

TABLE E-1. Descriptive data for the subjects

Subject	Test	Sex	Age	Sport	Mechanism	Giving-way	Daily Living Scale	Sports Scale	Global Rating	Quadriceps Index	Single-leg Hop
Subject 1	Pre	Female	16	Basketball	Landing	>3	97	-	85	90	87
	Post			Basketball		0	99	98	100	113	98
Subject 2	Pre	Female	17	Basketball	Landing	2	56	-	50	70	-
	Post			Field Hockey		0	94	85	95	91	97
Subject 3	Pre	Male	22	Basketball	Landing	>3	95	-	70	98	94
	Post			Basketball		0	100	98	100	105	97
Subject 4	Pre	Male	19	Basketball	Pivoting	3	77	-	70	74	91
	Post			Basketball		0	91	76	85	85	86
Subject 5	Pre	Male	16	Basketball	Cutting	1	81	-	50	90	-
	Post			Football		0	100	98	100	103	95
Subject 6	Pre	Male	17	Wrestling	Pivoting	>3	96	-	85	88	98
	Post			Wrestling		0	100	100	100	103	103
Subject 7	Pre	Male	28	Basketball	Cutting	>3	63	-	50	86	93
	Post			Softball		0	96	71	85	107	95
Subject 8	Pre	Male	19	Basketball	Landing	>3	63	-	55	77	83
	Post			Basketball		0	100	100	97	123	99
Mean	Pre					>3	78.5	-	64.4	84.1	91.0
	Post					0	97.5	90.8	95.3	103.8	96.3

TABLE E-2. Knee flexor muscle and tendon morphology with post hoc results†

Structure	Parameter	Injured Limb		Uninjured Limb		Pre-Post p		Side-to-Side p	
		Pre-surgery	Post-Return to Sports	Pre-surgery	Post-Return to Sports	Reconstructed	Nonoperative	Pre-surgery	Post-Return to Sports
Semitendinosus									
Muscle	Volume	166.99 ± 56.81	95.19 ± 36.36	170.94 ± 66.33	168.54 ± 70.84	0.001*	0.778	0.694	0.002*
	Cross-sectional area	9.92 ± 3.29	7.90 ± 2.53	9.99 ± 3.46	9.71 ± 3.49	0.007*	0.420	0.893	0.004*
	Length	31.21 ± 3.38	24.54 ± 8.08	30.48 ± 2.95	30.85 ± 3.85	0.053	0.708	0.112	0.046*
Tendon	Volume	1.45 ± 0.46	1.35 ± 1.35	1.53 ± 0.49	1.32 ± 0.49	0.855	0.187	0.278	0.961
	Cross-sectional area	0.21 ± 0.09	0.20 ± 0.12	0.21 ± 0.11	0.20 ± 0.12	0.814	0.256	0.674	0.985
	Length	15.80 ± 2.24	9.69 ± 9.20	16.11 ± 2.20	17.02 ± 2.88	0.145	0.349	0.601	0.091
Gracilis									
Muscle	Volume	74.16 ± 19.31	47.22 ± 18.74	67.79 ± 11.52	68.13 ± 18.15	0.001*	0.946	0.098	0.000*
	Cross-sectional area	4.03 ± 0.90	3.03 ± 1.05	3.77 ± 0.47	3.62 ± 0.77	0.001*	0.514	0.318	0.005*
	Length	29.51 ± 3.07	24.60 ± 2.91	30.28 ± 3.89	31.00 ± 3.26	0.003*	0.240	0.085	0.000*
Tendon	Volume	1.10 ± 0.30	1.70 ± 0.88	1.05 ± 0.42	0.85 ± 0.30	0.060	0.184	0.659	0.014*
	Cross-sectional area	0.21 ± 0.07	0.23 ± 0.08	0.21 ± 0.08	0.15 ± 0.05	0.549	0.199	0.760	0.196
	Length	13.95 ± 2.07	14.74 ± 4.29	13.42 ± 2.24	12.50 ± 1.82	0.648	0.410	0.124	0.232
Semimembranosus									
Muscle	Volume	188.82 ± 55.6	191.08 ± 59.10	196.90 ± 50.91	191.30 ± 51.87	0.696	0.384	0.261	0.704
	Cross-sectional area	11.47 ± 2.75	11.68 ± 2.60	12.21 ± 3.24	12.25 ± 3.09	0.521	0.869	0.248	0.203
Biceps Femoris-Long									
Muscle	Volume	167.66 ± 34.12	174.91 ± 53.19	172.66 ± 36.60	179.91 ± 59.31	0.405	0.452	0.091	0.399
	Cross-sectional area	11.93 ± 1.68	12.50 ± 3.16	12.61 ± 2.26	12.87 ± 3.50	0.378	0.612	0.219	0.467
Biceps Femoris-Short									
Muscle	Volume	78.10 ± 34.46	76.19 ± 30.09	67.94 ± 22.73	65.53 ± 21.85	0.636	0.433	0.187	0.115
	Cross-sectional area	6.10 ± 1.65	6.09 ± 1.62	5.63 ± 1.23	5.39 ± 1.18	0.970	0.279	0.366	0.084
Sartorius									
Muscle	Volume	96.75 ± 29.85	94.21 ± 30.55	90.37 ± 28.29	86.25 ± 27.76	0.730	0.454	0.121	0.250
	Cross-sectional area	3.18 ± 0.74	3.10 ± 0.86	2.93 ± 0.83	2.83 ± 0.88	0.700	0.722	0.111	0.111
Hamstrings+Gracilis									
Muscle	Volume	675.74 ± 157.75	584.58 ± 169.52	676.25 ± 153.68	673.41 ± 192.16	0.009*	0.919	0.976	0.001*
	Cross-sectional area	43.46 ± 7.80	41.22 ± 8.92	44.21 ± 7.73	43.84 ± 8.99	0.159	0.713	0.632	0.055

†The values are given as the mean and the standard deviation. *Indicates that a significant difference was observed at the $p \leq 0.05$ level. Units: volume (cm³), peak cross-sectional area (cm²), and length (cm).

TABLE E-3. Quadriceps and gastrocnemius muscle morphology results*

Structure	Parameter	Injured Limb		Uninjured Limb	
		Pre-surgery	Post-Return to Sports	Pre-surgery	Post-Return to Sports
Vastus Lateralis					
Muscle	Volume	549.18 $\pm$ 193.63	518.69 $\pm$ 184.80	597.59 $\pm$ 164.09	619.93 $\pm$ 203.26
	Cross-sectional area	28.13 $\pm$ 7.44	26.02 $\pm$ 6.83	29.16 $\pm$ 6.90	30.42 $\pm$ 8.36
Vastus Medialis					
Muscle	Volume	354.84 $\pm$ 107.99	332.96 $\pm$ 100.23	391.72 $\pm$ 115.39	384.97 $\pm$ 122.40
	Cross-sectional area	19.64 $\pm$ 4.55	19.32 $\pm$ 3.95	21.97 $\pm$ 4.19	21.52 $\pm$ 4.48
Vastus Intermedius					
Muscle	Volume	421.22 $\pm$ 115.10	420.77 $\pm$ 117.92	440.86 $\pm$ 106.33	450.22 $\pm$ 131.46
	Cross-sectional area	21.29 $\pm$ 3.99	22.12 $\pm$ 4.44	22.44 $\pm$ 4.15	23.01 $\pm$ 5.06
Rectus Femoris					
Muscle	Volume	229.44 $\pm$ 57.64	213.43 $\pm$ 51.76	238.74 $\pm$ 64.08	222.90 $\pm$ 59.71
	Cross-sectional area	12.17 $\pm$ 1.39	12.00 $\pm$ 1.97	12.84 $\pm$ 1.90	13.05 $\pm$ 2.69
Total Quadriceps					
Muscle	Volume	1554.69 $\pm$ 445.59	1485.86 $\pm$ 428.87	1668.91 $\pm$ 409.04	1678.04 $\pm$ 499.81
	Cross-sectional area	81.24 $\pm$ 15.19	79.46 $\pm$ 15.38	86.43 $\pm$ 15.07	88.01 $\pm$ 19.29
Medial Gastrocnemius					
Muscle	Volume	216.06 $\pm$ 40.56	208.20 $\pm$ 51.00	219.18 $\pm$ 40.00	220.16 $\pm$ 46.27
	Cross-sectional area	13.57 $\pm$ 1.91	12.77 $\pm$ 2.26	13.82 $\pm$ 2.17	13.83 $\pm$ 2.14
Lateral Gastrocnemius					
Muscle	Volume	125.54 $\pm$ 32.79	117.87 $\pm$ 20.59	132.71 $\pm$ 36.85	133.71 $\pm$ 38.92
	Cross-sectional area	10.16 $\pm$ 2.26	10.40 $\pm$ 1.77	10.77 $\pm$ 2.65	11.08 $\pm$ 2.55

*The values are given as the mean and the standard deviation. Units: volume (cm³), peak cross-sectional area (cm²).