16.83	13.04	1.18	1.23	70.17	60.77	58.28	44.61	0.45	0.38	-0.19	-0.19	21.70	21.37	28.60	24.07
22.06	8.65	1.29	0.79	72.47	59.33	52.38	50.70	0.60	0.27	-0.29	-0.12	20.47	21.50	34.70	23.30
12.57	9.13	1.10	0.73	66.17	50.97	52.06	44.04	0.36	0.31	-0.16	-0.14	20.50	19.97	32.83	25.33
13.71	9.86	0.81	0.66	71.80	57.63	53.24	45.66	0.35	0.30	-0.18	-0.15	22.53	21.30	27.60	21.47
15.92	11.54	0.96	1.30	86.37	57.87	73.59	62.26	0.38	0.36	-0.15	-0.11	21.83	20.73	40.47	26.20
14.85		0.92		80.87		90.00		0.36		-0.11		22.80		35.50	
12.74		1.26		59.27		50.61		0.42		-0.16		19.97		28.97	

	Fig. 3B		Fig. 3C		Fig. 3D		Fig. 3E		Fig. 3G		Fig. 3H		Fig. 3I		Fig. 3J	
Average:	14.89	9.48	1.11	0.90	76.08	57.74	64.39	49.91	0.40	0.29	-0.16	-0.13	21.28	21.96	32.51	24.08
SD:	2.94	2.45	0.17	0.23	9.39	5.50	12.17	8.81	0.08	0.08	0.05	0.04	1.06	1.72	4.34	2.06
Sample size (n):	14	12	14	12	14	12	14	12	14	12	14	12	14	12	14	12

Statistics Analysis

Fig.	Test	P value
Fig. 3B	unpaired t-test	<0.0001
Fig. 3C	unpaired t-test	0.0146
Fig. 3D	unpaired t-test	<0.0001
Fig. 3E	unpaired t-test	0.0022
Fig. 3G	unpaired t-test	0.0019
Fig. 3H	unpaired t-test	0.0548
Fig. 3I	unpaired t-test	0.2249
Fig. 3J	unpaired t-test	<0.0001

Fig. 4B Po (N)		Fig. 4C sPo (N/cm²)		Fig. 4D TPT (msec)		Fig. 4E 1/2RT (msec)		Fig. 4G Max df/dt (N/msec)		Fig. 4H Max -df/dt (N/msec)		Fig. 4I Time to max df/dt (msec)		Fig. 4J Time to max -df/dt (msec)	
Normal	Affected	Normal	Affected	Normal	Affected	Normal	Affected	Normal	Affected	Normal	Affected	Normal	Affected	Normal	Affected
175.11	77.37	10.38	9.15	814.20	809.00	117.24	95.09	0.72	0.40	-2.47	-1.37	28.60	54.20	104.30	84.40
160.13	103.00	12.27	8.80	811.30	608.90	118.68	97.50	0.79	0.57	-2.37	-1.95	26.50	39.60	106.50	88.50
120.93	72.02	10.82	6.08	812.80	493.60	102.57	72.35	0.67	0.58	-2.00	-1.74	87.90	28.60	89.80	66.00
132.15	125.77	10.35	10.22	809.60	603.80	103.84	84.95	0.65	0.70	-2.07	-2.35	28.10	36.70	93.10	74.20
141.04	56.23	10.60	7.15	790.90	612.40	105.49	100.83	0.47	0.29	-2.47	-0.94	30.00	54.20	92.40	91.40
152.91	85.63	12.08	10.86	996.80	513.50	110.36	104.17	0.58	0.44	-2.44	-1.37	52.00	53.90	98.30	93.80
128.56	121.56	10.36	9.03	801.60	796.20	122.96	106.79	0.57	0.60	-1.85	-2.14	33.30	27.50	110.00	94.80
123.38	71.92	10.25	7.63	772.10	660.00	97.89	88.44	0.53	0.55	-2.23	-1.38	57.20	32.80	90.10	78.90
157.80	112.45	11.06	10.59	808.90	786.60	110.65	98.35	0.69	0.60	-2.59	-1.94	31.90	48.20	101.90	88.40
193.38	130.71	11.33	11.97	804.00	810.50	105.77	91.14	0.90	0.58	-3.26	-2.73	67.90	59.10	98.40	83.60
113.02	97.99	9.92	7.56	944.80	815.50	93.84	91.85	0.57	0.50	-2.20	-2.11	66.20	61.50	87.10	84.70
163.49	80.62	9.71	6.43	815.10	762.10	117.15	84.52	0.68	0.56	-2.41	-1.72	70.70	30.30	107.50	77.00
152.97	124.30	9.26	8.35		810.60	124.42	95.20	0.67	0.55	-1.68	-2.59	25.60	60.70	125.40	87.50
173.49	93.76	10.73	10.58		698.00	109.91	92.75	0.85	0.69	-2.83	-1.81		34.20	103.70	84.50
117.35	111.13	11.62	11.15		798.20	100.22	100.89	0.68	0.57	-2.04	-1.96		53.80	90.00	90.60
Average: 147.00	97.63	**Average:** 10.72	9.04	**Average:** 831.80	705.30	**Average:** 109.40	93.65	**Average:** 0.67	0.55	**Average:** -2.33	-1.87	**Average:** 46.61	45.02	**Average:** 99.90	84.55
SD: 24.12	23.13	**SD:** 0.84	1.82	**SD:** 66.95	114.60	**SD:** 9.20	8.78	**SD:** 0.12	0.10	**SD:** 0.39	0.48	**SD:** 21.30	12.56	**SD:** 10.21	7.81
Sample size (n): 15	15	**Sample size (n):** 15	15	**Sample size (n):** 12	15	**Sample size (n):** 15	15	**Sample size (n):** 15	15	**Sample size (n):** 15	15	**Sample size (n):** 13	15	**Sample size (n):** 15	15

Statistics Analysis	Statistics Analysis	Statistics Analysis	Statistics Analysis	Statistics Analysis	Statistics Analysis	Statistics Analysis	Statistics Analysis
Test: unpaired t-test	**Test:** unpaired t-test	**Test:** unpaired t-test	**Test:** unpaired t-test	**Test:** unpaired t-test	**Test:** unpaired t-test	**Test:** unpaired t-test	**Test:** unpaired t-test
P value: <0.0001	**P value:** 0.0031	**P value:** 0.0024	**P value:** <0.0001	**P value:** 0.0053	**P value:** 0.0089	**P value:** 0.809	**P value:** <0.0001

Fig. 5B

Average df/dt (N/msec)

% of contraction force	Normal															Affected														
	Dog #1	Dog #2	Dog #3	Dog #4	Dog #5	Dog #6	Dog #7	Dog #8	Dog #9	Dog #10	Dog #11	Dog #12	Dog #13	Dog #14	Dog #15	Dog #1	Dog #2	Dog #3	Dog #4	Dog #5	Dog #6	Dog #7	Dog #8	Dog #9	Dog #10	Dog #11	Dog #12	Dog #13	Dog #14	Dog #15
0-10	0.50	0.56	0.40	0.48	0.37	0.44	0.41	0.39	0.48	0.65	0.39	0.46	0.44	0.49	0.48	0.24	0.36	0.35	0.45	0.17	0.25	0.43	0.33	0.39	0.19	0.27	0.35	0.18	0.41	0.18
10-20	0.70	0.67	0.52	0.57	0.45	0.55	0.50	0.53	0.68	0.87	0.56	0.64	0.63	0.74	0.60	0.40	0.56	0.57	0.69	0.28	0.43	0.57	0.55	0.60	0.29	0.45	0.54	0.27	0.68	0.28
20-30	0.68	0.58	0.47	0.54	0.47	0.52	0.48	0.50	0.63	0.86	0.52	0.65	0.66	0.83	0.50	0.39	0.52	0.54	0.65	0.28	0.42	0.56	0.53	0.58	0.28	0.48	0.43	0.27	0.66	0.27
30-40	0.57	0.50	0.42	0.46	0.44	0.42	0.37	0.47	0.52	0.75	0.41	0.58	0.60	0.75	0.47	0.35	0.43	0.50	0.59	0.24	0.38	0.49	0.49	0.50	0.25	0.43	0.35	0.24	0.59	0.24
40-50	0.69	0.42	0.57	0.56	0.35	0.42	0.45	0.36	0.47	0.66	0.37	0.47	0.53	0.61	0.44	0.28	0.37	0.44	0.55	0.20	0.35	0.43	0.40	0.43	0.22	0.38	0.33	0.20	0.48	0.20
50-60	0.53	0.34	0.29	0.34	0.30	0.34	0.31	0.27	0.38	0.52	0.34	0.39	0.38	0.51	0.37	0.24	0.31	0.38	0.42	0.16	0.29	0.39	0.31	0.34	0.19	0.34	0.24	0.18	0.39	0.17
60-70	0.39	0.27	0.23	0.31	0.25	0.29	0.28	0.23	0.29	0.37	0.27	0.30	0.28	0.40	0.23	0.19	0.24	0.28	0.31	0.12	0.22	0.30	0.26	0.25	0.15	0.26	0.19	0.14	0.29	0.13
70-80	0.30	0.19	0.17	0.23	0.19	0.22	0.21	0.18	0.23	0.28	0.17	0.23	0.20	0.28	0.19	0.14	0.19	0.21	0.20	0.09	0.16	0.23	0.19	0.19	0.11	0.20	0.15	0.11	0.19	0.10
80-90	0.21	0.13	0.11	0.17	0.13	0.15	0.16	0.12	0.15	0.18	0.12	0.15	0.13	0.19	0.13	0.09	0.13	0.14	0.15	0.06	0.11	0.14	0.12	0.13	0.07	0.13	0.10	0.07	0.13	0.06
90-100	0.11	0.05	0.03	0.08	0.04	0.04	0.08	0.03	0.03	0.05	0.03	0.04	0.04	0.03	0.03	0.02	0.04	0.03	0.05	0.02	0.04	0.03	0.02	0.02	0.03	0.01	0.02	0.02	0.01	0.01

Sample size (n): 15 | 15

Statistics Analysis

Test: unpaired *t*-test

% of contraction force	Normal		Affected		% of contraction force	P Value
	Average	SD	Average	SD		
0-10	0.46	0.07	0.30	0.10	0-10	0.0003
10-20	0.61	0.11	0.48	0.15	10-20	0.0288
20-30	0.59	0.13	0.46	0.14	20-30	0.0288
30-40	0.52	0.12	0.41	0.12	30-40	0.0288
40-50	0.49	0.11	0.35	0.11	40-50	0.0128
50-60	0.37	0.08	0.29	0.09	50-60	0.0288
60-70	0.29	0.05	0.22	0.07	60-70	0.0182
70-80	0.22	0.04	0.16	0.05	70-80	0.0155
80-90	0.15	0.03	0.11	0.03	80-90	0.0093
90-100	0.05	0.02	0.02	0.01	90-100	0.0155

Fig. 5D

Average -df/dt (N/msec)

% of relaxation force	Normal															Affected														
	Dog #1	Dog #2	Dog #3	Dog #4	Dog #5	Dog #6	Dog #7	Dog #8	Dog #9	Dog #10	Dog #11	Dog #12	Dog #13	Dog #14	Dog #15	Dog #1	Dog #2	Dog #3	Dog #4	Dog #5	Dog #6	Dog #7	Dog #8	Dog #9	Dog #10	Dog #11	Dog #12	Dog #13	Dog #14	Dog #15
0-10	0.00	-0.02	-0.01	-0.01	-0.01	-0.01	-0.04	0.00	-0.01	-0.01	0.00	-0.01	0.00	-0.01	-0.01	0.00	0.00	-0.01	0.00	0.00	0.00	-0.01	0.00	0.00	0.00	-0.01	-0.01	0.00	0.00	0.00
10-20	-0.59	-0.64	-0.45	-0.45	-0.16	-0.18	-0.41	-0.44	-0.67	-0.94	-0.64	-0.32	-0.65	-0.57	-0.54	-0.28	-0.42	-0.45	-0.36	-0.18	-0.25	-0.42	-0.40	-0.40	-0.17	-0.41	-0.31	-0.24	-0.41	-0.20
20-30	-1.11	-1.19	-0.87	-0.79	-0.76	-0.77	-0.85	-0.94	-1.18	-1.55	-1.05	-1.06	-1.14	-1.29	-0.96	-0.64	-0.79	-0.82	-0.75	-0.41	-0.61	-0.90	-0.68	-0.86	-0.53	-0.92	-0.63	-0.51	-0.74	-0.43
30-40	-1.45	-1.50	-1.06	-1.17	-1.19	-1.24	-1.10	-1.37	-1.60	-2.12	-1.47	-1.55	-1.49	-1.92	-1.29	-0.89	-1.13	-1.16	-1.23	-0.60	-0.90	-1.23	-0.88	-1.21	-0.84	-1.37	-1.02	-0.78	-1.09	-0.61
40-50	-1.84	-1.81	-1.34	-1.55	-1.62	-1.70	-1.35	-1.81	-2.07	-2.72	-1.86	-1.98	-1.66	-2.46	-1.62	-1.10	-1.51	-1.46	-1.72	-0.77	-1.12	-1.55	-1.09	-1.54	-1.11	-1.76	-1.38	-1.04	-1.45	-0.77
50-60	-2.24	-2.16	-1.72	-1.90	-2.09	-2.16	-1.66	-2.12	-2.46	-3.15	-2.13	-2.30	-1.64	-2.78	-1.89	-1.27	-1.81	-1.66	-2.11	-0.89	-1.29	-1.89	-1.27	-1.81	-1.29	-2.02	-1.62	-1.22	-1.71	-0.91
60-70	-2.45	-2.36	-1.96	-2.06	-2.40	-2.41	-1.83	-2.21	-2.58	-3.23	-2.18	-2.40	-1.42	-2.77	-2.02	-1.36	-1.94	-1.73	-2.32	-0.94	-1.36	-2.10	-1.37	-1.93	-1.36	-2.10	-1.71	-1.29	-1.81	-0.97
70-80	-2.32	-2.22	-1.93	-1.91	-2.42	-2.32	-1.72	-2.01	-2.32	-2.85	-1.99	-2.16	-1.11	-2.38	-1.94	-1.32	-1.84	-1.63	-2.27	-0.88	-1.29	-2.08	-1.32	-1.83	-1.28	-1.98	-1.62	-1.22	-1.70	-0.94
80-90	-1.71	-1.59	-1.51	-1.33	-2.00	-1.72	-1.25	-1.42	-1.54	-1.89	-1.43	-1.46	-0.92	-1.56	-1.53	-1.08	-1.42	-1.31	-1.86	-0.67	-1.02	-1.69	-1.06	-1.41	-1.01	-1.58	-1.29	-0.96	-1.32	-0.74
90-100	-0.19	-0.18	-0.16	-0.16	-0.17	-0.19	-0.12	-0.17	-0.19	-0.25	-0.16	-0.19	-0.20	-0.22	-0.16	-0.11	-0.14	-0.13	-0.20	-0.07	-0.11	-0.15	-0.11	-0.16	-0.11	-0.15	-0.12	-0.10	-0.13	-0.08

Sample size (n): 15 | 15

Statistics Analysis

Test: unpaired *t*-test

% of contraction force	Normal		Affected		% of contraction force	P Value
	Average	SD	Average	SD		
0-10	-0.01	0.01	0.00	0.00	0-10	0.0342
10-20	-0.49	0.22	-0.33	0.10	10-20	0.0342
20-30	-1.04	0.22	-0.68	0.16	20-30	0.0002
30-40	-1.43	0.29	-1.00	0.23	30-40	0.0008
40-50	-1.83	0.37	-1.29	0.31	40-50	0.0011
50-60	-2.16	0.41	-1.52	0.38	50-60	0.0009
60-70	-2.29	0.42	-1.62	0.42	60-70	0.0010
70-80	-2.11	0.39	-1.55	0.41	70-80	0.0027
80-90	-1.52	0.26	-1.23	0.34	80-90	0.0342
90-100	-0.18	0.03	-0.12	0.03	90-100	0.0002

Fig. 5F	
FWHM at contraction (msec)	
Normal	**Affected**
150.50	170.80
127.70	142.70
141.90	104.40
260.30	100.70
231.30	152.90
155.00	100.00
135.80	121.00
191.40	108.10
174.20	128.30
165.90	109.00
168.10	135.80
153.70	132.60
174.10	151.50
155.00	141.10
175.10	141.00

Average:	170.70	129.30
SD:	35.14	21.56
Sample size (n):	15	15

Statistics Analysis
Test: unpaired *t*-test
P value: 0.0006

Fig. 5H	
FWHM at relaxation (msec)	
Normal	**Affected**
49.00	45.70
55.90	35.30
46.70	38.20
40.70	36.30
44.10	48.60
57.00	34.30
45.60	46.30
55.60	40.10
47.00	41.30
52.40	45.30
88.50	47.30
45.50	45.60
40.80	51.50
41.10	41.00
46.40	48.00

Average:	50.42	42.99
SD:	11.83	5.32
Sample size (n):	15	15

Statistics Analysis
Test: unpaired *t*-test
P value: 0.0347

Fig. 6A — Muscle force (N)

Normal

Stimulation frequency (Hz)	Dog #1	Dog #2	Dog #3	Dog #4	Dog #5	Dog #6	Dog #7	Dog #8	Dog #9	Dog #10	Dog #11	Dog #12	Dog #13	Dog #14	Dog #15
5	25.88	20.71	13.74	18.52	16.55	17.12	15.66	14.62	18.60	22.33	12.31	16.00	18.31	18.81	14.43
20	102.23	125.68	103.80	77.83	88.57	93.31	74.31	73.87	90.07	103.33	63.98	92.45	88.29	93.01	59.98
40	150.09	146.44	115.42	111.69	125.25	133.69	105.33	107.39	139.54	163.42	99.66	141.89	134.86	146.52	93.69
60	169.09	154.48	118.22	125.97	141.04	146.29	114.31	119.98	153.84	184.54	109.69	157.06	148.60	164.65	108.86
80	175.11	158.54	119.83	130.69	140.78	151.76	118.85	124.81	157.80	191.39	112.81	162.37	152.97	170.67	114.53
100	175.07	160.13	120.93	132.15	140.32	152.40	123.33	123.38	156.63	193.38	113.02	163.49	152.18	172.56	117.35
120	166.62	158.60	120.43	129.53	140.06	152.91	127.66	118.95	149.78	193.25	110.35	162.13	145.97	173.49	117.35

Sample size (n): 15

Affected

Stimulation frequency (Hz)	Dog #1	Dog #2	Dog #3	Dog #4	Dog #5	Dog #6	Dog #7	Dog #8	Dog #9	Dog #10	Dog #11	Dog #12	Dog #13	Dog #14
5	6.33	13.49	13.75	6.13	15.02	10.67	11.46	11.76	12.03	10.18				
20	27.59	59.19	55.04	26.82	50.10	66.33	28.40	64.55	52.17	66.71	39.16	53.04	52.44	51.05
40	59.00	89.34	100.61	45.79	74.00	101.18	56.83	94.79	102.54	87.18	65.74	102.85	81.48	87.03
60	72.09	101.28	119.55	55.17	83.27	114.58	67.12	108.20	122.60	94.85	75.81	120.25	89.32	103.72
80	76.15	103.00	125.77	56.23	85.63	119.73	71.10	112.45	129.57	97.75	79.70	124.30	93.53	110.46
100	77.37	98.95	124.93	54.03	82.59	121.43	71.80	110.40	130.76	97.63	80.62	122.30	93.76	111.13
120	76.84	92.03	122.00	50.51	76.75	121.56	71.92	105.50	130.30	97.99	80.19	116.13	92.60	109.50

Sample size (n): 14

Statistics Analysis — Test: unpaired t-test

% of contraction force	Normal Average	SD	Affected Average	SD	% of contraction force	P Value
5	17.57	3.52	11.02	2.53	0-10	0.0000
20	88.71	16.97	49.47	13.89	10-20	0.0000
40	127.66	21.01	82.03	18.90	20-30	0.0000
60	141.11	23.67	94.84	21.66	30-40	0.0000
80	145.53	24.47	98.96	22.81	40-50	0.0000
100	146.42	24.32	98.41	22.98	50-60	0.0000
120	144.47	23.87	95.99	22.96	60-70	0.0000

Fig. 6B — Muscle force (N/cm²)

Normal

Stimulation frequency (Hz)	Dog #1	Dog #2	Dog #3	Dog #4	Dog #5	Dog #6	Dog #7	Dog #8	Dog #9	Dog #10	Dog #11	Dog #12	Dog #13	Dog #14	Dog #15
5	1.53	1.59	1.23	1.45	1.24	1.35	1.26	1.21	1.30	1.31	1.08	0.95	1.11	1.16	1.43
20	6.06	9.63	9.29	6.10	6.65	7.37	5.99	6.14	6.32	6.05	5.61	5.49	5.34	5.75	5.94
40	8.90	11.22	10.33	8.75	9.41	10.56	8.49	8.92	9.78	9.57	8.74	8.43	8.16	9.06	9.27
60	10.03	11.83	10.58	9.87	10.60	11.56	9.21	9.97	10.79	10.81	9.62	9.33	9.00	10.19	10.77
80	10.38	12.14	10.72	10.24	10.58	11.99	9.58	10.37	11.06	11.21	9.90	9.64	9.26	10.56	11.34
100	10.38	12.27	10.82	10.35	10.54	12.04	9.94	10.25	10.98	11.33	9.92	9.71	9.21	10.68	11.61
120	9.88	12.15	10.77	10.15	10.52	12.08	10.29	9.88	10.50	11.32	9.68	9.63	8.84	10.73	11.62

Sample size (n): 15

Affected

Stimulation frequency (Hz)	Dog #1	Dog #2	Dog #3	Dog #4	Dog #5	Dog #6	Dog #7	Dog #8	Dog #9	Dog #10	Dog #11	Dog #12	Dog #13	Dog #14
5	0.75	1.15	1.12	0.78	1.55	0.85	0.97	1.41	0.97	0.82	0.91	0.79	1.36	1.02
20	3.26	5.06	4.47	3.41	6.36	4.93	3.01	6.08	4.78	5.15	3.12	3.56	5.92	5.12
40	6.98	7.63	8.17	5.83	9.39	7.52	6.03	8.93	9.39	6.73	5.24	6.91	9.20	8.73
60	8.53	8.65	9.71	7.02	10.56	8.51	7.12	10.19	11.23	7.32	6.05	8.07	10.08	10.40
80	9.01	8.80	10.22	7.15	10.86	8.89	7.54	10.59	11.87	7.54	6.36	8.35	10.56	11.08
100	9.15	8.46	10.15	6.88	10.48	9.02	7.61	10.40	11.97	7.53	6.43	8.21	10.58	11.15
120	9.09	7.86	9.91	6.43	9.74	9.03	7.63	9.93	11.93	7.56	6.40	7.80	10.45	10.98

Sample size (n): 14

Statistics Analysis — Test: unpaired t-test

% of contraction force	Normal Average	SD	Affected Average	SD	% of contraction force	P Value
5	1.28	0.17	1.03	0.25	0-10	0.0055
20	6.52	1.29	4.59	1.14	10-20	0.0016
40	9.31	0.86	7.62	1.39	20-30	0.0017
60	10.28	0.82	8.82	1.58	30-40	0.0055
80	10.60	0.84	9.20	1.69	40-50	0.0084
100	10.67	0.86	9.14	1.69	50-60	0.0055
120	10.54	0.94	8.91	1.68	60-70	0.0055

Fig. 6C — % of Maximum force

Normal

Stimulation frequency (Hz)	Dog #1	Dog #2	Dog #3	Dog #4	Dog #5	Dog #6	Dog #7	Dog #8	Dog #9	Dog #10	Dog #11	Dog #12	Dog #13	Dog #14	Dog #15
5	14.78	12.93	11.36	14.01	11.73	11.20	12.27	11.72	11.79	11.55	10.89	9.79	11.97	10.84	12.30
20	58.38	78.48	85.83	58.89	62.80	61.02	58.21	59.18	57.08	53.43	56.61	56.55	57.71	53.61	51.11
40	85.71	91.45	95.44	84.52	88.80	87.43	82.51	86.04	88.43	84.51	88.18	86.79	88.16	84.46	79.83
60	96.57	96.47	97.77	95.32	100.00	95.67	89.55	96.13	97.49	95.43	97.06	96.07	97.14	94.91	92.76
80	100.00	99.00	99.09	98.89	99.82	99.25	93.10	100.00	100.00	98.97	99.81	99.32	100.00	98.38	97.59
100	99.98	100.00	100.00	100.00	99.49	99.66	99.61	98.86	99.26	100.00	100.00	100.00	99.47	100.00	100.00
120	95.15	99.04	99.59	98.01	99.31	100.00	100.00	95.31	94.92	99.93	97.64	99.17	95.42	100.00	100.00

Sample size (n): 15

Affected

Stimulation frequency (Hz)	Dog #1	Dog #2	Dog #3	Dog #4	Dog #5	Dog #6	Dog #7	Dog #8	Dog #9	Dog #10	Dog #11	Dog #12	Dog #13	Dog #14
5	8.18	13.09	10.94	10.91	14.26	9.46	12.71	13.35	8.08	10.89	14.22	9.46	12.83	9.16
20	35.66	57.47	43.76	47.71	58.51	54.57	39.49	57.40	39.90	68.08	48.58	42.67	55.93	45.94
40	76.26	86.74	79.99	81.44	86.42	83.24	79.01	84.30	78.41	88.97	81.54	82.74	86.91	78.31
60	93.18	98.33	95.06	98.13	97.25	94.26	93.33	96.22	93.76	96.79	94.04	96.74	95.27	93.33
80	98.42	100.00	98.50	98.86	100.00	99.09	99.75	98.87	100.00	99.76	99.39			
100	100.00	96.07	99.34	96.09	96.46	99.90	99.84	98.18	100.00	99.63	100.00	98.38	100.00	100.00
120	99.31	89.35	97.00	89.84	89.63	100.00	100.00	93.81	99.65	100.00	99.47	93.42	98.77	98.53

Sample size (n): 14

Statistics Analysis — Test: unpaired t-test

% of contraction force	Normal Average	SD	Affected Average	SD	% of contraction force	P Value
5	11.94	1.24	11.25	2.16	0-10	0.3515
20	60.59	9.34	49.69	9.19	10-20	0.0152
40	86.82	3.70	82.45	3.85	20-30	0.0152
60	95.89	2.37	95.41	1.83	30-40	0.5510
80	98.88	1.74	99.47	0.61	40-50	0.3369
100	99.52	0.88	98.85	1.55	50-60	0.2818
120	98.23	2.02	96.34	4.22	60-70	0.2818

Fig. 6D — Muscle force (% of initial)

Normal

ECC cycle	Dog #1	Dog #2	Dog #3	Dog #4	Dog #5	Dog #6	Dog #7	Dog #8	Dog #9	Dog #10	Dog #11	Dog #12	Dog #13	Dog #14	Dog #15
1	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
2	100.51	87.39	99.36	100.12	104.18	103.42		98.55	99.27	95.47		98.92	98.33	101.29	
3	98.90	86.56	98.73	97.61	102.99	89.75		97.40	98.11	94.75		98.32	97.41	74.63	
4	99.24	86.63	98.07	96.93	101.24	78.34		96.40	97.54	94.22		98.24	97.34	83.10	
5	101.84	87.20	97.47	95.28	96.39	89.23		96.60	96.90	93.43		98.08	97.30	81.04	
6	99.87	86.00	96.24	92.99	94.88	89.92		98.86	96.50	92.83		98.14	96.80	80.21	
7	98.30	91.68	95.66	92.45	95.71	90.95		96.65	96.01	92.33		98.48	96.64	81.13	
8	100.31	90.72	94.23	92.00	97.40	91.19		96.19	95.53	91.09		98.46	96.70	79.78	
9	99.35	89.03	94.58	90.19	96.72	91.02		96.03	95.09	90.57		98.41	96.72	77.95	
10	97.81	87.36	94.32	87.67	96.06	88.77		96.34	94.76	89.34		97.72	96.25	76.81	

Sample size (n): 15

Affected

ECC cycle	Dog #1	Dog #2	Dog #3	Dog #4	Dog #5	Dog #6	Dog #7	Dog #8	Dog #9	Dog #10	Dog #11	Dog #12	Dog #13	Dog #14	Dog #15
1	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100
2	87.18	89.94	78.73	87.72	89.82	87.32	93.14	82.97	88.63	94.26	97.10	92.25	93.23	97.08	87.67
3	78.94	81.95	53.60	76.43	81.32	77.90	80.60	67.71	79.39	89.84	84.88	84.18	90.21	92.57	77.46
4	73.42	77.24	46.28	67.93	74.78	71.38	67.06	54.16	71.59	85.94	64.84	74.48	87.73	87.25	70.43
5	69.04	70.85	39.76	60.84	69.52	67.45	56.78	43.61	65.39	82.46	54.38	66.80	83.65	83.32	65.32
6	66.18	67.54	35.39	55.97	64.66	63.42	50.15	34.77	59.85	78.54	48.58	60.83	80.98	79.89	61.57
7	63.15	66.96	34.31	52.23	60.89	60.68	45.87	28.74	55.60	73.71	44.26	55.69	78.48	76.47	58.42
8	60.22	64.98	31.45	48.95	57.84	58.03	42.23	1.13	51.94	69.92	41.24	51.98	75.48	75.92	55.44
9	58.36	59.20	29.18	46.45	55.49	55.37	39.04	0.29	48.89	64.61	39.84	48.14	72.25	75.35	52.86
10	57.04	56.41	28.00	44.02	52.87	53.62	37.14	0.04	46.59	62.49	38.75	46.28	69.39	72.51	51.09

Sample size (n): 15

Statistics Analysis — Test: unpaired t-test

ECC cycle	Normal Average	SD	Affected Average	SD	ECC cycle	P Value
1	100.00	0.00	100.00	0.00	1	
2	98.90	4.30	89.80	4.98	2	0.0000
3	94.60	7.65	79.80	9.56	3	0.0002
4	93.94	7.20	71.63	11.31	4	0.0000
5	94.23	5.72	65.28	12.98	5	0.0000
6	93.44	5.63	60.55	14.12	6	0.0000
7	93.83	4.74	57.03	14.43	7	0.0000
8	93.63	5.37	52.45	18.88	8	0.0000
9	92.97	5.83	49.69	18.35	9	0.0000
10	91.93	6.19	47.75	17.74	10	0.0000

Fig. 7B														
% of myofibers														
MyHC isoforms	**Normal**						**Affected**							
	Dog # 1	Dog # 2	Dog # 3	Dog # 4	Dog # 5	Dog # 6	Dog # 1	Dog # 2	Dog # 3	Dog # 4	Dog # 5	Dog # 6	Dog # 7	Dog # 8
I	71.68	65.74	76.16	61.86	68.30	57.81	28.37	34.90	37.87	25.92	27.95	24.94	23.71	15.83
I/IIa	0.48	0.00	1.02	0.00	0.94	0.48	19.61	12.89	6.84	14.95	20.07	2.68	2.85	14.29
IIa	27.84	34.26	22.82	38.14	30.76	41.71	52.02	52.21	55.28	59.13	51.98	72.38	73.44	69.88

Sample size (n): 6   8

Statistics Analysis
Test: unpaired *t*-test

MyHC isoforms	Normal		Affected	
	Average	SD	Average	SD
I	66.93	6.63	27.44	6.79
I/IIa	0.49	0.44	11.77	6.91
IIa	32.59	6.90	60.79	9.55

MyHC isoforms	P Value
I	0.0000
I/IIa	0.0019
IIa	0.0001

Fig. 7C						
Relative percentage (%)						
MyHC isoforms	**Normal**			**Affected**		
	Dog # 1	Dog # 2	Dog # 3	Dog # 1	Dog # 2	Dog # 3
I	55.55	55.54	47.69	28.60	33.97	44.62
IIa	44.45	44.46	52.31	71.40	66.03	55.38

Sample size (n): 3   3

Statistics Analysis
Test: unpaired *t*-test

MyHC isoforms	Normal		Affected	
	Average	SD	Average	SD
I	52.93	4.54	35.73	8.15
IIa	47.07	4.54	64.27	8.15

MyHC isoforms	P Value
I	0.0331
IIa	0.0331

Fig. 7B													
Transcript copy (copy/ng)													
Transcript	**Normal**						**Affected**						
	Dog # 1	Dog # 2	Dog # 3	Dog # 4	Dog # 5	Dog # 6	Dog # 1	Dog # 2	Dog # 3	Dog # 4	Dog # 5	Dog # 6	Dog # 7
MyHC7	1.4E+05	7.5E+04	1.3E+05	5.6E+04	1.1E+05	8.3E+04	4.8E+04	4.0E+04	2.9E+04	3.4E+04	7.7E+04	5.0E+04	9.0E+04
MyHC2	9.0E+04	5.9E+04	1.0E+05	5.4E+04	4.6E+04	4.6E+04	1.1E+05	6.4E+04	2.7E+04	7.1E+04	1.2E+05	1.5E+05	1.3E+05
MyHC1	8.4E+02	5.2E+02	1.3E+03	4.3E+02	4.8E+02	3.5E+02	4.6E+02	4.6E+03	9.9E+02	3.1E+03	2.0E+03		1.4E+03
MyHC4	1.0E+00	1.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.0E+01	2.3E+01	1.8E+01	9.0E+00	4.0E+00	1.6E+01	3.1E+01

Sample size (n): 6   8

Statistics Analysis
Test: unpaired *t*-test

Transcript	Normal		Affected	
	Average	SD	Average	SD
MyHC7	1.0E+05	3.5E+04	5.2E+04	2.3E+04
MyHC2	6.7E+04	2.4E+04	9.5E+04	4.2E+04
MyHC1	6.6E+02	3.7E+02	2.1E+03	1.5E+03
MyHC4	3.3E-01	5.2E-01	1.7E+01	8.9E+00

Transcript	P Value
MyHC7	0.0208
MyHC2	0.2547
MyHC1	0.0177
MyHC4	0.0021

Dog name	Age (Year)	Body weigh (kg)	ECU muscle weight (g)	ECU weight/body weight (g/kg)	ECU muscle lenght (cm)	pCSA (cm^2)
Normal	2.16	34.47	12.93	0.38	15.96	16.86
	2.28	19.50	9.22	0.47	14.70	13.06
	2.50	17.24	6.09	0.35	11.34	11.18
	2.62	18.51	8.50	0.46	13.86	12.77
	2.82	20.41	9.40	0.46	14.70	13.31
	2.82	20.41	8.94	0.44	14.70	12.66
	2.82	15.38	7.26	0.47	12.18	12.41
	3.07	16.92	6.80	0.40	11.76	12.04
	3.09	22.72	10.36	0.46	15.12	14.26
	3.19	23.59	12.40	0.53	15.12	17.07
	3.20	21.45	7.13	0.33	13.02	11.40
	3.40	20.41	12.23	0.60	15.12	16.84
	3.42	20.46	12.00	0.59	15.12	16.52
	3.47	27.22	12.72	0.47	16.38	16.16
	3.54	19.73	6.32	0.32	13.02	10.10
Min	2.16	15.38	6.09	0.32	11.34	10.10
Max	3.54	34.47	12.93	0.60	16.38	17.07
Average	2.96	21.23	9.49	0.45	14.14	13.78
SD	0.43	4.65	2.48	0.08	1.54	2.35
Affected	2.48	15.24	5.63	0.37	13.86	8.46
	2.55	21.59	7.32	0.34	13.02	11.70
	2.75	20.09	8.13	0.40	14.28	11.85
	2.78	20.09	9.44	0.47	15.96	12.31
	2.86	15.83	4.44	0.28	11.76	7.86
	2.90	15.20	5.09	0.33	13.44	7.88
	3.02	19.87	9.78	0.49	15.12	13.46
	3.02	14.88	6.09	0.41	13.44	9.43
	3.22	20.41	7.50	0.37	14.70	10.62
	3.47	22.90	8.37	0.37	15.96	10.92
	3.48	22.13	8.63	0.39	13.86	12.96
	3.49	17.41	7.59	0.44	12.60	12.54
	3.50	29.84	11.72	0.39	16.38	14.89
	3.65	14.74	5.72	0.39	13.44	8.86
	3.73	19.00	6.84	0.36	14.28	9.97
Min	2.78	14.74	4.44	0.28	11.76	7.86
Max	3.65	29.84	11.72	0.49	16.38	14.89
Average	3.13	19.28	7.49	0.39	14.14	10.91
SD	0.41	4.05	1.95	0.05	1.31	2.15
P value	0.2913	0.2318	0.0206	0.0225	1.0000	0.0016

Table 1

Fig. S1			
Dog name	**Body weigh (kg)**	**ECU muscle weight (g)**	**pCSA (cm^2)**
Normal	34.47	12.93	16.86
	19.50	9.22	13.06
	17.24	6.09	11.18
	18.51	8.50	12.77
	20.41	9.40	13.31
	20.41	8.94	12.66
	15.38	7.26	12.41
	16.92	6.80	12.04
	22.72	10.36	14.26
	23.59	12.40	17.07
	21.45	7.13	11.40
	20.41	12.23	16.84
	20.46	12.00	16.52
	27.22	12.72	16.16
	19.73	6.32	10.10
Affected	15.24	5.63	8.46
	21.59	7.32	11.70
	20.09	8.13	11.85
	20.09	9.44	12.31
	15.83	4.44	7.86
	15.20	5.09	7.88
	19.87	9.78	13.46
	14.88	6.09	9.43
	20.41	7.50	10.62
	22.90	8.37	10.92
	22.13	8.63	12.96
	17.41	7.59	12.54
	29.84	11.72	14.89
	14.74	5.72	8.86
	19.00	6.84	9.97

Fig. S3	
Pt/Po	
Normal	**Affected**
0.12	0.07
0.10	0.12
0.12	0.09
0.10	0.10
0.09	0.11
0.09	0.08
0.10	0.10
0.11	0.12
0.11	0.07
0.11	0.11
0.08	0.08
0.10	0.12
0.09	
0.11	

Average:	0.10	0.10
SD:	0.01	0.02
Sample size (n):	14	12

Statistics Analysis

Test: unpaired *t* -test
P value: 0.4575

Fig. S6A	
Pt/TPT	
Normal	Affected
0.21	0.10
0.16	0.21
0.21	0.21
0.19	0.09
0.17	0.14
0.13	0.16
0.18	0.16
0.24	0.21
0.30	0.15
0.19	0.18
0.19	0.17
0.18	0.20
0.18	
0.21	

	Normal	Affected
Average:	0.20	0.17
SD:	0.04	0.04
Sample size (n):	14	12

Statistics Analysis
Test: unpaired *t*-test
P value: 0.0470

Fig. S6B	
Pt/1/2RT	
Normal	Affected
0.29	0.14
0.20	0.26
0.21	0.23
0.24	0.09
0.19	0.16
0.15	0.18
0.23	0.21
0.29	0.29
0.42	0.17
0.24	0.21
0.26	0.22
0.22	0.19
0.17	
0.25	

	Normal	Affected
Average:	0.24	0.20
SD:	0.07	0.05
Sample size (n):	14	12

Statistics Analysis
Test: unpaired *t*-test
P value: 0.0785

Fig. S6C	
Po/TPT	
Normal	Affected
0.20	0.10
0.15	0.17
0.17	0.15
0.19	0.21
0.16	0.09
0.16	0.17
0.24	0.15
0.15	0.11
0.20	0.14
0.19	0.16
0.18	0.12
0.14	0.11
	0.15
	0.13
	0.14

	Normal	Affected
Average:	0.18	0.14
SD:	0.03	0.03
Sample size (n):	12	15

Statistics Analysis
Test: unpaired *t*-test
P value: 0.0036

Fig. S6D	
Po/1/2RT	
Normal	Affected
1.49	0.81
1.35	1.06
1.18	1.00
1.27	1.48
1.34	0.56
1.39	0.82
1.05	1.14
1.26	0.81
1.43	1.14
1.83	1.43
1.20	1.07
1.40	0.95
1.23	1.31
1.58	1.01
1.17	1.10

	Normal	Affected
Average:	1.35	1.05
SD:	0.19	0.24
Sample size (n):	15	15

Statistics Analysis
Test: unpaired *t*-test
P value: 0.0009

Table S1				
Dog name	Optimal resting tension (g)	Optimal stimulation current (mA)	Optimal Stimulation duration (msec)	Optimal stimulation frequency (Hz)
Normal	1100	20	800	80
	1100	60	800	80
	1300	600	500	80
	1500	40	800	100
	1600	40	800	100
	1400	50	500	100
	900	60	800	100
	1463	60	800	100
	700	80	800	100
	800	100	800	100
	1000	200	800	100
	1000	40	800	120
	1500	40	800	120
	2000	40	800	120
	1500	80	800	120
Min	700.00	20.00	500.00	80.00
Max	2000.00	600.00	800.00	120.00
Average	1257.53	100.67	760.00	101.33
SD	352.49	144.54	105.56	14.07

Affected	600	60	500	80
	1000	20	600	80
	600	60	600	80
	600	80	600	80
	600	100	600	80
	1600	20	800	80
	400g	40	500	100
	1100	20	800	100
	700	20	800	100
	300	40	800	100
	500	80	800	100
	500	200	800	100
	500	300	800	100
	900	40	800	120
	700	80	800	120
Min	300.00	20.00	500.00	80.00
Max	1600.00	300.00	800.00	120.00
Average	728.57	77.33	706.67	94.67
SD	329.17	77.04	122.28	14.07
P value	0.0003	0.5855	0.2115	0.2052

Dog name	Age (Year)	Body weigh (kg)	ECU muscle weight (g)	ECU weight/body weight (g/kg)	ECU muscle lenght (cm)	pCSA (cm^2)	Po (N)	Po/ECU weight (N/g)	Po/pCSA (N/cm^2)
						Table S4			
	2.16	34.47	12.93	0.38	15.96	16.86	175.11	13.54	10.38
	2.28	19.50	9.22	0.47	14.70	13.06	160.13	17.37	12.27
	2.50	17.24	6.09	0.35	11.34	11.18	120.93	19.86	10.82
	2.62	18.51	8.50	0.46	13.86	12.77	132.15	15.55	10.35
	2.82	20.41	9.40	0.46	14.70	13.31	141.04	15.00	10.60
	2.82	20.41	8.94	0.44	14.70	12.66	152.91	17.10	12.08
	2.82	15.38	7.26	0.47	12.18	12.41	128.56	17.71	10.36
Normal	3.07	16.92	6.80	0.40	11.76	12.04	123.38	18.14	10.25
	3.09	22.72	10.36	0.46	15.12	14.26	157.80	15.23	11.06
	3.19	23.59	12.40	0.53	15.12	17.07	193.38	15.60	11.33
	3.20	21.45	7.13	0.33	13.02	11.40	113.02	15.85	9.92
	3.40	20.41	12.23	0.60	15.12	16.84	163.49	13.37	9.71
	3.42	20.46	12.00	0.59	15.12	16.52	152.97	12.75	9.26
	3.47	27.22	12.72	0.47	16.38	16.16	173.49	13.64	10.73
	3.54	19.73	6.32	0.32	13.02	10.10	117.35	18.57	11.62
Min	2.16	15.38	6.09	0.32	11.34	10.10	113.02	12.75	9.26
Max	3.54	34.47	12.93	0.60	16.38	17.07	193.38	19.86	12.27
Average	2.96	21.23	9.49	0.45	14.14	13.78	147.05	15.95	10.72
SD	0.43	4.65	2.48	0.08	1.54	2.35	24.11	2.12	0.84
	2.48	15.24	5.63	0.37	13.86	8.46	77.37	13.74	9.15
	2.55	21.59	7.32	0.34	13.02	11.70	103.00	14.07	8.80
	2.75	20.09	8.13	0.40	14.28	11.85	72.02	8.86	6.08
	2.78	20.09	9.44	0.47	15.96	12.31	125.77	13.32	10.22
	2.86	15.83	4.44	0.28	11.76	7.86	56.23	12.66	7.15
	2.90	15.20	5.09	0.33	13.44	7.88	85.63	16.82	10.86
	3.02	19.87	9.78	0.49	15.12	13.46	121.56	12.43	9.03
Affected	3.02	14.88	6.09	0.41	13.44	9.43	71.92	11.81	7.63
	3.22	20.41	7.50	0.37	14.70	10.62	112.45	14.99	10.59
	3.47	22.90	8.37	0.37	15.96	10.92	130.71	15.62	11.97
	3.48	22.13	8.63	0.39	13.86	12.96	97.99	11.35	7.56
	3.49	17.41	7.59	0.44	12.60	12.54	80.62	10.62	6.43
	3.50	29.84	11.72	0.39	16.38	14.89	124.30	10.61	8.35
	3.65	14.74	5.72	0.39	13.44	8.86	93.76	16.39	10.58
	3.73	19.00	6.84	0.36	14.28	9.97	111.13	16.25	11.15
Min	2.78	14.74	4.44	0.28	11.76	7.86	56.23	8.86	6.08
Max	3.65	29.84	11.72	0.49	16.38	14.89	130.71	16.82	11.97
Average	3.13	19.28	7.49	0.39	14.14	10.91	97.63	13.30	9.04
SD	0.41	4.05	1.95	0.05	1.31	2.15	23.13	2.41	1.82
P value	0.2913	0.2318	0.0206	0.0225	1.0000	0.0016	0.0000	0.0034	0.0031

Table S5		
Dog name	**% of Length stretch**	**Stretch rate**
Normal	5.00	7.98
	5.00	7.35
	5.00	5.67
	5.00	6.93
	5.00	7.35
	5.00	7.35
	5.00	6.09
	5.00	5.88
	5.00	7.56
	5.00	7.56
	5.00	6.51
	5.00	7.56
	5.00	7.56
	5.00	8.19
	5.00	6.51
Min	5.00	5.67
Max	5.00	8.19
Average	5.00	7.07
SD	0.00	0.77

Affected	5.00	6.93
	5.00	6.51
	5.00	7.14
	5.00	7.98
	5.00	5.88
	5.00	6.72
	5.00	7.56
	5.00	6.72
	5.00	7.35
	5.00	7.98
	5.00	6.93
	5.00	6.30
	5.00	8.19
	5.00	6.72
	5.00	7.14
Min	5.00	5.88
Max	5.00	8.19
Average	5.00	7.07
SD	0.00	0.65
P value		1.00