

Table 2. Muscle, proximal tendon and musculotendinous junction lengths of the hamstring muscle

Segment	Author(s), date (number of specimens; M, F)	Muscle length cm, mean \pm SD* (including proximal and distal tendon)				Muscle belly length cm, mean \pm SD* [as a % of total muscle length]			
		BFlh	BFsh	ST	SM	BFlh	BFsh	ST	SM
Muscle									
	Wickiewicz et al., 1983 (3; no details)					34.2		31.7	26.2
	Friederich and Brand, 1990 (2; 1M, 1F)					27.4		28.3	20.8
	Rab et al., 1997 35 (15M, 15F)					28.6 \pm 3.0		29.4 \pm 3.2	
	Woodley & Mercer, 2005 (6; 3M, 3F)					43.8 (range 41.5-48.5) 28.1 (range 23.6-35.5)	29.1 (range 26.7-32.8) 25.8 (range 24.4-28.6)	43.8 (range 41.5-48.5) 31.6 (range 28.4-37.3)	43.8 (range 41.5-48.5) 26.4 (range 22.0-32.6)
	Makihara et al., 2006 (6; 5M, 1F)					31.2 \pm 5.2		26.8 \pm 3.6	28.5 \pm 2.6
	Tate et al., 2006 ^a (10; 6M, 4F)					M: 27.0 \pm 2.0 F: 19.0 \pm 4.0	M: 25.0 \pm 2.0 F: 21.0 \pm 2.0	M: 34.0 \pm 2.0 F: 28.0 \pm 2.0	M: 27.0 \pm 3.0 F: 26.0 \pm 2.0
	Ward et al., 2006 (27 from 21 cadavers; 9M, 12F)					34.7 \pm 3.7 ^b	22.4 \pm 2.5 ^b	29.7 \pm 3.9 ^b	29.3 \pm 3.4 ^b

	Kellis et al., 2012 (8; 8M)					38.9 ± 4.0 29.6 ± 2.5	28.5 ± 1.9 21.2 ± 2.0	47.0 ± 3.0 27.7 ± 1.8	40.4 ± 2.5 25.8 ± 2.3
	Evangelidis et al., 2015 (30; no details)					29.3 ± 2.6			
	Freitas et al., 2018 20; 10M, 10F)					US, II: 25.1 ± 2.2 M: 26.2 ± 2.3 F: 24.0 ± 1.5			
	Kellis et al., 2009 Dissection & US (6; 3M, 3F)	Dissection 39.2 ± 3.4 US 38.7 ± 4.4		Dissection: 39.0 ± 2.6 US: 38.1 ± 3.4					
	Kellis et al., 2010 (8; 4M, 4F)	39.8 ± 3.1		46.8 ± 2.0					
	Kumazaki et al., 2012 (13; 8M, 5F)	39.2 ± 2.9	15.1 ± 1.7	38.2 ± 2.8	38.1 ± 2.8				
	Storey et al., 2015 (Dissection: 10; 10M)	45.6 ± 2.9		45.8 ± 3.0	45.8 ± 3.0				
	Van der Made et al., 2015 (56; no details)	42.0 ± 3.4		44.3 ± 3.9	38.7 ± 3.5				
	Vadgaonkar et al., 2018 (46; 46M)			33.2 ± 3.6 ^a					

Proximal tendon		Length cm, mean \pm SD* [as a % of total muscle length]			
		BFlh	BFsh	ST	SM
	Garrett et al., 1989 (5; no details)	[60%]		[31%]	[78%]
	Woodley & Mercer, 2005 (6; 3M, 3F)	27.1 (range 23.4-30.2) [62%]		12.9 (range 8.5-17.7) [30%]	31.9 (range 28.5-37.2) [73%]
	Kellis et al., 2010 (8; 4M, 4F)	24.0 \pm 1.0 [61%]		12.5 \pm 1.2 [27%]	
	Storey et al., 2015 Dissection (10; 10M); MRI (20; 20M)	Dissection: 25.7 \pm 2.9 [56.5 \pm 5.5%] MRI: 26.1 \pm 2.6		Dissection: 15.0 \pm 2.1 [32.7 \pm 3.9%] MRI: 11.9 \pm 3.8	Dissection: 33.6 \pm 2.0 [73.3 \pm 1.7%] MRI: 31.7 \pm 1.6
	Van der Made et al., 2015 (56; no details)	19.6 \pm 4.1 [47%]		12.4 \pm 3.6 [28%]	24.3 \pm 3.9 [63%]
Proximal free tendon	Woodley & Mercer, 2005 (6; 3M, 3F)	6.3 [15%]		1.2 [3%]	11.1 [25%]
	Kellis et al., 2009 Dissection (6; 3M, 3F)	9.9 \pm 2.7 [25.7 \pm 7.0 %]		11.3 \pm 2.0 [30.3 \pm 2.1%]	
	Kellis et al., 2010 (8; 4M, 4F)	4.9 \pm 0.3 [12%]		1.2 \pm 0.2 [3%]	

	Batterman et al., 2010 (101; 39M, 62F)	5.7 ± 1.5		2.1 ± 0.4	
	Kellis et al., 2012 ^c (8; 8M)	5.0 ± 0.4 [12.9 ± 2.1%]		1.4 ± 0.3 [3.0 ± 0.6%]	8.2 ± 1.4 [20.3 ± 3.2%]
	Storey et al., 2015 Dissection (10; 10M); MRI (20; 20M)	Dissection: 7.4 ± 1.1 MRI: 6.4 ± 1.6		Dissection: 2.2 ± 0.9 MRI: 1.1 ± 0.5	Dissection: 11.1 ± 1.6 MRI: 11.2 ± 1.7
	Van der Made et al., 2015 (56; no details)	5.0 ± 3.4 [12%]		0.2 ± 0.7 [0.4%]	9.4 ± 2.6 [24%]
Proximal MTJ	Woodley & Mercer, 2005 (6; 3M, 3F)	20.6 (range 17.4-26.1) [47%]		11.7 (range 7.5-15.8) [27%]	20.8 (range 17.6-28.6) [47%]
	Kellis et al., 2010 (8; 4M, 4F)	19.1 ± 0.8 [48%]		11.26 ± 1.0 [24%]	
	Evangelidis et al., 2015 (30; no details)	16.7 ± 2.8 (range 10.5-22) [43-75%]			
	Storey et al., 2015 Dissection (10; 10M); MRI (20; 20M)	Dissection: 18.4 ± 2.5 [40.3 ± 4.9%] MRI: 19.7 ± 2.6		Dissection: 12.8 ± 2.0 [27.9 ± 3.6%] MRI: 10.8 ± 3.6	Dissection: 22.5 ± 1.2 [49.4 ± 2.7%] MRI: 20.5 ± 2.2
	Van der Made et al., 2015 (56; no details)	14.6 [35%]		12.2 [28%]	14.9 [39%]

All studies are dissection-based except for Tate et al., (2006) and Evangelidis et al., (2015) which use MRI, Freitas et al., (2018) who use ultrasound; Kellis et al., (2009) which incorporates dissection and ultrasound; and Storey et al., (2015) which incorporates both dissection and MRI

*Unless stated otherwise

^a Data reported for dominant limb. Differences in data between dominant and nondominant limbs were reported for BF_{lh} (females) and BF_{sh} (males and females)

^b Number of specimens differs from the total number examined. Data derived from 19 specimens for all hamstring muscles, except for BF_{lh} (18 specimens)

^c Not clear if these data represent free tendon or MTJ length

Abbreviations: F, female; M, male; MRI, magnetic resonance imaging; MTJ, musculotendinous junction; US, ultrasound; BF_{lh}, biceps femoris long head; BF_{sh}, biceps femoris short head; ST, semitendinosus; SM, semimembranosus

