

SUPPLEMENTARY FILE

Narrative review of sex differences in muscle strength, endurance, activation, size, fiber type; and strength training participation rates, preferences, motivations, injuries, and neuromuscular adaptations

Supplementary Table 1. Sex difference in grip strength.

Age group Reference	Year	Country	M n	F n	Age (yr)	M mean strength	F mean strength	F% of M strength*
All adults								
Sella (409)	2001	USA	482	393	10-79	37.4 kg	19.8 kg	53%
Park et al. (345)	2021	KOR	833	981	19-80	39.2 kg	22.9 kg	58%
Mathiowetz et al. (293)	1985	USA	310	318	20-94	104.3 lb	62.8 lb	60%
Richards (384)	1997	USA	40	34	18-84	50.5 kg	30.1 kg	60%
Chan et al. (75)	2015	AUS	1,036	1,052	55-86	40.7 kg	25.5 kg	63%
Charlier et al. (77)	2015	BEL	553	784	18-80	48.4 kg	30.6 kg	63%
Yu et al. (503)	2017	CHI	714	4,014	18-80+	29.8 kg	18.8 kg	63%
Peolsson et al. (349)	2001	SWE	51	50	25-64	51.0 kg	34.0 kg	67%
Middle-aged adults (30-39yr)								
Montoye (320)	1977	USA	221	179	30-34	103.4 kg	51.5 kg	50%
Su et al. (448)	1994	TAW	16	16	30-39	121.8 kg	61.7 kg	51%
Balogun (28)	1991	AFR	60	60	30-39	40.3 kg	20.9 kg	52%
Wibowo et al. (487)	2013	INDO	80	76	~37	39.0 kg	22.4 kg	57%
Leong et al. (275)	2016	AFR	255	705	35-40	37.0 kg	21.0 kg	57%
Shields et al. (418)	2010	CAN	NR	NR	20-39	97.0 kg	56.0 kg	58%
Leong et al. (275)	2016	ME	1,042	1,372	35-40	45.0 kg	26.0 kg	58%
Leong et al. (275)	2016	SEA	562	1,091	35-40	40.0 kg	23.0 kg	58%
Fortier et al. (150)	2001	CAN	159	157	30-39	107.6 kg	63.8 kg	59%
Wong (493)	2016	CAN	NR	NR	20-39	48.5 kg	28.4 kg	59%
Sella (409)	2001	USA	86	79	30-39	42.5 kg	25.0 kg	59%
Leong et al. (275)	2016	EUR/NAM	897	1,332	35-40	50.0 kg	30.0 kg	60%
Payne et al. (347)	2000	CAN	44	56	30-39	99.0 kg	60.0 kg	61%
Wibowo et al. (487)	2013	INDO	85	80	~37	37.2 kg	22.7 kg	61%
Bornstein (55)	1985	CAN	86	50	20-39	49.9 [^]	31.0 [^]	62%
Werle et al. (484)	2009	SWZ	28	30	30-34	55.0 kg	33.8 kg	62%
Leong et al. (275)	2016	CHI	3,197	4,774	35-40	45.0 kg	28.0 kg	62%
Yu et al. (503)	2017	CHI	32	134	30-39	35.4 kg	21.8 kg	62%
Swanson et al. (452)	1970	USA	50	50	30-40	49.2 kg	30.8 kg	62%
Perna et al. (350)	2016	USA	411	382	30-39	216.4 lb	136.5 lb	63%
Wang et al. (477)	2018	USA	418	413	30-34	50.3 kg	31.6 kg	63%
Hanten et al. (181)	1999	USA	62	88	30-34	115.0 lb	73.0 lb	64%
Leong et al. (275)	2016	SAM	1,321	2,222	35-40	45.0 kg	29.0 kg	64%
Mathiowetz et al. (293)	1985	USA	27	26	30-34	121.8 lb	78.7 lb	65%
Massy-Westropp et al. (291)	2011	AUS	NR	NR	30-39	47.0 kg	31.0 kg	66%
Leong et al. (275)	2016	SA	3,279	5,662	35-40	35.0 kg	23.0 kg	66%
Clement (85)	1974	FRC	60	20	31-35	45.4 kp	30.3 kp	67%
Hogrel et al. (194)	2015	FRC	32	31	30-39	50.3 kg	35.9 kg	71%
Older adults (60-69yr)								
Sella (409)	2001	USA	66	21	60-69	33.7 kg	14.9 kg	44%
Balogun (28)	1991	AFR	60	60	60-69	28.4 kg	14.4 kg	51%
Payne et al. (347)	2000	CAN	25	20	60-69	87.0 kg	48.0 kg	55%
Bornstein (55)	1985	CAN	22	34	60-69	44.5 [^]	25.0 [^]	56%
Desrosiers et al. (115)	1995	CAN	181	179	60-69	45.6 kg	25.3 kg	56%
Su et al. (448)	1994	TAW	16	16	60-69	91.1 kg	51.4 kg	56%
Portier et al. (150)	2001	CAN	27	44	60-69	88.9 kg	50.0 kg	56%
Gaist et al. (156)	2000	DEN	722 FT	700 FT	~57	48.2 kg	27.8 kg	58%
Shields et al. (418)	2010	CAN	NR	NR	60-69	84.0 kg	49.0 kg	58%
Fiebert et al. (144)	1996	USA	14	20	60-74	92.1 lb	54.1 lb	59%
Wong (493)	2016	CAN	NR	NR	60-79	41.2 kg	24.2 kg	59%
Hanten et al. (181)	1999	USA	51	49	60-64	93.0 lb	56.0 lb	60%
Werle et al. (484)	2009	SWZ	33	30	60-64	47.9 kg	28.7 kg	60%
Ditroilo et al. (116)	2010	ITA	14	30	60-69	496.8 N	296.1 N	60%
Massy-Westropp et al. (291)	2011	AUS	NR	NR	60-69	40.0 kg	24.0 kg	60%
Hogrel et al. (194)	2015	FRC	11	21	60-70	46.8 kg	27.9 kg	60%
Leong et al. (275)	2016	EUR/NAM	1,447	1,725	61-70	42.0 kg	25.0 kg	60%
Leong et al. (275)	2016	ME	422	358	61-70	35.0 kg	21.0 kg	60%
Leong et al. (275)	2016	AFR	248	488	61-70	30.0 kg	18.0 kg	60%
Mathiowetz et al. (293)	1985	USA	24	25	60-64	89.7 lb	55.1 lb	61%
Rantanen et al. (371)	1997	FIN	101	186	~75	374.0 N	228.0 N	61%
Clement (85)	1974	FRC	135	76	61-65	40.3 kp	24.9 kp	62%
Leong et al. (275)	2016	SAM	1,525	2,144	61-70	37.0 kg	23.0 kg	62%
Leong et al. (275)	2016	SEA	884	938	61-70	29.0 kg	18.0 kg	62%
Liao et al. (277)	2014	TAW	17	29	65-69	36.5 kg	22.9 kg	63%
Yu et al. (503)	2017	CHI	230	1,188	60-69	29.5 kg	18.6 kg	63%
Leong et al. (275)	2016	CHI	3,615	3,588	61-70	36.0 kg	23.0 kg	64%
Perna et al. (350)	2016	USA	373	354	60-69	181.7 lb	116.3 lb	64%
Wang et al. (477)	2018	USA	407	413	60-64	41.3 kg	27.1 kg	66%
Leong et al. (275)	2016	SA	1,599	1,505	61-70	27.0 kg	19.0 kg	70%

AFR = Africa; AUS = Australia; B = basketball players; BEL = Belgium; BZL = Brazil; CHI = China; DEN = Denmark; EUR/NAM = Europe and North America; F = female; FT = fraternal twins; GER = Germany; INDO = Indonesia; ITA = Italy; KOR = South Korea; M = male; ME = Middle East; NR = not reported; S = swimmers; SA = South Asia; SAM = South America; SEA = South East Asia; SWE = Sweden; TAW = Taiwan; USA = United States of America; V = volleyball players. *Computed by dividing female group mean by the male group mean then multiplying by 100.

Supplementary Table 2. Muscle strength of men and women in multi-joint, upper-body exercises.

Test Reference	Year	Country	M n	F n	Age (yr)	Test type	M mean strength	F mean strength	F% of M strength*
Upper-body – all or sum									
Sherk et al. (416)	2012	USA	25	44	55-75	1RM – MA	41.2 kg	22.1 kg	54%
Laubach (269)	1976	Review	369	178	19-40	Multiple	NR	NR	56%
Hunter et al. (208)	2002	USA	14	12	61-77	1RM – MA	704.0 N	408.0 N	58%
Bench or chest press									
Hollander et al. (195)	2007	USA	10	10	18-30	1RM CON – MA	148.1 kg	30.9 kg	21%
Hollander et al. (195)	2007	USA	10	10	18-30	1RM ECC – MA	203.2 kg	69.1 kg	34%
Kim et al. (247)	2002	USA	37	21	~25	1RM – FW	88.9 kg	31.9 kg	36%
Wilmore (490)	1974	USA	26	47	~20	1RM – NR	66.3 kg	24.5 kg	37%
Hoeger et al. (192)	1990	USA	25	26	~25	1RM – MA	95.5 kg	35.6 kg	37%
Hunter (207)	1985	USA	14	11	~22	1RM – NR	69.1 kg	26.1 kg	38%
Abe et al. (5)	2000	USA	6	7	25-50	1RM – MA	147.0 kg	58.0 kg	38%
Abe et al. (5)	2000	USA	17	20	25-50	1RM – MA	153.0 kg	61.0 kg	40%
Seo et al. (411)	2012	KOR	15	15	18-35	1RM – MA	98.6 kg	39.3 kg	40%
Hackett et al. (172)	2017	AUS	53	28	18-60	1RM – MA	67.6 kg	27.3 kg	40%
Nickerson et al. (324)	2020	USA	10	10	~28	1RM – FW	129.3 kg	50.9 kg	40%
Miller et al. (315)	2019	USA	15	15	~23	1RM – FW	72.1 kg	29.4 kg	41%
Bartolomei et al. (29)	2021	ITA	16	14	~26	1RM – FW	121.1 kg	49.3 kg	41%
Glass and Stanton (164)	2004	USA	13	17	~19	1RM – MA	196.2^	83.1^	42%
Toskovic et al. (464)	2004	USA	7(TK)	7(TK)	19-42	1RM – MA	86.1 kg	36.1 kg	42%
Eckel et al. (126)	2017	USA	16	9	~23	1RM – FW	42.2 kg	99.3 kg	42%
Hoeger et al. (192)	1990	USA	38	40	~35	1RM – MA	63.9 kg	27.7 kg	43%
Mayhew et al. (298)	1992	USA	70	101	~19	1RM – FW	67.7 kg	29.4 kg	43%
Hostler et al. (199)	2001	USA	5	5	~21	1RM – NR	83.9 kg	35.8 kg	43%
Rhea et al. (378)	2003	USA	15	17	~21	1RM – MA	150.5 kg	64.6 kg	43%
Reynolds et al. (377)	2006	USA	34	36	18-69	1RM – FW	209.0 kg	90.0 kg	43%
Ribeiro et al. (381)	2014	BZL	58	65	~22	1RM – FW	68.7 kg	29.2 kg	43%
Bianco et al. (45)	2015	ITA	8	7	~25	1RM – FW	68.6 kg	29.4 kg	43%
Mayhew et al. (299)	2011	USA	85	62	~19	1RM – FW	70.1 kg	30.8 kg	44%
Toskovic et al. (464)	2004	USA	7(TK)	7(TK)	19-42	1RM – MA	84.3 kg	37.1 kg	44%
Miller et al. (315)	2019	USA	15	15	~21	1RM – FW	116.9 kg	52.6 kg	44%
Hunter (207)	1985	USA	10	11	~22	1RM – NR	59.3 kg	27.3 kg	46%
Bishop et al. (49)	1987	USA	23	25	~21	1RM – MA	65.0 kg	30.0 kg	46%
Salvador et al. (397)	2005	BZL	50	33	~21	1RM – NR	67.8 kg	31.8 kg	47%
Ribeiro et al. (382)	2017	BZL	28	30	~22	1RM – FW	61.9 kg	29.5 kg	48%
Hostler et al. (199)	2001	USA	5	4	~21	1RM – NR	78.8 kg	37.6 kg	48%
Ribeiro et al. (380)	2014	BZL	30	34	~23	1RM – FW	62.7 kg	30.0 kg	48%
Ritti Dias et al. (387)	2005	BZL	23	15	~21	1RM – NR	61.1 kg	29.6 kg	48%
Das et al. (101)	2004	CAN	8	8	20-39	Isometric	139.3 N	66.6 N	48%
Torrejon et al. (463)	2019	SPN	14	14	~22	1RM – MA	82.5 kg	39.9 kg	48%
Wilmore (491)	1978	USA	16	16	NR	1RM – MA	64.2 kg	31.4k g	49%
O'Shea and Wegner (339)	1981	USA	13	13	18-30	1RM – FW	87.7 kg	42.7 kg	49%
Mayhew et al. (297)	1992	USA	184	251	~20	1RM – FW	77.8 kg	38.2 kg	49%
Roth et al. (391)	2001	USA	8	6	20-30	1RM – MA	69.6 kg	34.1 kg	49%
Peiffer et al. (348)	2010	AUS	51	105	65-69	1RM – MA	39.1 kg	19.3 kg	49%
Lemmer et al. (274)	2001	USA	10	9	20-30	1RM – MA	72.0 kg	36.0 kg	50%
Nordgren (327)	1972	SWE	25	23	17-24	Isometric	NR	NR	50%
Wilmore (491)	1978	USA	10	10	NR	1RM – MA	61.0 kg	31.2 kg	51%
Salvador et al. (398)	2009	BZL	33	23	~21	1RM – NR	62.4 kg	31.9 kg	51%
Gołaś et al.(168)	2017	POL	5	5	~21	1RM – NR	55.0 kg	105.0 kg	52%
Thomas et al. (458)	2007	USA	20(SC)	19(SC)	~20	1RM – FW	84.9 kg	44.9 kg	53%
Peiffer et al. (348)	2010	AUS	36	57	70-74	1RM – MA	34.1 kg	18.0 kg	53%
Ribeiro et al. (383)	2014	BZL	13	11	~22	1RM – FW	45.7 kg	25.1 kg	55%
Peiffer et al. (348)	2010	AUS	23	29	≥75	1RM – MA	30.0 kg	16.9 kg	56%
Sheaff et al. (415)	2010	USA	26	7	18-45	1RM – MA	88.5 kg	49.9 kg	56%
Bishop et al. (49)	1987	USA	24(S)	25(S)	~19	1RM – MA	69.1 kg	39.6 kg	57%
Bell et al. (34)	1997	CAN	6	5	~23	1RM – FW	67.3 kg	39.9 kg	59%
Roth et al. (391)	2001	USA	9	10	65-75	1RM – MA	45.2 kg	26.8 kg	59%
Lemmer et al. (274)	2001	USA	11	10	65-75	1RM – MA	46.0 kg	27.0 kg	59%
Phillips et al. (352)	2004	USA	16	31	60-91	1RM – MA	46.4 kg	28.3 kg	61%
Ades et al. (12)	1996	USA	6	6	65-79	1RM – MA	33.0 kg	22.0 kg	67%
Ades et al. (12)	1996	USA	5	7	65-79	1RM – MA	29.0 kg	22.0 kg	69%
Tiwari et al. (461)	2010	IND	604	316	~30	Isometric	253.8 N	183.1 N	72%
Tan et al. (455)	2015	CHI	48	61	60-75	1RM – NR	49.5 kg	36.4 kg	74%
Shoulder press									
Hollander et al. (195)	2007	USA	10	10	18-30	1RM CON – MA	84.6 kg	20.2 kg	24%
Hollander et al. (195)	2007	USA	10	10	18-30	1RM ECC – MA	124.6 kg	44.6 kg	36%
Glass and Stanton (164)	2004	USA	13	17	~19	1RM – MA	201.0^	98.5^	49%
Seo et al. (411)	2012	KOR	15	15	18-35	1RM – MA	74.5 kg	36.1 kg	49%
Soriano et al. (430)	2021	SPN	61	21	~30	1RM – FW	68.3 kg	36.8 kg	54%
Wilmore (491)	1978	USA	10	10	NR	1RM – MA	50.9 kg	27.9 kg	55%
Wilmore (491)	1978	USA	16	16	NR	1RM – MA	53.3 kg	29.6 kg	56%
Nordgren (327)	1972	SWE	25	23	17-24	Isometric	NR	NR	57%
Lemmer et al. (274)	2001	USA	10	9	20-30	1RM – MA	57.0 kg	33.0 kg	58%
Lemmer et al. (274)	2001	USA	11	10	65-75	1RM – MA	38.0 kg	26.0 kg	68%
Lat pulldown									
Wilmore (491)	1978	USA	16	16	NR	1RM – MA	68.0 kg	26.2 kg	39%
Wilmore (491)	1978	USA	10	10	NR	1RM – MA	63.5 kg	26.1 kg	41%
Seo et al. (411)	2012	KOR	15	15	18-35	1RM – MA	88.3 kg	40.9 kg	46%
Lemmer et al. (274)	2001	USA	10	9	20-30	1RM – MA	75.0 kg	36.0 kg	48%

Montoye (320)	1977	USA	212	195	20-24	Isometric	93.4 kg	47.9 kg	51%
Montoye (320)	1977	USA	248	208	35-39	Isometric	94.3 kg	48.0 kg	51%
Montoye (320)	1977	USA	203	148	40-44	Isometric	93.4 kg	47.6 kg	51%
Montoye (320)	1977	USA	198	192	25-29	Isometric	94.8 kg	48.9 kg	52%
Montoye (320)	1977	USA	221	179	30-34	Isometric	94.3 kg	49.2 kg	52%
Montoye (320)	1977	USA	144	88	50-59	Isometric	85.9 kg	44.7 kg	52%
Montoye (320)	1977	USA	126	98	45-49	Isometric	90.2 kg	48.0 kg	53%
Nordgren (327)	1972	SWE	25	23	17-24	Isometric	NR	NR	53%
Lemmer et al. (274)	2001	USA	11	10	65-75	IRM – MA	51.0 kg	29.0 kg	57%
Glass and Stanton (164)	2004	USA	13	17	~19	IRM – MA	155.8^	89.7^	58%
Hollander et al. (195)	2007	USA	10	10	18-30	IRM ECC – MA	132.1 kg	76.8 kg	58%
Hollander et al. (195)	2007	USA	10	10	18-30	IRM CON – MA	100.7 kg	59.6 kg	59%
Hoeger et al. (192)	1990	USA	38	40	~35	IRM – MA	137.9 kg	85.3 kg	62%
Hoeger et al. (192)	1990	USA	25	26	~25	IRM – MA	167.2 kg	107.5 kg	64%
Row									
Seo et al. (411)	2012	KOR	15	15	18-35	IRM – MA	95.5 kg	42.0 kg	44%
Nordgren (327)	1972	SWE	25	23	17-24	Isometric	NR	NR	62%
Peiffer et al. (348)	2010	AUS	51	105	65-69	IRM – MA	65.0 kg	40.1 kg	62%
Peiffer et al. (348)	2010	AUS	36	57	70-74	IRM – MA	60.6 kg	38.5 kg	64%
Peiffer et al. (348)	2010	AUS	23	29	≥75	IRM – MA	51.4 kg	37.7 kg	73%
Tiwari et al. (461)	2010	IND	604	316	~30	Isometric	234.2 N	185.1 N	79%
Upright row									
Wilmore (491)	1978	USA	16	16	NR	IRM – MA	45.9 kg	23.7 kg	52%
Xiao et al.(497)	2005	CHI	146	47	NR	Isometric	33.8^	18.5^	55%
Wibowo et al. (487)	2013	INDO	85	80	~37	Isometric	49.3 kg	27.9 kg	57%
Wilmore (491)	1978	USA	10	10	NR	IRM – MA	39.8 kg	23.8 kg	60%
Wibowo et al. (487)	2013	INDO	80	76	~37	Isometric	45.3 kg	28.1 kg	62%

B = basketball players; BZL = Brazil; F = female; FW = free weight; CHI = China; CON = concentric only; ECC = eccentric only; IND = India; INDO = Indonesia; ITA = Italy; KOR = South Korea; M = male; MA = machine; NR = not reported; POL = Poland; S = swimmers; SC = soccer players; SPN = Spain; SWE = Sweden; USA = United States of America; V = volleyball players; IRM = one repetition maximum. *Computed by dividing female group mean by the male group mean then multiplying by 100. ^Units not reported.

Supplementary Table 3. Muscle strength of the elbow flexors in men and women.

Reference	Year	Country	M n	F n	Age (yr)	Test type	M mean strength	F mean strength	F% of M strength
Seo et al. (411)	2012	KOR	15	15	18-35	1RM – MA	56.2 kg	18.0 kg	32%
Bishop et al. (49)	1987	USA	23	25	~21	1RM – MA	13.6 kg	5.0 kg	37%
Singh and Karpovich (425)	1968	USA	12	11	18-35	Concentric	NR	NR	37%
Lemmer et al. (274)	2001	USA	10	9	20-30	1RM – MA	35.0 kg	14.0 kg	40%
Singh and Karpovich (425)	1968	USA	12	11	18-35	Isometric (90°)	52.0 ft-lb	22.0 ft-lb	42%
Hoeger et al. (193)	1990	USA	38	40	~35	1RM – MA	33.2 kg	13.8 kg	42%
Hoeger et al. (193)	1990	USA	25	26	~25	1RM – MA	41.2 kg	17.3 kg	42%
Glass and Stanton (164)	2004	USA	13	17	~19	1RM – MA	125.4^	54.1^	43%
Singh and Karpovich (425)	1968	USA	12	11	~25	Eccentric	NR	NR	43%
Kumar (256)	1991	CAN	20	18	18-40	Isometric (90°)	590 N	261 N	44%
Hunter and Enoka (213)	2001	USA	7	7	~27	Isometric (90°)	393 N	177 N	45%
Kavanagh et al. (236)	2020	AUS	7	7	~22	Isometric (90°)	91.5 Nm	41.4 Nm	45%
Maughan et al. (295)	1986	CAN	12	11	~20	1RM – NR	409 N	190 N	46%
Tanton et al. (456)	2009	USA	20	21	18-39	1RM – MA	30.5 kg	14.3 kg	47%
Hill et al. (190)	2016	USA	18	18	~23	Isometric (115°)	40.8 Nm	86.5 Nm	47%
Hubal et al. (202)	2005	USA	243	342	~24	Isometric (90°)	64.3 kg	30.8 kg	48%
Keller et al. (239)	2011	USA	10	10	~20	Isometric (90°)	81.9 Nm	40.3 Nm	49%
Tanton et al. (456)	2009	USA	20	21	65-85	1RM – MA	24.4 kg	12.1kg	49%
Tan et al. (454)	2018	AUS	24	26	19-33	1RM – FW	17.2 kg	8.5 kg	49%
Xiao et al.(497)	2005	CHI	146	47	NR	Isometric (90°)	26.8^	13.3^	50%
White and Forward (486)	1966	USA	20	33	NR	Isometric (90°)	37.6 kg	19.0 kg	51%
Bonde-Petersen (53)	1960	DEN	2	4	18-30	Isometric (90°)	810 kg-cm	425 kg-cm	52%
Miller et al. (314)	1993	CAN	8	8	19-31	1RM – MA	~10 kg	~19.5 kg	52%
Miller et al. (314)	1993	CAN	8	8	19-31	Isometric (120°)	~75 Nm	~40 Nm	52%
Yoon et al. (500)	2007	USA	9	9	21-33	Isometric (90°)	88.0 Nm	45.3 Nm	52%
Akagi et al. (15)	2009	JPN	30	22	20-34	Isometric (90°)	61.1 Nm	31.9 Nm	52%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	20-29	Isometric (90°)	70.3 N	36.2 N	52%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	20	60-69	Isometric (90°)	54.8 N	28.7 N	52%
Harbo et al. (182)	2012	DEN	83	75	15-83	Isometric (°NR)	50.9 Nm	26.5 Nm	52%
Wilmore (490)	1974	USA	26	47	~20	1RM – NR	38.5 kg	20.3 kg	53%
Hunter et al. (214)	2002	USA	11	11	19-34	Isometric (90°)	337 N	179 N	53%
Hubal et al. (202)	2005	USA	243	342	~24	1RM – FW	11.7 kg	6.2 kg	53%
Salvador et al. (397)	2005	BZL	50	33	~21	1RM – NR	42.1 kg	22.6 kg	54%
Albert et al. (16)	2006	CAN	12	15	~24	Isometric (120°)	364.4 N	197.4 N	54%
Sewright et al. (412)	2008	USA	42	58	~24	Isometric (90°)	478.8 N	256.9 N	54%
Akagi et al. (15)	2009	JPN	19	32	60-77	Isometric (90°)	48.9 Nm	26.2 Nm	54%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	30-39	Isometric (90°)	66.4 N	36.1 N	54%
Danneskiold-Samsøe et al. (100)	2009	DEN	11	23	40-49	Isometric (90°)	66.4 N	35.8 N	54%
Danneskiold-Samsøe et al. (100)	2009	DEN	9	23	70-79	Isometric (90°)	48.4 N	26.0 N	54%
Ribeiro et al. (381)	2014	BZL	58	65	~22	1RM – FW	40.0 kg	21.7 kg	54%
Bonde-Petersen (53)	1960	DEN	6	4	18-30	Isometric (90°)	829 kg-cm	460 kg-cm	55%
Lexell et al. (276)	1995	SWE	6	10	70-77	1RM – FW	11.0 kg	6.0 kg	55%
Ribeiro et al. (380)	2014	BZL	30	34	~23	1RM – MA	38.4 kg	21.0 kg	55%
Nordgren (327)	1972	SWE	25	23	17-24	Isometric (°NR)	NR	NR	55%
Arnold et al. (22)	1982	USA	168	81	NR	Isometric (°NR)	21.9 kg	12.1 kg	55%
Svendsen et al. (451)	2010	DEN	10	10	~25	Isometric (°NR)	245.6 N	134.6 N	55%
Feeler et al. (142)	2010	USA	93,611	19,470	NR	Isometric (90°)	36.9 kg	20.4 kg	55%
Wibowo et al. (487)	2013	INDO	85	80	~37	Isometric (90°)	45.4 kg	25.0 kg	55%
Elkins et al. (129)	1951	USA	NR	NR	NR	Isometric (°NR)	102.0 lb	57.0 lb	56%
Kumar et al. (258)	1988	CAN	10	10	~25	Isometric (°NR)	NR	NR	56%
Hunter et al. (212)	2006	AUS	9	8	~25	Isometric (90°)	75.9 Nm	42.7 Nm	56%
Lemmer et al. (274)	2001	USA	11	10	65-75	1RM – MA	27.0 kg	15.0 kg	56%
Ritti Dias et al. (387)	2005	BZL	23	15	~21	1RM – NR	39.2 kg	22.1 kg	56%
Skelton et al. (426)	1994	UK	10	7	80-84	Isometric (90°)	231.0 N	131.0 N	57%
Salvador et al. (398)	2009	BZL	33	23	~21	1RM – NR	40.0 kg	22.8 kg	57%
Hunter et al. (208)	2002	USA	14	12	~67	Isometric (110°)	286 N	163 N	57%
Bonde-Petersen (53)	1960	DEN	6	7	18-30	Isometric (90°)	820 kg-cm	469 kg-cm	57%
Yoon et al. (499)	2015	USA	9	9	18-26	Isometric (90°)	62.5 Nm	36.0 Nm	58%
Molenaar et al. (319)	2013	AUS	30	28	22-84	Isometric (90°)	75.4 Nm	44.0 Nm	58%
Bishop et al. (49)	1987	USA	24(S)	25(S)	~19	1RM – MA	12.7 kg	7.3k g	58%
Ribeiro et al. (382)	2017	BZL	28	30	~22	1RM – FW	37.2 kg	21.6 kg	58%
Ribeiro et al. (383)	2014	BZL	13	11	~22	1RM – FW	32.0 kg	18.8 kg	59%
Yoon et al. (499)	2015	USA	16	20	66-84	Isometric (90°)	52.4 Nm	31.1 Nm	59%
Nygaard et al. (336)	1983	DEN	4	4	28-43	Isometric (100°)	236.0 N	142.0 N	60%
Skelton et al. (426)	1994	UK	10	10	85-89	Isometric (90°)	171.0 N	102.0 N	60%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	50-59	Isometric (90°)	55.4 N	33.2 N	60%
Bilodeau et al. (48)	2001	USA	7	4	65-86	Isometric (90°)	79.2 Nm	47.4 Nm	60%
Bilodeau et al. (48)	2001	USA	5	5	23-32	Isometric (90°)	98.2 Nm	60.3 Nm	61%
Sato and Ohashi (402)	1989	JPN	6	6	19-25	Isometric (90°)	267 N	163 N	61%
Skelton et al. (426)	1994	UK	10	10	75-79	Isometric (90°)	205.0 N	128.0 N	62%
Skelton et al. (426)	1994	UK	10	10	65-69	Isometric (90°)	234.0 N	148.0 N	63%
Skelton et al. (426)	1994	UK	10	10	70-74	Isometric (90°)	216.0 N	137.0 N	63%
Bonde-Petersen (53)	1960	DEN	5	5	18-30	Isometric (90°)	790 kg-cm	500 kg-cm	63%
Rantanen et al. (371)	1997	FIN	101	186	~75	Isometric (90°)	254.0 N	159.0 N	63%
Wibowo et al. (487)	2013	INDO	80	76	~37	Isometric (90°)	40.5 kg	25.4 kg	63%
Tan et al. (455)	2015	CHI	48	61	60-75	1RM – NR	27.4 kg	18.2 kg	66%
Lexell et al. (276)	1995	SWE	6	10	70-77	1RM – FW	12.0 kg	8.0 kg	67%

Miyaguchi and Demura (316) 2009 JPN 33 21 ~20 Isometric (°NR) 17.8 kg 12.1 kg 68%

AUS = Australia; BZL = Brazil; CHI = China; DEN = Denmark; F = female; FIN = Finland; FW = free weights; INDO = Indonesia; ITA = Italy; JPN = Japan; KOR = South Korea; M = male; MA = machine; NR = not reported; S = swimmers; SWE = Sweden; USA = United States of America; 1RM = one repetition maximum. *Computed by dividing female group mean by the male group mean then multiplying by 100. ^Units not reported.

Supplementary Table 4. Muscle strength of the elbow extensors in men and women.

Reference	Year	Country	M <i>n</i>	F <i>n</i>	Age (yr)	Test type	M mean strength	F mean strength	F% of M strength
Seo et al. (411)	2012	KOR	15	15	18-35	1RM – MA	49.0 kg	19.3 kg	39%
Hostler et al. (199)	2001	USA	5	5	~21	1RM – NR	30.8 kg	12.9 kg	42%
Hostler et al. (199)	2001	USA	5	4	~21	1RM – NR	27.8 kg	12.2 kg	44%
Singh and Karpovich (425)	1968	USA	12	11	18-35	Concentric	NR	NR	46%
Singh and Karpovich (425)	1968	USA	12	11	18-35	Eccentric	NR	NR	47%
Singh and Karpovich (425)	1968	USA	12	11	18-35	Isometric (90°)	30.0 ft-lb	14.5 ft-lb	48%
Nordgren (327)	1972	SWE	25	23	17-24	Isometric (°NR)	NR	NR	49%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	20	60-69	Isometric (90°)	47.0 N	24.3 N	52%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	20-29	Isometric (90°)	53.2 N	28.2 N	53%
Danneskiold-Samsøe et al. (100)	2009	DEN	9	23	70-79	Isometric (90°)	43.7 N	23.0 N	53%
Lemmer et al. (274)	2001	USA	10	9	20-30	1RM – MA	81.0 kg	44.0 kg	54%
Dearth et al. (109)	2010	USA	12	11	~22	Isometric (90°)	52.6 Nm	28.5 Nm	54%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	30-39	Isometric (90°)	49.3 N	28.3 N	57%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	50-59	Isometric (90°)	50.3 N	29.2 N	58%
Lemmer et al. (274)	2001	USA	11	10	65-75	1RM – MA	52.0 kg	31.0 kg	60%
Danneskiold-Samsøe et al. (100)	2009	DEN	11	23	40-49	Isometric (90°)	47.4 N	28.7 N	61%

DEN = Denmark; F = female; FW = free weights; KOR = South Korea; M = male; MA = machine; NR = not reported; SWE = Sweden; USA = United States of America; 1RM = one repetition maximum. *Computed by dividing female group mean by the male group mean then multiplying by 100.

Supplementary Table 5. Muscle strength of the wrist flexors and extensors in men and women.

Test Reference	Year	Country	M n	F n	Age (yr)	Test type	M mean strength	F mean strength	F% of M strength
Wrist – all or sum									
La Delfa et al. (261)	2015	CAN	12	12	~22	Isometric	NR	NR	48%
Wrist flexion									
Danneskiold-Samsøe et al. (100)	2009	DEN	9	23	70-79	Isometric (-10°)	22.0 N	11.0 N	50%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	50-59	Isometric (-10°)	25.9 N	14.6 N	56%
Harbo et al. (182)	2012	DEN	83	73	15-83	Isometric (°NR)	24.7 Nm	14.4 Nm	58%
Danneskiold-Samsøe et al. (100)	2009	DEN	11	23	40-49	Isometric (-10°)	25.4 N	15.0 N	59%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	20-29	Isometric (-10°)	23.9 N	14.3 N	60%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	30-39	Isometric (-10°)	23.6 N	14.1 N	60%
Decostre et al. (110)	2015	FRC	32	31	30-39	Isometric (0°)	13.4 Nm	8.4 Nm	63%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	20	60-69	Isometric (-10°)	20.0 N	12.8 N	64%
Wrist extension									
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	50-59	Isometric (50°)	12.7 N	5.8 N	46%
Danneskiold-Samsøe et al. (100)	2009	DEN	9	23	70-79	Isometric (50°)	10.7 N	5.0 N	47%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	30-39	Isometric (50°)	13.9 N	7.3 N	52%
Danneskiold-Samsøe et al. (100)	2009	DEN	11	23	40-49	Isometric (50°)	14.4 N	7.5 N	52%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	20-29	Isometric (50°)	13.1 N	6.9 N	53%
Richards et al. (385)	1993	CAN	170	202	20-69	Isometric (°NR)	14.3^	7.9^	55%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	20	60-69	Isometric (50°)	10.1 N	5.7 N	56%
Decostre et al. (110)	2015	FRC	32	31	30-39	Isometric (0°)	10.2 Nm	6.5 Nm	64%

CAN = Canada; DEN = Denmark; F = female; FRC = France; IRE = Ireland; M = male; NR = not reported. *Computed by dividing female group mean by the male group mean then multiplying by 100.

Supplementary Table 6. Muscle strength of shoulder muscles in men and women.

Test Reference	Year	Country	M n	F n	Age (yr)	Test type	M mean strength	F mean strength	F% of M strength
Shoulder flexion									
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	20-29	Isometric (45°)	63.0 N	30.0 N	48%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	20	60-69	Isometric (45°)	53.9 N	26.6 N	49%
Danneskiold-Samsøe et al. (100)	2009	DEN	9	23	70-79	Isometric (45°)	53.2 N	26.7 N	50%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	50-59	Isometric (45°)	58.7 N	32.0 N	55%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	30-39	Isometric (45°)	58.5 N	34.3 N	59%
Cavuoto et al. (71)	2009	USA	71	71	~31	Isometric (90°)	58.9 Nm	34.5 Nm	59%
Danneskiold-Samsøe et al. (100)	2009	DEN	11	23	40-49	Isometric (45°)	58.0 N	35.0 N	60%
Shoulder extension									
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	20-29	Isometric (90°)	91.9 N	43.5 N	47%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	50-59	Isometric (90°)	80.3 N	43.7 N	54%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	20	60-69	Isometric (90°)	77.4 N	41.7 N	54%
Danneskiold-Samsøe et al. (100)	2009	DEN	9	23	70-79	Isometric (90°)	69.8 N	37.7 N	54%
Danneskiold-Samsøe et al. (100)	2009	DEN	11	23	40-49	Isometric (90°)	79.8 N	46.3 N	58%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	30-39	Isometric (90°)	78.4 N	47.7 N	61%
Shoulder abduction									
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	20-29	Isometric (40°)	60.2 N	30.9 N	51%
Danneskiold-Samsøe et al. (100)	2009	DEN	9	23	70-79	Isometric (40°)	49.3 N	25.9 N	53%
Collins and O'Sullivan (93)	2018	IRE	20	20	~20-65	Isometric (90°)	87.8 N	49.3 N	56%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	30-39	Isometric (40°)	59.1 N	32.9 N	56%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	50-59	Isometric (40°)	59.1 N	32.9 N	56%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	20	60-69	Isometric (40°)	47.9 N	27.1 N	57%
Harbo et al. (182)	2012	DEN	79	69	15-83	Isometric (°NR)	61.1 Nm	38.0 Nm	62%
Danneskiold-Samsøe et al. (100)	2009	DEN	11	23	40-49	Isometric (40°)	54.5 N	36.2 N	66%
Shoulder adduction									
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	20-29	Isometric (80°)	89.6 N	42.0 N	47%
Danneskiold-Samsøe et al. (100)	2009	DEN	9	23	70-79	Isometric (80°)	68.1 N	34.0 N	50%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	50-59	Isometric (80°)	75.9 N	41.9 N	55%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	20	60-69	Isometric (80°)	69.4 N	39.8 N	57%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	30-39	Isometric (80°)	78.9 N	47.0 N	60%
Danneskiold-Samsøe et al. (100)	2009	DEN	11	23	40-49	Isometric (80°)	77.9 N	47.4 N	61%
Shoulder internal rotation									
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	20-29	Isometric (30°)	59.4 N	26.3 N	44%
Danneskiold-Samsøe et al. (100)	2009	DEN	9	23	70-79	Isometric (30°)	39.9 N	18.2 N	46%
Danneskiold-Samsøe et al. (100)	2009	DEN	11	23	40-49	Isometric (30°)	54.9 N	26.2 N	48%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	30-39	Isometric (30°)	51.7 N	25.3 N	49%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	50-59	Isometric (30°)	46.8 N	23.6 N	50%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	20	60-69	Isometric (30°)	41.5 N	21.1 N	51%
Shoulder external rotation									
Danneskiold-Samsøe et al. (100)	2009	DEN	9	23	70-79	Isometric (-30°)	31.1 N	14.7 N	47%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	20-29	Isometric (-30°)	35.9 N	19.4 N	54%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	30-39	Isometric (-30°)	36.3 N	19.6 N	54%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	50-59	Isometric (-30°)	34.2 N	18.8 N	55%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	20	60-69	Isometric (-30°)	31.1 N	17.1 N	55%
Danneskiold-Samsøe et al. (100)	2009	DEN	11	23	40-49	Isometric (-30°)	36.5 N	21.3 N	58%

DEN = Denmark; F = female; IRE = Ireland; M = male; USA = United States of America. *Computed by dividing female group mean by the male group mean then multiplying by 100.

Supplementary Table 7. Muscle strength of men and women in multi-joint, lower-body exercises.

Test Reference	Year	Country	M n	F n	Age (yr)	Test type	M mean strength	F mean strength	F% of M strength
Lower-body – all									
Hunter et al. (208)	2002	USA	14	12	61-77	1RM – MA	1445 N	900 N	62%
Sherk et al. (416)	2012	USA	25	44	55-75	1RM – MA	63.8 kg	40.8 kg	64%
Laubach (269)	1976	Review	369	178	19-40	Multiple	NR	NR	72%
Leg press									
Wilmore (491)	1978	USA	16	16	NR	1RM – MA	184.7 kg	83.9 kg	45%
Wilmore (491)	1978	USA	10	10	NR	1RM – MA	173.3 kg	86.2 kg	50%
Peiffer et al. (348)	2010	AUS	36	57	70-74	1RM – MA	86.9 kg	48.1 kg	55%
Smith and Royce (428)	1963	USA	32	27	17-29	Isometric	695.1 lb	393.8 lb	57%
Hollander et al. (195)	2007	USA	10	10	18-30	1RM CON – MA	188.6 kg	107.1 kg	57%
Bell et al. (34)	1997	CAN	6	5	~23	1RM – MA	260.5 kg	152.8 kg	59%
Ahtiainen et al. (14)	2016	FIN	53	19	22-77	1RM – MA	155.1 kg	91.6 kg	59%
Kosek et al. (250)	2006	USA	13	11	20-35	1RM – MA	1538.0 N	928.0 N	60%
Hoeger et al. (193)	1990	USA	38	40	~35	1RM – MA	137.9 kg	85.3 kg	62%
Roth et al. (391)	2001	USA	8	6	20-30	1RM – MA	695.0 kg	433.0 kg	62%
Glass and Stanton (164)	2004	USA	13	17	~19	1RM – MA	198.1^	122.8^	62%
Reynolds et al. (377)	2006	USA	34	36	18-69	1RM – MA	719.0 kg	450 kg	63%
Sheaff et al. (415)	2010	USA	26	7	18-45	1RM – MA	329.8 kg	208.2 kg	63%
Bishop et al. (49)	1987	USA	23	25	~21	1RM – MA	148.6 kg	94.1 kg	63%
Lemmer et al. (274)	2001	USA	10	9	20-30	1RM – MA	697.0 kg	439.0 kg	63%
Ahtiainen et al. (14)	2016	FIN	61	27	<45	1RM – MA	169.3 kg	107.1 kg	63%
Hackett et al. (172)	2017	AUS	53	28	18-60	1RM – MA	156.4 kg	98.5 kg	63%
Hoeger et al. (193)	1990	USA	25	26	~25	1RM – MA	167.2 kg	107.5 kg	64%
Bellew et al. (35)	2003	USA	11	11	59-83	1RM – MA	1662.9 N	1066.5 N	64%
Kosek et al. (250)	2006	USA	13	12	60-75	1RM – MA	1181.0 N	754.0 N	64%
Roth et al. (391)	2001	USA	9	10	65-75	1RM – MA	540.0 kg	350.0 kg	65%
Lemmer et al. (274)	2001	USA	11	10	65-75	1RM – MA	537.0 kg	350.0 kg	65%
Hollander et al. (195)	2007	USA	10	10	18-30	1RM ECC – MA	270.2 kg	174.3 kg	65%
Peiffer et al. (348)	2010	AUS	51	105	65-69	1RM – MA	90.1 kg	59.0 kg	65%
Seo et al. (411)	2012	KOR	15	15	18-35	1RM – MA	159.2 kg	103.5 kg	65%
Ahtiainen et al. (14)	2016	FIN	55	41	45-60	1RM – MA	161.7 kg	105.5 kg	65%
Leenders et al. (273)	2013	NLD	29	24	~70	1RM – MA	207.0 kg	138.0 kg	67%
Ahtiainen et al. (14)	2016	FIN	67	36	>60	1RM – MA	140.4 kg	93.6 kg	67%
Miller et al. (315)	2019	USA	15	15	~23	1RM – MA	194.5 kg	133.3 kg	68%
Peiffer et al. (348)	2010	AUS	23	29	≥75	1RM – MA	62.6 kg	43.4 kg	69%
Toskovic et al. (464)	2004	USA	7(TK)	7(TK)	19-42	1RM – MA	217.1 kg	151.4 kg	70%
Wilmore (490)	1974	USA	26	47	~20	1RM – NR	407.0 kg	298.8 kg	73%
Bishop et al. (49)	1987	USA	24(S)	25(S)	~19	1RM – MA	137.3 kg	100.5 kg	73%
Toskovic et al. (464)	2004	USA	7(TK)	7(TK)	19-42	1RM – MA	196.4 kg	147.9 kg	75%
Krivickas et al. (252)	2006	USA	6	10	65-84	1RM – MA	656.0 N	513.0 N	78%
Phillips et al. (352)	2004	USA	16	31	60-91	1RM – MA	122.8 kg	97.7 kg	80%
Miller et al. (315)	2019	USA	15	15	~21	1RM – MA	226.0 kg	181.4 kg	80%
Squat									
Hakkinen (174)	1993	FIN	10	9	~29	1RM – FW	175.0 kg	74.2 kg	42%
Bartolomei et al. (29)	2021	ITA	16	14	~26	1RM – FW	178.5 kg	76.4 kg	43%
Sharman et al. (414)	2001	AUS	7	7	~65	1RM – MA	130.4 kg	58.2 kg	45%
Seo et al. (411)	2012	KOR	15	15	18-35	1RM – MA	116.8 kg	52.1 kg	45%
Sharman et al. (414)	2001	AUS	3	3	~62	1RM – MA	115.8 kg	57.5 kg	50%
Cooke et al. (95)	2019	USA	43	15	~22	1RM – NR	162.8 kg	81.5 kg	50%
Salvador et al. (398)	2009	BZL	33	23	~21	1RM – NR	124.0 kg	71.1 kg	57%
Salvador et al. (397)	2005	BZL	50	33	~21	1RM – NR	127.5 kg	72.1 kg	57%
Ritti Dias et al. (387)	2005	BZL	23	15	~21	1RM – NR	125.4 kg	73.6 kg	59%
Ribeiro et al. (383)	2014	BZL	13	11	~22	1RM – MA	89.4 kg	56.5 kg	63%
Kosek et al. (250)	2006	USA	13	11	20-35	1RM – FW	921.0 N	592.0 N	64%
Ribeiro et al. (382)	2017	BZL	28	30	~22	1RM – MA	118.7 kg	75.6 kg	64%
Thomas et al. (458)	2007	USA	20(SC)	19(SC)	~20	1RM – FW	121.0 kg	83.2 kg	69%
Comfort et al. (94)	2015	UK	32	12	~21	1RM – FW	141.3 kg	96.8 kg	69%
O'Shea and Wegner (339)	1981	USA	13	13	18-30	1RM – FW	104.3 kg	72.6 kg	70%
Tan et al. (455)	2015	CHI	48	61	60-75	1RM – NR	78.0 kg	55.4 kg	71%
Kosek et al. (250)	2006	USA	13	12	60-75	1RM – FW	695.0 N	503.0 N	72%
Deadlift									
Bartolomei et al. (29)	2021	ITA	16	14	~26	1RM – FW	203.4 kg	88.7 kg	44%
Feeler et al. (142)	2010	USA	93,611	19,470	NR	Isometric – BLD	111.4 kg	58.8 kg	53%
Glenmark et al. (166)	1994	SWE	55	26	~27	Isometric – BLD	1314.0 N	736.0 N	56%
Mayhew and Salm (301)	1990	USA	82	99	~19	Isometric – BLD	4307.5 N	2446.3 N	57%
Kroll et al. (253)	2000	USA	19	37	18-65	Isometric – BLD	124.1 kg	70.6 kg	57%
Arnold et al. (22)	1982	USA	168	81	NR	Isometric – BLD	132.3 kg	76.9 kg	58%
Wilmarth and Herekar (489)	1991	USA	15	9	~28	Isometric – BLD	446.0 lb	258.0 lb	58%
Hang pull									
Thomas et al. (458)	2007	USA	20(SC)	19(SC)	~20	1RM – FW	83.7 kg	52.9 kg	63%
Power clean									
Comfort et al. (94)	2015	UK	32	12	~21	1RM – FW	82.9 kg	41.4 kg	50%

AUS = Australia; B = basketball players; BZL = Brazil; BLD = back and leg dynamometer; CAN = Canada; CHI = China; CON = concentric only; ECC = eccentric only; F = female; FIN = Finland; FW = free weights; GER = Germany; ITA = Italy; KOR = South Korea; M = male; MA = machine; NLD = Netherlands; NR = not reported; S = swimmers; SC = soccer players; TK = Tae Kwon Do athletes; USA = United States of America; V = volleyball players; 1RM = one repetition maximum. *Computed by dividing female group mean by the male group mean then multiplying by 100. ^Units not reported.

Supplementary Table 8. Muscle strength of the knee extensors in men and women.

Reference	Year	Country	M <i>n</i>	F <i>n</i>	Age (yr)	Test type	M mean strength	F mean strength	F% of M strength
Ditroilo et al. (116)	2010	ITA	12	15	40-49	Isometric (90°)	311.3 Nm	132.2 Nm	42%
Ditroilo et al. (116)	2010	ITA	11	13	20-29	Isometric (90°)	306.0 Nm	143.9 Nm	47%
Ditroilo et al. (116)	2010	ITA	15	17	50-59	Isometric (90°)	250.3 Nm	121.7 Nm	49%
Hoeger et al. (193)	1990	USA	38	40	~35	1RM – MA	54.9 kg	26.7 kg	49%
Delmonico et al. (112)	2005	USA	30	32	50-74	1RM – MA	274 N	138 N	50%
Ditroilo et al. (116)	2010	ITA	8	12	70-80	Isometric (90°)	180.6 Nm	91.8 Nm	51%
Abe et al. (5)	2000	USA	6	7	25-50	1RM – MA	177.0 kg	94.0 kg	53%
Bellew et al. (35)	2003	USA	11	11	59-83	1RM – MA	664.7 N	353.8 N	53%
Walts et al. (475)	2008	USA	78	92	50-85	1RM – MA	34.0 kg	18.0 kg	53%
Hollander et al. (195)	2007	USA	10	10	18-30	1RM CON – MA	74.1 kg	39.8 kg	54%
Ades et al. (12)	1996	USA	6	6	65-79	1RM – MA	44.0 kg	24.0 kg	55%
Proctor et al. (366)	1999	USA	11	12	45-49	Isometric (°NR)	152.0 ft-lb	84.0 ft-lb	55%
Abe et al. (5)	2000	USA	17	20	25-50	1RM – MA	171.0 kg	93.0 kg	55%
Sood et al. (429)	2012	USA	52	62	50-85	1RM – MA	32.0 kg	17.7 kg	55%
Hoeger et al. (193)	1990	USA	25	26	~25	1RM – MA	72.5 kg	40.3 kg	56%
Bonde-Petersen (53)	1960	DEN	6	4	18-30	Isometric (90°)	1993.0 kg-cm	1128.0 kg-cm	57%
Hakkinen (175)	1993	FIN	10	9	~29	Isometric (107°)	4258.0 N	2445.0 N	57%
Hunter et al. (208)	2002	USA	14	12	61-77	Isometric (110°)	565.0 N	323.0 N	57%
Wu et al. (495)	2016	IRE	11	13	~24	Isometric (110°)	317.9 Nm	179.6 Nm	57%
Ivey et al. (219)	2000	USA	11	11	65-75	1RM – MA	75.1 kg	42.4 kg	57%
Ivey et al. (219)	2000	USA	11	9	20-30	1RM – MA	104.4 kg	60.3 kg	58%
Hakkinen (174)	1993	FIN	10	9	~29	Isometric (107°)	4251.0 N	2509.0 N	59%
Proctor et al. (366)	1999	USA	6	6	20-30	Isometric (°NR)	159.0 ft-lb	94.0 ft-lb	59%
Lemmer et al. (274)	2001	USA	11	10	66-75	1RM – MA	157.0 kg	92.0 kg	59%
Peiffer et al. (348)	2010	AUS	36	57	70-74	1RM – MA	44.2 kg	26.0 kg	59%
Mayhew et al. (300)	2001	USA	113	175	~19	1RM – MA	68.5 kg	40.9 kg	60%
Pincivero et al. (355)	2003	USA	15	15	~24	1RM – MA	81.5 kg	49.0 kg	60%
Seo et al. (411)	2012	KOR	15	15	18-35	1RM – MA	102.0 kg	60.9 kg	60%
McPhee et al. (306)	2014	UK	9	10	~70	Isometric (90°)	167.5 Nm	101.2 Nm	60%
Charlier et al. (77)	2015	BEL	87	35	60-69	Isometric (120°)	160.9 Nm	97.3 Nm	60%
Charlier et al. (77)	2015	BEL	13	7	≥70	Isometric (120°)	141.7 Nm	86.6 Nm	61%
Bellew et al. (35)	2003	USA	11	11	59-83	Isometric (90°)	560.9 N	341.4 N	61%
Bishop et al. (49)	1987	USA	23	25	~21	1RM – MA	33.6 kg	20.5 kg	61%
Danneskiold-Samsøe et al. (100)	2009	DEN	9	23	70-79	Isometric (65°)	159.0 N	96.6 N	61%
McPhee et al. (306)	2014	UK	9	8	~22	Isometric (90°)	286.7 Nm	175.2 Nm	61%
Bonde-Petersen (53)	1960	DEN	6	7	18-30	Isometric (90°)	2135.0 kg-cm	1319.0 kg-cm	62%
Borges and Essen-Gustavsson (54)	1989	SWE	7	3	~70	Isometric (90°)	182.0 Nm	113.0 Nm	62%
Hollander et al. (195)	2007	USA	10	10	18-30	1RM ECC – MA	99.1 kg	61.8 kg	62%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	20	60-69	Isometric (65°)	185.0 N	115.0 N	62%
Ditroilo et al. (116)	2010	ITA	14	30	60-69	Isometric (90°)	177.5 Nm	110.5 Nm	62%
Bagley et al. (26)	2021	UK	16	15	20-69	Isometric (90°)	314.3 Nm	193. Nm	62%
Kosek et al. (250)	2006	USA	13	11	20-35	1RM – MA	673.0 N	397.0 N	62%
Miller et al. (314)	1993	CAN	8	8	19-31	1RM – MA	~44 kg	~27 kg	62%
Sheaff et al. (415)	2010	USA	26	7	18-45	1RM – MA	51.3 kg	31.9 kg	62%
Maughan et al. (296)	1983	SCO	25	25	20-36	Isometric (90°)	783.0 N	493.0 N	63%
Lexell et al. (276)	1995	SWE	6	10	70-77	1RM – NR	19.0 kg	12.0 kg	63%
Peiffer et al. (348)	2010	AUS	51	105	65-69	1RM – MA	46.8 kg	29.7 kg	63%
Abe et al. (10)	2014	USA	32	21	70-83	Isometric (110°)	150.0 Nm	94.0 Nm	63%
Tan et al. (454)	2018	AUS	24	26	19-33	1RM – MA	51.7 kg	32.4 kg	63%
Skelton et al. (426)	1994	UK	10	10	85-89	Isometric (90°)	305.0 N	194.0 N	64%
Callahan et al. (64)	2009	USA	8	8	21-35	Isometric (105°)	224.5 Nm	144.4 Nm	64%
Marcell et al. (286)	2014	USA	59	35	~58	Isometric (135°)	214.0 Nm	135.8 Nm	64%
Ansdell et al. (20)	2017	UK	10	8	~21	Isometric (90°)	599.0 N	384.0 N	64%
Jeon et al. (224)	2019	KOR	6	6	~27	Isometric (°NR)	229.4 Nm	145.7 Nm	64%
Albert et al. (16)	2006	CAN	12	15	~24	Isometric (80°)	677.4 N	438.9 N	65%
O'Brien et al. (340)	2010	UK	10	10	~28	Isometric (°NR)	271.8 Nm	177.5 Nm	65%
Danneskiold-Samsøe et al. (100)	2009	DEN	11	23	40-49	Isometric (65°)	224.0 N	145.0 N	65%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	50-59	Isometric (65°)	198.0 N	129.0 N	65%
Bonde-Petersen (53)	1960	DEN	4	4	18-30	Isometric (90°)	1670.0 kg-cm	1110. kg-cm	66%
Bishop et al. (49)	1987	USA	24(S)	25(S)	~19	1RM – MA	32.3kg	21.4kg	66%
Proctor et al. (366)	1999	USA	12	12	60-79	Isometric (°NR)	115.0 ft-lb	76.0 ft-lb	66%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	20-29	Isometric (65°)	242.0 N	160.0 N	66%
Charlier et al. (77)	2015	BEL	360	249	40-49	Isometric (120°)	181.4 Nm	119.7 Nm	66%
Skelton et al. (426)	1994	UK	10	9	80-84	Isometric (90°)	338.0 N	226.0 N	66%
Skelton et al. (426)	1994	UK	10	10	65-69	Isometric (90°)	432.0 N	290.0 N	67%
Maughan et al. (295)	1986	CAN	12	11	~20	Isometric (°NR)	675.0 N	458.0 N	67%
Charlier et al. (77)	2015	BEL	152	148	30-39	Isometric (120°)	185.1 Nm	123.5 Nm	67%
Rantanen et al. (371)	1997	FIN	101	186	~75	Isometric (120°)	343.0 N	229.0 N	67%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	30-39	Isometric (65°)	236.0 N	157.0 N	67%
Bonde-Petersen (53)	1960	DEN	5	5	18-30	Isometric (90°)	1964.0 kg-cm	1328.0 kg-cm	68%
Skelton et al. (426)	1994	UK	10	10	75-79	Isometric (90°)	363.0 N	247.0 N	68%
Harbo et al. (182)	2012	DEN	80	74	15-83	Isometric (°NR)	246.6 Nm	166.6 Nm	68%
Charlier et al. (77)	2015	BEL	86	48	18-29	Isometric (120°)	183.3 Nm	124.5 Nm	68%
Charlier et al. (77)	2015	BEL	97	79	50-59	Isometric (120°)	168.8 Nm	116.2 Nm	69%
Miller et al. (314)	1993	CAN	8	8	19-31	Isometric (120°)	~255 Nm	~175 Nm	69%
Lexell et al. (276)	1995	SWE	6	10	70-77	1RM – NR	36.0 kg	25.0 kg	69%
Hamnegard et al. (178)	2004	SWE	22	23	22-58	Isometric (90°)	70.1 kgf	48.0 kgf	69%

Deschenes et al. (114)	2012	USA	12	12	~20	Isometric (95°)	105.5 Nm	104.0 Nm	69%
Hakkinen et al. (176)	1995	FIN	10	11	64-73	Isometric (107°)	2591.0 N	1816.0 N	70%
Martin and Rattey (289)	2007	AUS	7	8	~21	Isometric (90°)	438.8 N	309.0 N	70%
Borges and Essen-Gustavsson (54)	1989	SWE	7	5	20-30	Isometric (90°)	251.1 Nm	177.2 Nm	71%
Ordway et al. (343)	2006	USA	16	17	~72	Isometric (120°)	148.0 Nm	105.0 Nm	71%
Kosek et al. (250)	2006	USA	13	12	60-75	1RM – MA	423.0 N	302.0 N	71%
Callahan et al. (64)	2009	USA	8	8	65-80	Isometric (105°)	114.4 Nm	162.0 Nm	71%
Metcalf et al. (311)	2019	AUS	8	8	~25	Isometric (110°)	254.5 Nm	180.6 Nm	71%
Keller et al. (238)	2020	USA	10	10	~23	Isometric (120°)	62.4 kg	44.1 kg	71%
Martin and Rattey (289)	2007	AUS	8	8	~21	Isometric (90°)	444.1 N	318.5 N	72%
Callahan et al. (63)	2014	USA	5	7	65-75	Isometric (110°)	194.1 N	140.5 N	72%
Nishikawa et al. (326)	2017	JPN	15	15	21-32	Isometric (90°)	213.7 Nm	153.2 Nm	72%
Skelton et al. (426)	1994	UK	10	10	70-74	Isometric (90°)	414.0 N	305.0 N	74%
Peiffer et al. (348)	2010	AUS	23	29	≥75	1RM – MA	35.2 kg	26.0 kg	74%
Wust et al. (496)	2008	UK	29	35	19-45	Isometric (~110°)	339.0 N	255.0 N	75%
Hannah et al. (180)	2012	UK	20	20	~22	Isometric (95°)	522.0 N	393.0 N	75%
Wu et al. (495)	2016	IRE	11	9	~66	Isometric (110°)	167.2 Nm	124.7 Nm	75%
Wang et al. (476)	2017	CHI	10	10	~29	Isometric (90°)	166.0 N	126.0 N	76%
Carvalho de Abreu et al. (68)	2021	BZL	150	83	~70	1RM – NR	18.6^	14.2^	76%
Nordgren (327)	1972	SWE	25	23	17-24	Isometric (°NR)	NR	NR	79%
Callahan et al. (63)	2014	USA	5	7	21-35	Isometric (110°)	209.2 N	164.4 N	79%
Clark et al. (81)	2005	USA	11	11	~25	Isometric (120°)	905.0 N	722.1 N	80%
Krivickas et al.(252)	2006	USA	6	10	65-84	1RM – MA	76.0 N	62.0 N	82%
Ades et al. (12)	1996	USA	5	7	65-79	1RM – MA	27.0kg	23.0kg	85%
Wang et al. (476)	2017	CHI	10	10	~29	Isometric (90°)	146.0 N	130. N	89%
Lemmer et al. (274)	2001	USA	10	9	20-30	1RM – MA	160.0 kg	146.0 kg	91%
Hakkinen et al. (176)	1995	FIN	9	9	43-57	Isometric (107°)	2834.0 N	2627.0 N	93%

AUS = Australia; BEL = Belgium; BZL = Brazil; CAN = Canada; CHI = China; FIN = Finland; ECC = eccentric only; DEN = Denmark; F = female; IRE = Ireland; ITA = Italy; KOR = South Korea; M = male; MA = machine; NR = not reported; SCO = Scotland; SWE = Sweden; UK = United Kingdom; USA = United States of America; 1RM = one repetition maximum. *Computed by dividing female group mean by the male group mean then multiplying by 100. ^Units not reported.

Supplementary Table 9. Muscle strength of the knee flexors in men and women.

Reference	Year	Country	M <i>n</i>	F <i>n</i>	Age (yr)	Test type	M mean strength	F mean strength	F% of M strength
Ades et al. (12)	1996	USA	6	6	65-79	1RM – MA	14.0 kg	5.0 kg	36%
Hollander et al. (195)	2007	USA	10	10	18-30	1RM CON – MA	35.0 kg	13.2 kg	38%
Ades et al. (12)	1996	USA	5	7	65-79	1RM – MA	13.0 kg	6.0 kg	46%
Wilmore (491)	1978	USA	16	16	NR	1RM – MA	39.1 kg	18.8 kg	48%
Hoeger et al. (193)	1990	USA	38	40	~35	1RM – MA	33.0 kg	15.8 kg	48%
Hollander et al. (195)	2007	USA	10	10	18-30	1RM ECC – MA	44.1 kg	22.3 kg	51%
Wu et al. (495)	2016	IRE	11	13	~24	Isometric (110°)	176.0 Nm	96.0 Nm	55%
Hoeger et al. (193)	1990	USA	25	26	~25	1RM – MA	38.8 kg	21.7 kg	56%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	50-59	Isometric (30°)	134.0 N	72.8 N	56%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	20	60-69	Isometric (30°)	108.0 N	62.7 N	58%
Seo et al. (411)	2012	KOR	15	15	18-35	1RM – MA	102.2 kg	59.0 kg	58%
Wilmore (491)	1978	USA	10	10	NR	1RM – MA	33.2 kg	19.7 kg	59%
Ordway et al. (343)	2006	USA	16	17	~72	Isometric (120°)	65.0 Nm	39.0 Nm	60%
Danneskiold-Samsøe et al. (100)	2009	DEN	9	23	70-79	Isometric (115°)	93.0 N	56.7 N	61%
Marcell et al. (286)	2014	USA	59	35	~58	Isometric (150°)	138.7 Nm	85.2 Nm	61%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	30-39	Isometric (115°)	134.0 N	84.2 N	63%
Danneskiold-Samsøe et al. (100)	2009	DEN	11	23	40-49	Isometric (115°)	129.0 N	80.7 N	63%
Nordgren (327)	1972	SWE	25	23	17-24	Isometric (°NR)	NR	NR	66%
Pincivero et al. (354)	2003	USA	10	10	~23	Isometric (150°)	83.4 Nm	55.4 Nm	66%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	20-29	Isometric (115°)	132.0 N	88.6 N	67%
Wu et al. (495)	2016	IRE	11	9	~66	Isometric (110°)	82.6 Nm	55.1 Nm	67%

CON = concentric only; ECC = eccentric only; DEN = Denmark; F = female; FW = free weight; IRE = Ireland; ITA = Italy; KOR = South Korea; M = male; MA = machine; NR = not reported; SWE = Sweden; USA = United States of America; 1RM = one repetition maximum. *Computed by dividing female group mean by the male group mean then multiplying by 100.

Supplementary Table 10. Muscle strength of hip muscles in men and women.

Test Reference	Year	Country	M n	F n	Age (yr)	Test type	M mean strength	F mean strength	F% of M strength
Hip extension									
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	30-39	Isometric (75°)	333.0 N	180.0 N	54%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	20	60-69	Isometric (75°)	277.0 N	156.0 N	56%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	50-59	Isometric (75°)	326.0 N	186.0 N	57%
Danneskiold-Samsøe et al. (100)	2009	DEN	9	23	70-79	Isometric (75°)	243.0 N	147.0 N	60%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	20-29	Isometric (75°)	326.0 N	202.0 N	62%
Danneskiold-Samsøe et al. (100)	2009	DEN	11	23	40-49	Isometric (75°)	295.0 N	207.0 N	70%
Nordgren (327)	1972	SWE	25	23	17-24	Isometric (°NR)	NR	NR	72%
Seo et al. (411)	2012	KOR	15	15	18-35	1RM – MA	111.2kg	80.8kg	73%
Hip flexion									
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	50-59	Isometric (15°)	177.0 N	104.0 N	59%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	20-29	Isometric (15°)	184.0 N	115.0 N	63%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	30-39	Isometric (15°)	173.0 N	110.0 N	64%
Harbo et al. (182)	2012	DEN	82	75	15-83	Isometric (°NR)	156.2 Nm	104.4 Nm	67%
Seo et al. (411)	2012	KOR	15	15	18-35	1RM – MA	81.3kg	54.5kg	67%
Nordgren (327)	1972	SWE	25	23	17-24	Isometric (°NR)	NR	NR	69%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	20	60-69	Isometric (15°)	136.0 N	99.1 N	73%
Danneskiold-Samsøe et al. (100)	2009	DEN	9	23	70-79	Isometric (15°)	117.0 N	86.7 N	74%
Danneskiold-Samsøe et al. (100)	2009	DEN	11	23	40-49	Isometric (15°)	152.0 N	121.0 N	80%
Hip abduction									
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	50-59	Isometric (15°)	173.0 N	83.4 N	48%
Kim et al. (246)	2011	KOR	15	15	18-26	Isometric (15°)	35.0 Nm	18.8 Nm	54%
Danneskiold-Samsøe et al. (100)	2009	DEN	9	23	70-79	Isometric (15°)	130.0 N	70.0 N	54%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	20-29	Isometric (15°)	185.0 N	114.0 N	62%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	30-39	Isometric (15°)	163.0 N	102.0 N	63%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	20	60-69	Isometric (15°)	125.0 N	81.9 N	66%
Danneskiold-Samsøe et al. (100)	2009	DEN	11	23	40-49	Isometric (15°)	161.0 N	113.0 N	70%
Nordgren (327)	1972	SWE	25	23	17-24	Isometric (°NR)	NR	NR	70%
Kim et al. (246)	2011	KOR	15	15	65-84	Isometric (15°)	16.6 Nm	15.4 Nm	93%
Hip adduction									
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	50-59	Isometric (30°)	229.0 N	105.0 N	46%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	30-39	Isometric (30°)	209.0 N	113.0 N	54%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	20	60-69	Isometric (30°)	184.0 N	99.7 N	54%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	20-29	Isometric (30°)	217.0 N	124.0 N	57%
Danneskiold-Samsøe et al. (100)	2009	DEN	9	23	70-79	Isometric (30°)	157.0 N	90.6 N	58%
Danneskiold-Samsøe et al. (100)	2009	DEN	11	23	40-49	Isometric (30°)	203.0 N	123.0 N	61%
Nordgren (327)	1972	SWE	25	23	17-24	Isometric (°NR)	NR	NR	63%
Hip internal rotation									
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	50-59	Isometric (15°)	66.0 N	33.6 N	51%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	20	60-69	Isometric (15°)	47.8 N	24.8 N	52%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	20-29	Isometric (15°)	72.7 N	40.6 N	56%
Danneskiold-Samsøe et al. (100)	2009	DEN	11	23	40-49	Isometric (15°)	62.3 N	36.4 N	58%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	30-39	Isometric (15°)	65.7 N	39.6 N	60%
Danneskiold-Samsøe et al. (100)	2009	DEN	9	23	70-79	Isometric (15°)	41.9 N	25.0 N	60%
Hip external rotation									
Danneskiold-Samsøe et al. (100)	2009	DEN	10	20	60-69	Isometric (-15°)	42.0 N	26.8 N	64%
Danneskiold-Samsøe et al. (100)	2009	DEN	11	23	40-49	Isometric (-15°)	51.5 N	34.7 N	67%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	30-39	Isometric (-15°)	53.1 N	37.2 N	70%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	50-59	Isometric (-15°)	48.0 N	34.4 N	72%
Danneskiold-Samsøe et al. (100)	2009	DEN	9	23	70-79	Isometric (-15°)	37.3 N	26.7 N	72%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	20-29	Isometric (-15°)	49.7 N	36.6 N	74%

AUS = Australia; DEN = Denmark; F = female; KOR = South Korea; M = male; MA = machine; NR = not reported; SWE = Sweden; USA = United States of America; 1RM = one repetition maximum. *Computed by dividing female group mean by the male group mean then multiplying by 100.

Supplementary Table 11. Muscle strength of the ankle plantarflexors in men and women.

Reference	Year	Country	M <i>n</i>	F <i>n</i>	Age (yr)	Test type (° plantarflexion)	M mean strength	F mean strength	F% of M strength
Danneskiold-Samsøe et al. (100)	2009	DEN	10	20	60-69	Isometric (0°)	112.0 N	60.9 N	54%
Vandervoort et al. (471)	1986	CAN	13	8	80-100	Isometric (°NR)	94.0 Nm	54.0 Nm	57%
Danneskiold-Samsøe et al. (100)	2009	DEN	9	23	70-79	Isometric (0°)	96.9 N	56.0 N	58%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	30-39	Isometric (0°)	129.0 N	76.2 N	59%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	50-59	Isometric (0°)	135.0 N	80.2 N	59%
Harbo et al. (182)	2012	DEN	80	73	15-83	Isometric (°NR)	43.5 Nm	27.5 Nm	63%
Vandervoort et al. (471)	1986	CAN	11	11	20-32	Isometric (°NR)	171.0 Nm	113.0 Nm	66%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	20-29	Isometric (0°)	142.0 N	94.6 N	67%
Vandervoort et al. (471)	1986	CAN	13	10	60-69	Isometric (°NR)	136.0 Nm	96.0 Nm	71%
Kent-Braun et al. (240)	2002	USA	10	10	25-45	Isometric (30°)	309.4 Nm	218.4 Nm	71%
Kent-Braun et al. (240)	2002	USA	11	10	65-85	Isometric (30°)	247.1 Nm	175.4 Nm	71%
Danneskiold-Samsøe et al. (100)	2009	DEN	11	23	40-49	Isometric (0°)	121.0 N	88.1 N	73%
Vandervoort et al. (471)	1986	CAN	10	10	40-52	Isometric (°NR)	171.0 Nm	127.0 Nm	74%
Nordgren (327)	1972	SWE	25	23	17-24	Isometric (°NR)	NR	NR	76%
Ordway et al. (343)	2006	USA	16	17	~72	Isometric (0°)	65.0 Nm	50.0 Nm	77%
Vandervoort et al. (471)	1986	CAN	16	9	70-79	Isometric (°NR)	121.0 Nm	94.0 Nm	78%
Belanger et al. (33)	1983	CAN	31	15	19-65	Isometric (-10°)	149.8 Nm	117.8 Nm	79%
Weiss et al. (482)	1988	USA	14	14	~21	1RM – FW	98.5 kg	81.0 kg	82%
Lanning et al. (262)	2017	USA	9	8	~22	Isometric (0°)	189.2 Nm	163.2 Nm	86%
Sara et al. (401)	2021	USA	15	15	19-30	Isometric (0°)	148.8 Nm	128.1 Nm	86%

CAN = Canada; DEN = Denmark; F = female; FIN = Finland; M = male; NR = not reported; SWE = Sweden; USA = United States of America; 1RM = one repetition maximum. *Computed by dividing female group mean by the male group mean then multiplying by 100.

Supplementary Table 12. Muscle strength of the ankle dorsiflexors in men and women.

Reference	Year	Country	M <i>n</i>	F <i>n</i>	Age (yr)	Test type (° plantarflexion)	M mean strength	F mean strength	F% of M strength
Cioni et al. (80)	1994	ITA	15	15	~30	Isometric (10°)	36.9 Nm	20.7 Nm	56%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	50-59	Isometric (20°)	42.6 N	25.6 N	60%
Vandervoort et al. (471)	1986	CAN	11	11	20-32	Isometric (°NR)	43.5 Nm	26.6 Nm	61%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	20-29	Isometric (20°)	40.2 N	25.4 N	63%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	30-39	Isometric (20°)	42.6 N	27.2 N	64%
Danneskiold-Samsøe et al. (100)	2009	DEN	11	23	40-49	Isometric (20°)	41.5 N	27.0 N	65%
Russ et al. (395)	2008	USA	8	8	20-35	Isometric (30°)	326.6 N	211.3 N	65%
Belanger et al. (33)	1983	CAN	31	15	19-65	Isometric (20°)	47.4 Nm	31.2 Nm	66%
Behm and Sale (31)	1994	CAN	8	8	~21	Isometric (30°)	50.6 Nm	33.5 Nm	66%
Vandervoort et al. (471)	1986	CAN	13	10	60-69	Isometric (°NR)	36.2 Nm	23.8 Nm	66%
Vandervoort et al. (471)	1986	CAN	16	9	70-79	Isometric (°NR)	31.6 Nm	21.5 Nm	68%
Danneskiold-Samsøe et al. (100)	2009	DEN	9	23	70-79	Isometric (20°)	31.6 N	21.5 N	68%
Vandervoort et al. (471)	1986	CAN	10	10	40-52	Isometric (°NR)	37.2 Nm	25.8 Nm	69%
Vandervoort et al. (471)	1986	CAN	13	8	80-100	Isometric (°NR)	24.2 Nm	16.7 Nm	69%
Nordgren (327)	1972	SWE	25	23	17-24	Isometric (°NR)	NR	NR	71%
O'Leary et al. (341)	1998	CAN	10	10	~21	Isometric (20°)	44.0 Nm	32.0 Nm	73%
Russ et al. (394)	2005	USA	6	6	~26	Isometric (30°)	264.0 N	193.0 N	73%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	20	60-69	Isometric (20°)	33.4 N	25.2 N	75%
Russ et al. (395)	2008	USA	7	9	67-78	Isometric (30°)	230.6 N	170.8 N	74%
Ordway et al. (343)	2006	USA	16	17	~72	Isometric (0°)	28.0 Nm	19.0 Nm	77%

CAN = Canada; DEN = Denmark; F = female; FW = free weight; ITA = Italy; M = male; NR = not reported; SWE = Sweden; USA = United States of America.

*Computed by dividing female group mean by the male group mean then multiplying by 100.

Supplementary Table 13. Muscle strength of the neck flexors and extensors in men and women.

Test Reference	Year	Country	M <i>n</i>	F <i>n</i>	Age (yr)	Test type (° flexion)	M mean strength	F mean strength	F% of M strength
Neck extension									
Garces et al. (160)	2002	SPN	27	15	20-40	Isometric (0°)	253.2 Nm	139.4 Nm	55%
Strimpakos et al. (443)	2004	GRC	17	16	19-63	Isometric (0°)	302.0 Nm	178.0 Nm	59%
Valkeinen et al. (469)	2002	FIN	29	28	18-55	Isometric (°NR)	270.0 N	170.0 N	61%
Garces et al. (160)	2002	SPN	13	13	41-60	Isometric (0°)	192.1 Nm	135.8 Nm	71%
Garces et al. (160)	2002	SPN	11	15	≥61	Isometric (0°)	143.6 Nm	102.2 Nm	71%
Kumar et al. (259)	2001	CAN	21	19	~24	Isometric (°NR)	100.0 N	72.0 N	72%
Jordan et al. (231)	1999	DEN	10	10	21-30	Isometric (-30°)	65.1 Nm	52.7 Nm	81%
Jordan et al. (231)	1999	DEN	10	10	31-39	Isometric (-30°)	64.7 Nm	53.4 Nm	83%
Suryanarayana and Kumar (450)	2005	CAN	19	20	18-30	Isometric (0°)	45.1 N	39.5 N	88%
Jordan et al. (231)	1999	DEN	10	10	41-49	Isometric (-30°)	57.0 Nm	51.3 Nm	90%
Jordan et al. (231)	1999	DEN	10	10	51-59	Isometric (-30°)	54.7 Nm	51.4 Nm	94%
Jordan et al. (231)	1999	DEN	10	10	60-69	Isometric (-30°)	36.7 Nm	44.8 Nm	122%
Neck flexion									
Strimpakos et al. (443)	2004	GRC	17	16	19-63	Isometric (0°)	228.7 Nm	100.7 Nm	43%
Valkeinen et al. (469)	2002	FIN	29	28	18-55	Isometric (°NR)	151.0 N	75.0 N	50%
Garces et al. (160)	2002	SPN	27	15	20-40	Isometric (0°)	211.2 Nm	116.1 Nm	55%
Kumar et al. (259)	2001	CAN	21	19	~24	Isometric (°NR)	72.0 N	41.0 N	57%
Suryanarayana and Kumar (450)	2005	CAN	19	20	18-30	Isometric (0°)	31.4 N	19.8 N	63%
Jordan et al. (231)	1999	DEN	10	10	21-30	Isometric (30°)	36.5 Nm	26.0 Nm	71%
Garces et al. (160)	2002	SPN	13	13	41-60	Isometric (0°)	155.1 Nm	110.9 Nm	72%
Garces et al. (160)	2002	SPN	11	15	≥61	Isometric (0°)	111.2 Nm	85.6 Nm	77%
Jordan et al. (231)	1999	DEN	10	10	51-59	Isometric (30°)	33.3 Nm	26.5 Nm	80%
Jordan et al. (231)	1999	DEN	10	10	41-49	Isometric (30°)	31.9 Nm	25.9 Nm	81%
Jordan et al. (231)	1999	DEN	10	10	31-39	Isometric (30°)	36.4 Nm	32.4 Nm	89%
Jordan et al. (231)	1999	DEN	10	10	60-69	Isometric (30°)	23.6 Nm	22.4 Nm	95%

CAN = Canada; DEN = Denmark; F = female; FIN = Finland; GRC = Greece; M = male; NR = not reported; SPN = Spain. *Computed by dividing female group mean by the male group mean then multiplying by 100.

Supplementary Table 14. Muscle strength of the trunk flexors and extensors in men and women.

Test Reference	Year	Country	M n	F n	Age (yr)	Test type (° flexion)	M mean strength	F mean strength	F% of M strength
Trunk – all									
Laubach (269)	1976	Review	369	178	19-40	Multiple	NR	NR	64%
Trunk extension									
Xiao et al.(497)	2005	CHI	146	47	NR	Isometric (~0°)	88.6^	41.0^	46%
Quetelet (368)	1842	BEL	≥10	≥10	~25	Isometric (°NR)	15.5^	7.7^	50%
Mayhew and Salm (301)	1990	USA	82	99	~19	Isometric (45°)	1351.6 N	709.6 N	53%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	50-59	Isometric (0°)	339.0 N	186.0 N	55%
Feeler et al. (142)	2010	USA	93,611	19,470	NR	Isometric (°NR)	100.2 kg	56.4 kg	56%
Quetelet (368)	1842	BEL	≥10	≥10	~50	Isometric (°NR)	10.1^	5.9^	58%
Kumar (257)	1996	CAN	59	43	~31	Isometric (0°)	321.0 Nm	185.0 Nm	58%
Kroll et al. (253)	2000	USA	19	37	18-65	Isometric (10°)	118.6 ft-lb	69.4 ft-lb	58%
Arnold et al. (22)	1982	USA	168	81	NR	Isometric (°NR)	58.8 kg	34.8 kg	59%
Rantanen et al. (371)	1997	FIN	101	186	~75	Isometric (°NR)	583.0 N	350.0 N	60%
Paalanne et al. (344)	2009	FIN	381	493	~19	Isometric (°NR)	94.1 kg	56.8 kg	60%
Clark et al. (82)	2002	USA	10	10	~22	Isometric (15°)	71.1kg	43.3 kg	61%
Cavuoto et al. (71)	2009	USA	71	71	~31	Isometric (5°)	137.6 Nm	83.6 Nm	61%
Wibowo et al. (487)	2013	INDO	76	80	~37	Isometric (°NR)	77.4 Nm	47.5 Nm	61%
Roy et al. (393)	2003	USA	10	9	~27	Isometric (0°)	124.2 Nm	77.7 Nm	63%
Wibowo et al. (487)	2013	INDO	80	85	~37	Isometric (°NR)	73.6 Nm	46.8 Nm	64%
Danneskiold-Samsøe et al. (100)	2009	DEN	9	23	70-79	Isometric (0°)	236.0 N	154.0 N	65%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	30-39	Isometric (0°)	318.0 N	209.0 N	66%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	20	60-69	Isometric (0°)	268.0 N	176.0 N	66%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	20-29	Isometric (0°)	336.0 N	232.0 N	69%
Kumar et al. (258)	1988	CAN	10	10	~25	Isometric (°NR)	NR	NR	69%
Nordgren (327)	1972	SWE	25	23	17-24	Isometric (°NR)	NR	NR	70%
Danneskiold-Samsøe et al. (100)	2009	DEN	11	23	40-49	Isometric (0°)	290.0 N	227.0 N	78%
Stuart et al. (446)	2018	UK	9	8	~22	Isometric (18°)	355.2 Nm	277.4 Nm	78%
Trunk flexion									
Kroll et al. (253)	2000	USA	19	37	18-65	Isometric (0°)	92.7 ft-lb	40.3 ft-lb	43%
Paalanne et al. (344)	2009	FIN	381	493	~19	Isometric (°NR)	69.3 kg	35.2 kg	51%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	50-59	Isometric (0°)	147.0 N	81.2 N	55%
Rantanen et al. (371)	1997	FIN	101	186	~75	Isometric (°NR)	507.0 N	300.0 N	59%
Kumar (257)	1996	CAN	59	43	~31	Isometric (0°)	194.0 Nm	114.0 Nm	59%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	20	60-69	Isometric (0°)	118.0 N	74.3 N	63%
Danneskiold-Samsøe et al. (100)	2009	DEN	9	23	70-79	Isometric (0°)	108.0 N	69.7 N	65%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	20-29	Isometric (0°)	147.0 N	96.5 N	66%
Danneskiold-Samsøe et al. (100)	2009	DEN	10	18	30-39	Isometric (0°)	143.0 N	95.1 N	67%
Deering et al. (111)	2017	USA	15	18	~24	Isometric (20°)	~95.0 Nm	~70.0 Nm	74%
Danneskiold-Samsøe et al. (100)	2009	DEN	11	23	40-49	Isometric (0°)	127.0 N	95.0 N	75%

BEL = Belgium; CAN = Canada; CHI = China; DEN = Denmark; F = female; FIN = Finland; INDO = Indonesia; M = male; NR = not reported; SWE = Sweden; USA = United States of America. *Computed by dividing female group mean by the male group mean then multiplying by 100. ^Units not reported.

Supplementary Table 15. Muscle endurance in men and women as measured by the maximum number of repetitions completed at equal relative loads for various exercises.

Test Reference	Year	Country	M <i>n</i>	F <i>n</i>	Age (yr)	Load	M mean repetitions	F mean repetitions	F/M ratio
Bench or chest press									
Hoeger et al. (193)	1990	USA	38	40	~35	60% 1RM	19.7	20.3	1.03
Hoeger et al. (193)	1990	USA	25	26	~25	60% 1RM	22.6	27.9	1.23
Mayhew et al. (299)	2011	USA	41	33	~19	65% 1RM	19.0	19.1	1.00
Peiffer et al. (348)	2010	AUS	51	105	65-69	70% 1RM	12.0	10.0	0.88
Peiffer et al. (348)	2010	AUS	36	57	70-74	70% 1RM	11.0	10.0	0.91
Peiffer et al. (348)	2010	AUS	23	29	≥75	70% 1RM	10.0	9.0	0.90
Hoeger et al. (193)	1990	USA	38	40	~35	80% 1RM	9.8	10.3	1.05
Hoeger et al. (193)	1990	USA	25	26	~25	80% 1RM	12.2	14.3	1.17
Flanagan et al. (148)	2014	USA	10	10	~25	85% 1RM	6.6	6.2	0.94
Mayhew et al. (299)	2011	USA	41	33	~19	90% 1RM	4.3	5.0	1.16
Lat pulldown									
Hoeger et al. (193)	1990	USA	38	40	~35	40% 1RM	41.5	45.9	1.11
Hoeger et al. (193)	1990	USA	25	26	~25	40% 1RM	42.9	81.3	1.90
Hoeger et al. (193)	1990	USA	25	26	~25	60% 1RM	23.5	25.2	1.07
Hoeger et al. (193)	1990	USA	38	40	~35	60% 1RM	19.7	23.7	1.20
Hoeger et al. (193)	1990	USA	25	26	~25	80% 1RM	12.2	10.2	0.84
Hoeger et al. (193)	1990	USA	38	40	~35	80% 1RM	9.8	10.0	1.02
Biceps curl									
Hoeger et al. (193)	1990	USA	25	26	~25	40% 1RM	35.3	33.4	0.95
Hoeger et al. (193)	1990	USA	38	40	~35	40% 1RM	24.3	24.8	1.02
Maughan et al. (295)	1986	CAN	12	11	~20	50% 1RM	34.8	66.5	1.91
Hoeger et al. (193)	1990	USA	25	26	~25	60% 1RM	21.3	16.3	0.77
Hoeger et al. (193)	1990	USA	38	40	~35	60% 1RM	15.3	13.8	0.90
Maughan et al. (295)	1986	CAN	12	11	~20	60% 1RM	20.0	33.3	1.67
Miller et al. (314)	1993	CAN	8	8	19-31	60% 1RM	21.0	37.0	1.76
Maughan et al. (295)	1986	CAN	12	11	~20	70% 1RM	12.0	17.0	1.42
Hoeger et al. (193)	1990	USA	25	26	~25	80% 1RM	11.4	6.9	0.61
Hoeger et al. (193)	1990	USA	38	40	~35	80% 1RM	7.6	5.9	0.78
Maughan et al. (295)	1986	CAN	12	11	~20	80% 1RM	8.0	9.1	1.14
Maughan et al. (295)	1986	CAN	12	11	~20	90% 1RM	3.5	3.7	1.06
Squat									
Flanagan et al. (148)	2014	USA	10	10	~25	85% 1RM	9.2	7.7	0.84
Leg press									
Hoeger et al. (193)	1990	USA	38	40	~35	40% 1RM	80.1	83.6	1.04
Hoeger et al. (193)	1990	USA	25	26	~25	40% 1RM	77.6	146.1	1.88
Hoeger et al. (193)	1990	USA	38	40	~35	60% 1RM	33.9	38.0	1.12
Hoeger et al. (193)	1990	USA	25	26	~25	60% 1RM	45.5	57.3	1.26
Peiffer et al. (348)	2010	AUS	51	105	65-69	70% 1RM	19.0	13.0	0.68
Peiffer et al. (348)	2010	AUS	36	57	70-74	70% 1RM	15.0	13.0	0.87
Peiffer et al. (348)	2010	AUS	23	29	≥75	70% 1RM	16.0	13.0	0.81
Hoeger et al. (193)	1990	USA	38	40	~35	80% 1RM	15.2	11.9	0.78
Hoeger et al. (193)	1990	USA	25	26	~25	80% 1RM	19.4	22.4	1.15
Knee extension									
Hoeger et al. (193)	1990	USA	38	40	~35	40% 1RM	23.4	19.2	0.82
Hoeger et al. (193)	1990	USA	25	26	~25	40% 1RM	32.9	28.5	0.87
Miller et al. (314)	1993	CAN	8	8	19-31	40% 1RM	NR	NR	~1.00
Hoeger et al. (193)	1990	USA	38	40	~35	60% 1RM	15.4	13.4	0.87
Hoeger et al. (193)	1990	USA	25	26	~25	60% 1RM	18.3	16.5	0.90
Miller et al. (314)	1993	CAN	8	8	19-31	60% 1RM	NR	NR	~1.00
Hoeger et al. (193)	1990	USA	25	26	~25	80% 1RM	11.6	9.4	0.81
Hoeger et al. (193)	1990	USA	38	40	~35	80% 1RM	9.3	7.9	0.85
Trunk extension									
Stuart et al. (446)	2018	UK	9	8	~22	50% 1RM	133.3 sec	174.0 sec	1.31
Stuart et al. (446)	2018	UK	9	8	~22	80% 1RM	57.7 sec	62.4 sec	1.08

CAN = Canada; F = female; M = male; UK = United Kingdom; USA = United States of America; 1RM = one repetition maximum.

Supplementary Table 16. Voluntary activation of upper- and lower-limb muscles in men and women.

Muscle group Reference	Year	Country	M <i>n</i>	F <i>n</i>	Age (yr)	Method	M mean VA (%)	F mean VA (%)	F% of M VA*
Elbow flexors									
Hunter et al. (212)	2006	AUS	9	8	~25	TMS	96.5	93.0	96%
Molenaar et al. (319)	2013	AUS	5	5	~34	TMS	98.2	94.1	96%
Keller et al. (239)	2011	USA	10	10	~20	TMS	93.2	92.1	99%
Molenaar et al. (319)	2013	AUS	5	5	~26	TMS	95.5	94.7	99%
Molenaar et al. (319)	2013	AUS	5	4	~44	TMS	96.1	94.4	98%
Molenaar et al. (319)	2013	AUS	4	2	~74	TMS	96.3	95.4	99%
Yoon et al. (499)	2015	USA	9	9	18-26	TMS	89.2	89.4	100%
Kavanagh et al. (236)	2020	AUS	7	7	~22	PNES	98.4	98.2	100%
Molenaar et al. (319)	2013	AUS	6	6	~64	TMS	95.3	95.5	100%
Molenaar et al. (319)	2013	AUS	5	4	~53	TMS	95.9	97.1	101%
Yoon et al. (500)	2007	USA	9	9	21-33	PNES	95.6	97.7	102%
Yoon et al. (499)	2015	USA	9	9	66-84	TMS	87.2	89.6	103%
Knee extensors									
Wust et al. (496)	2008	UK	29	35	19-45	PNES	93.4	90.1	97%
O'Brien et al. (340)	2010	UK	10	10	~28	PNES	86.7	86.1	99%
Martin and Rattey (289)	2007	AUS	7	8	~21	PNES	92.7	92.5	100%
McPhee et al. (306)	2014	UK	9	10	~70	PNES	86.9	87.2	100%
Martin and Rattey (289)	2007	AUS	8	8	~21	PNES	90.4	92.7	103%
McPhee et al. (306)	2014	UK	9	8	~22	PNES	89.6	92.9	104%
Ankle plantarflexors									
Sara et al. (401)	2021	USA	15	15	19-30	PNES	91.5	90.9	99%
Rantalainen et al. (370)	2008	FIN	20	20	~24	PNES	92.7	93.7	101%

AUS = Australia; F = female; FIN = Finland; M = male; PNES = peripheral nerve electrical stimulation; TMS = transcranial magnetic stimulation; UK = United Kingdom; USA = United States of America; VA = voluntary activation (i.e., $(1 - \text{superimposed twitch} / \text{resting twitch}) \times 100$). Studies that quantified voluntary activation via the central activation ratio were not included in this table. *Computed by dividing female group mean by male group mean then multiplying by 100.

Supplementary Table 17. Muscle twitch forces from peripheral nerve stimulation in men and women.

Muscle group Reference	Year	Country	M n	F n	Age (yr)	Method	M mean twitch	F mean twitch	F% of M twitch*
Elbow flexors									
O'Hagan et al. (337)	1993	CAN	18	15	~21-27	PNES	~9.5 Nm	~3.0 Nm	~32%
Kavanagh et al. (236)	2020	AUS	7	7	~22	PNES	14.4 Nm	5.7 Nm	40%
Miller et al. (314)	1993	CAN	8	8	19-31	PNES	9.5 Nm	4.6 Nm	48%
Yoon et al. (500)	2007	USA	9	9	21-33	PNES	8.2 Nm	5.9 Nm	72%
Knee extensors									
Hammegard et al. (178)	2004	SWE	22	23	22-58	PNMS	9.8 kgf	7.3 kgf	75%
Ankle plantarflexors									
Kent-Braun et al. (240)	2002	USA	10	10	25-45	PNES	20.5 N	13.4 N	65%
Vandervoort et al. (471)	1986	CAN	13	8	80-100	PNES	11.9 Nm	8.6 Nm	72%
Belanger et al. (32)	1981	CAN	17	11	19-45	PNES	18.6 Nm	14.5 Nm	78%
Kent-Braun et al. (240)	2002	USA	11	10	65-85	PNES	22.5 N	17.5 N	78%
Sara et al. (401)	2021	USA	15	15	19-30	PNES	32.6 Nm	25.7 Nm	79%
Belanger et al. (33)	1983	CAN	31	15	19-65	PNES	19.1 Nm	16.6 Nm	87%
Vandervoort et al. (471)	1986	CAN	11	11	20-32	PNES	15.5 Nm	13.6 Nm	88%
Vandervoort et al. (471)	1986	CAN	13	10	60-69	PNES	13.4 Nm	11.9 Nm	89%
Vandervoort et al. (471)	1986	CAN	10	10	40-52	PNES	16.3 Nm	14.5 Nm	89%
Vandervoort et al. (471)	1986	CAN	16	9	70-79	PNES	13.4 Nm	13.0 Nm	97%
Ankle dorsiflexors									
Belanger et al. (33)	1983	CAN	31	15	19-65	PNES	2.7 Nm	0.9 Nm	32%
Belanger et al. (32)	1981	CAN	17	10	19-45	PNES	3.4 Nm	1.6 Nm	47%
Vandervoort et al. (471)	1986	CAN	16	9	70-79	PNES	3.3 Nm	1.8 Nm	55%
O'Leary et al. (341)	1998	CAN	10	10	~21	PNES	4.6 Nm	2.7 Nm	59%
Behm and Sale (31)	1994	CAN	8	8	~21	PNES	5.3 Nm	3.3 Nm	62%
Vandervoort et al. (471)	1986	CAN	11	11	20-32	PNES	4.2 Nm	2.7 Nm	64%
Vandervoort et al. (471)	1986	CAN	13	8	80-100	PNES	2.6 Nm	1.7 Nm	65%
Russ et al. (395)	2008	USA	8	8	20-35	PNES	24.0 N	16.7 N	70%
Vandervoort et al. (471)	1986	CAN	10	10	40-52	PNES	4.5 Nm	3.7 Nm	82%
Vandervoort et al. (471)	1986	CAN	13	10	60-69	PNES	3.3 Nm	2.8 Nm	85%
Russ et al. (395)	2008	USA	7	9	67-78	PNES	21.5 N	21.9 N	102%

AUS = Australia; CAN = Canada; F = female; M = male; PNES = peripheral nerve electrical stimulation; PNMS = peripheral nerve magnetic stimulation; SWE = Sweden; TMS = transcranial magnetic stimulation; USA = United States of America. *Computed by dividing female group mean by male group mean then multiplying by 100.

Supplementary Table 18. Total body lean body mass (LBM), fat free mass (FFM), skeletal muscle mass (SMM), and appendicular skeletal muscle mass (ASMM) mass in men and women as determined by imaging.

Body segment Reference	Year	Country	M n	F n	Age (yr)	Imaging tool	Measure	M mean	F mean	F% of M*
Total lean body mass (LBM)										
Ofenheimer et al. (342)	2020	AUT	5147	5747	18-82	DEXA	LBM	56.3 kg	39.7 kg	65%
Leenders et al. (273)	2013	NLD	29	24	~70	DEXA	LBM	62.2 kg	42.5 kg	68%
Larsson et al. (264)	2004	SWE	515	604	37-61	DEXA	LBM	62.1 kg	42.3 kg	68%
Takai et al. (453)	2014	JPN	33	44	52-78	DEXA	LBM	51.8 kg	35.7 kg	69%
Lee et al. (270)	2017	USA	5239	4519	~43	DEXA	LBM	58.3 kg	40.1 kg	69%
Lee et al. (270)	2017	USA	2292	2015	~43	DEXA	LBM	58.0 kg	39.9 kg	69%
Lee et al. (272)	2018	KOR	213	294	20-90	DEXA	LBM	49.3 kg	34.0 kg	69%
Abe et al. (8)	2015	USA	40	39	50-78	DEXA	LBM	63.2 kg	44.3 kg	70%
Yasuda et al. (498)	2007	CAN	13	14	~21	MRI	LBM	64.1 kg	45.2 kg	71%
Peiffer et al. (348)	2010	AUS	110	191	>65	DEXA	LBM	58.5 kg	42.1 kg	72%
Kulkarni et al. (255)	2013	AUS	570	318	18-79	DEXA	LBM	45.2 kg	32.5 kg	72%
Kitamura et al. (248)	2014	JPN	204	216	40-49	DEXA	LBM	50.4 kg	36.3 kg	72%
Kitamura et al. (248)	2014	JPN	234	218	50-59	DEXA	LBM	48.6 kg	35.5 kg	73%
Kitamura et al. (248)	2014	JPN	196	177	60-69	DEXA	LBM	45.8 kg	34.0 kg	74%
Kitamura et al. (248)	2014	JPN	114	95	70-79	DEXA	LBM	43.5 kg	32.4 kg	74%
Larsson et al. (263)	2006	SWE	9	43	~24	DEXA	LBM	59.0 kg	47.0 kg	80%
Total fat free mas (FFM)										
Lindle et al. (278)	1997	USA	30	57	35-49	DEXA	FFM	58.6 kg	39.8 kg	68%
Proctor et al. (366)	1999	USA	11	12	45-49	DEXA	FFM	59.7 kg	40.3 kg	68%
Lemmer et al. (274)	2001	USA	10	9	65-75	DEXA	FFM	62.9 kg	42.9 kg	68%
Lindle et al. (278)	1997	USA	14	18	20-34	DEXA	FFM	61.4 kg	42.4 kg	69%
Lindle et al. (278)	1997	USA	35	37	50-64	DEXA	FFM	56.1 kg	38.9 kg	69%
Walts et al. (475)	2008	USA	78	92	50-85	DEXA	FFM	60.3 kg	42.5 kg	70%
Proctor et al. (366)	1999	USA	6	6	20-30	DEXA	FFM	59.0 kg	41.8 kg	71%
Kyle et al. (260)	2001	SWZ	253	180	18-94	DEXA	FFM	60.4 kg	42.8 kg	71%
Abe et al. (6)	2003	JPN	10	10	~21	MRI	FFM	56.3 kg	40.8 kg	72%
Sood et al. (429)	2012	USA	52	62	50-85	DEXA	FFM	61.3 kg	44.0 kg	72%
Jensen et al. (223)	2019	GER	87	88	~38	DEXA	FFM	66.0 kg	47.8 kg	72%
Lindle et al. (278)	1997	USA	32	11	65-80	DEXA	FFM	53.8 kg	39.1 kg	73%
Lemmer et al. (274)	2001	USA	11	10	65-75	DEXA	FFM	56.5 kg	41.1 kg	73%
Delmonico et al. (112)	2005	USA	30	32	50-74	DEXA	FFM	59.7 kg	43.5 kg	73%
Proctor et al. (366)	1999	USA	12	12	60-79	DEXA	FFM	58.0 kg	42.8 kg	74%
Kulkarni et al. (255)	2013	AUS	851	481	18-79	DEXA	FFM	44.8 kg	33.6 kg	75%
Total skeletal muscle mass (SMM)										
Kim et al. (245)	2002	USA	145	176	18-92	MRI	SMM	33.2 kg	20.3 kg	61%
Abe et al. (6)	2003	JPN	10	10	~21	MRI	SMM	22.3 kg	13.5 kg	61%
Janssen et al. (220)	2000	USA	268	200	18-69	MRI	SMM	33.0 kg	21.0 kg	64%
Lee et al. (271)	2000	USA	135	109	20-81	MRI	SMM	32.6 kg	20.9 kg	64%
Silva et al. (421)	2010	USA	468	1280	18-80	DEXA	SMM	32.4 kg	21.1 kg	65%
Kim et al. (245)	2002	USA	26	67	18-92	MRI	SMM	33.1 kg	21.7 kg	66%
Total appendicular SMM										
Coin et al. (90)	2013	ITA	83	57	20-29	DEXA	ASMM	28.2 kg	16.8 kg	60%
Coin et al. (90)	2013	ITA	33	26	30-39	DEXA	ASMM	27.4 kg	17.0 kg	62%
Coin et al. (90)	2013	ITA	34	131	40-49	DEXA	ASMM	27.0 kg	16.7 kg	62%
Coin et al. (90)	2013	ITA	25	179	70-80	DEXA	ASMM	24.5 kg	15.5 kg	63%
Iannuzzi-Sucih et al. (216)	2002	USA	142	195	64-93	DEXA	ASMM	23.9 kg	15.2 kg	64%
Shafiee et al. (413)	2018	IRN	381	310	18-94	DEXA	ASMM	19.9 kg	13.0 kg	65%
Coin et al. (90)	2013	ITA	80	450	50-59	DEXA	ASMM	26.0 kg	16.8 kg	65%
Coin et al. (90)	2013	ITA	100	366	60-69	DEXA	ASMM	25.0 kg	16.6 kg	66%
Abe et al. (8)	2015	USA	40	39	50-78	DEXA	ALM	28.4 kg	18.7 kg	66%
Kawakami et al. (237)	2021	JPN	590	297	40-85	DEXA	ASMM	23.2 kg	15.3 kg	66%
Kyle et al. (260)	2001	SWZ	253	180	18-94	DEXA	ASMM	25.8 kg	17.2 kg	67%
Jensen et al. (223)	2019	GER	87	88	~38	MRI	ASMM	32.5 kg	21.7 kg	67%
Lee et al. (272)	2018	KOR	213	294	20-90	DEXA	ASMM	19.9 kg	13.5 kg	68%
Kawakami et al. (237)	2021	JPN	247	128	40-87	DEXA	ASMM	22.9 kg	15.5 kg	68%

ALM = appendicular lean mass; ASMM = appendicular skeletal muscle mass; AUS = Australia; AUT = Austria; CT = computerized tomography; DEXA = dual-energy X-ray absorptiometry; F = female; FFM = fat free mass; GER = Germany; IRN = Iran; ITA = Italy; JPN = Japan; KOR = South Korea; M = male; MRI = magnetic resonance imaging; LBM = lean body mass; LM = lean mass; NLD = Netherlands; SMM = skeletal muscle mass; SWE = Sweden; SWZ = Switzerland; USA = United States of America. *Computed by dividing female group mean by male group mean then multiplying by 100.

Supplementary Table 19. Upper-limb lean mass (LM) and skeletal muscle mass (SMM) in men and women as determined by imaging.

Body segment Reference	Year	Country	M <i>n</i>	F <i>n</i>	Age (yr)	Imaging tool	Measure	M mean	F mean	F% of M*
Upper-limb + trunk										
Janssen et al. (220)	2000	USA	268	200	18-69	MRI	LM	14.1 kg	8.4 kg	60%
Upper limbs - all										
Coin et al. (90)	2013	ITA	83	57	20-29	DEXA	LM	~7.6 kg	~3.9 kg	~51%
Coin et al. (90)	2013	ITA	34	131	40-49	DEXA	LM	~7.7 kg	~4.1 kg	~53%
Coin et al. (90)	2013	ITA	33	26	30-39	DEXA	LM	~7.6 kg	4.1 kg	~54%
Coin et al. (90)	2013	ITA	25	179	70-80	DEXA	LM	~6.6 kg	~3.7 kg	~56%
Gallagher et al. (158)	1997	USA	64	68	~45	DEXA	SMM	7.2 kg	4.1 kg	57%
Abe et al. (6)	2003	JPN	10	10	~21	MRI	SMM	2.3 kg	1.2 kg	57%
Coin et al. (90)	2013	ITA	80	450	50-59	DEXA	LM	~7.4 kg	4.2 kg	~57%
Coin et al. (90)	2013	ITA	100	366	60-69	DEXA	LM	~7.2 kg	~4.1 kg	~57%
Abe et al. (8)	2015	USA	40	39	50-78	DEXA	LM	7.5 kg	4.3 kg	57%
Kitamura et al. (248)	2014	JPN	204	216	40-49	DEXA	LM	6.0 kg	3.6 kg	60%
Kitamura et al. (248)	2014	JPN	234	218	50-59	DEXA	LM	5.7 kg	3.5 kg	61%
Silva et al. (421)	2010	USA	468	1280	18-80	DEXA	SMM	7.5 kg	4.6 kg	61%
Kitamura et al. (248)	2014	JPN	196	177	60-69	DEXA	LM	5.4 kg	3.4 kg	63%
Kitamura et al. (248)	2014	JPN	114	95	70-79	DEXA	LM	5.0 kg	3.2 kg	64%
Gallagher et al. (158)	1997	USA	72	80	~50	DEXA	SMM	7.7 kg	4.9 kg	64%

DEXA = dual-energy X-ray absorptiometry; F = female; ITA = Italy; JPN = Japan; M = male; MRI = magnetic resonance imaging; LM = lean mass; SMM = skeletal muscle mass; USA = United States of America. *Computed by dividing female group mean by male group mean then multiplying by 100.

Supplementary Table 20. Lower-limb lean mass (LM), fat free mass (FFM) and skeletal muscle mass (SMM) in men and women as determined by imaging.

Body segment Reference	Year	Country	M n	F n	Age (yr)	Imaging tool	Measure	M mean	F mean	F% of M*
Lower limbs - all										
Coin et al. (90)	2013	ITA	83	57	20-29	DEXA	LM	~21 kg	~13 kg	~62%
Coin et al. (90)	2013	ITA	33	26	30-39	DEXA	LM	~20 kg	~13 kg	~65%
Coin et al. (90)	2013	ITA	25	179	70-80	DEXA	LM	~18 kg	~12 kg	~67%
Janssen et al. (220)	2000	USA	268	200	18-69	MRI	SMM	18.1 kg	12.2 kg	67%
Coin et al. (90)	2013	ITA	34	131	40-49	DEXA	LM	~19 kg	~13 kg	~68%
Coin et al. (90)	2013	ITA	80	450	50-59	DEXA	LM	~19 kg	~13 kg	~68%
Shih et al. (420)	2000	USA	104	103	~43	MRI	SMM	14.4 kg	9.8 kg	68%
Gallagher et al. (158)	1997	USA	64	68	~45	DEXA	SMM	21.1 kg	14.5 kg	69%
Silva et al. (421)	2010	USA	468	1280	18-80	DEXA	SMM	21.1 kg	14.6 kg	69%
Abe et al. (8)	2015	USA	40	39	50-78	DEXA	LM	20.9 kg	14.4 kg	69%
Leenders et al. (273)	2013	NLD	29	24	~70	DEXA	LM	19.8 kg	13.6 kg	69%
Kitamura et al. (248)	2014	JPN	204	216	40-49	DEXA	LM	15.9 kg	11.2 kg	70%
Kitamura et al. (248)	2014	JPN	234	218	50-59	DEXA	LM	15.1 kg	10.9 kg	72%
Coin et al. (90)	2013	ITA	100	366	60-69	DEXA	LM	~18 kg	~13 kg	~72%
Gallagher et al. (158)	1997	USA	72	80	~50	DEXA	SMM	21.7 kg	15.6 kg	72%
Visser et al. (472)	2000	NLD	216	233	~75	DEXA	SMM	15.2 kg	10.9 kg	72%
Kitamura et al. (248)	2014	JPN	114	95	70-79	DEXA	LM	13.5 kg	9.9 kg	73%
Kitamura et al. (248)	2014	JPN	196	177	60-69	DEXA	LM	14.1 kg	10.4 kg	74%
Lower limbs - thigh only										
Lindle et al. (278)	1997	USA	32	11	65-80	DEXA	FFM	6.1 kg	1.9 kg	31%
Abe et al. (6)	2003	JPN	10	10	~21	MRI	SMM	8.0 kg	5.0 kg	63%
Lindle et al. (278)	1997	USA	30	57	35-49	DEXA	FFM	6.7 kg	4.5 kg	67%
Lindle et al. (278)	1997	USA	35	37	50-64	DEXA	FFM	6.4 kg	4.4 kg	69%
Lindle et al. (278)	1997	USA	14	18	20-34	DEXA	FFM	7.0 kg	5.1 kg	73%
Lower limbs - shank only										
Abe et al. (6)	2003	JPN	10	10	~21	MRI	SMM	2.4 kg	1.8 kg	75%

DEXA = dual-energy X-ray absorptiometry; F = female; FFM = fat free mass; IRN = Iran; JPN = Japan; M = male; MRI = magnetic resonance imaging; LBM = lean body mass; LM = lean mass; NLD = Netherlands; SMM = skeletal muscle mass; USA = United States of America. *Computed by dividing female group mean by male group mean then multiplying by 100.

Supplementary Table 21. Upper-body muscle size in men and women as determined by imaging.

Muscle Reference	Year	Country	M n	F n	Age (yr)	Imaging tool	Measure	M mean	F mean	F% of M*
Pectoralis major										
Abe et al. (5)	2000	USA	6	7	25-50	US	Thickness	2.82 cm	1.39 cm	49%
Abe et al. (5)	2000	USA	17	20	25-50	US	Thickness	3.01 cm	1.58 cm	53%
Abe et al. (3)	1998	JPN	29	22	~20	US	Thickness	3.71 cm	2.33 cm	63%
Biceps brachii										
Alway et al. (17)	1989	USA	8(BB)	5(BB)	~35	CT	CSA	~33.0 cm ²	~15.0 cm ²	~45%
Sale et al. (396)	1987	CAN	13	8	~22	CT	CSA	~14.5 cm ²	~7.0 cm ²	~48%
O'Hagan et al. (338)	1995	CAN	6	6	~20	CT	CSA	~15.0 cm ²	~7.5 cm ²	~50%
Abe et al. (5)	2000	USA	6	7	25-50	US	Thickness	3.27 cm	1.80 cm	55%
Tanton et al. (456)	2009	USA	20	21	65-86	MRI	CSA	18.8 cm ²	10.6 cm ²	56%
Tanton et al. (456)	2009	USA	20	21	18-39	MRI	CSA	19.8 cm ²	11.3 cm ²	57%
Miller et al. (314)	1993	CAN	8	8	19-31	CT	CSA	~10.5 cm ²	~6.0 cm ²	57%
Abe et al. (5)	2000	USA	17	20	25-50	US	Thickness	2.98 cm	1.78 cm	60%
Schantz et al. (404)	1983	SWE	8	6	~27	CT	CSA	23.5 cm ²	14.4 cm ²	61%
Hubal et al. (202)	2005	USA	243	342	~24	MRI	CSA	21.3 cm ²	13.6 cm ²	64%
Nygaard et al. (336)	1983	DEN	4	3	28-43	CT	CSA	11.6 cm ²	8.7 cm ²	75%
Biceps brachii +										
Alway et al. (17)	1989	USA	8(BB)	5(BB)	~35	CT	CSA	~23.0 cm ²	~11.0 cm ²	~47%
O'Hagan et al. (338)	1995	CAN	6	6	~20	CT	CSA	~22.5 cm ²	~11.5 cm ²	~51%
Akagi et al. (15)	2009	JPN	30	22	20-34	MRI	CSA	18.2 cm ²	10.3 cm ²	57%
Miller et al. (314)	1993	CAN	8	8	19-31	CT	CSA	~23.5 cm ²	~14.0 cm ²	59%
Akagi et al. (15)	2009	JPN	19	32	60-77	MRI	CSA	16.2 cm ²	9.7 cm ²	60%
Kanehisa et al. (232)	1994	JPN	27	26	18-25	US	CSA	14.1 cm ²	9.1 cm ²	65%
Abe et al. (7)	2014	JPN	103	124	20-29	US	Thickness	3.05 cm	2.05 cm	67%
Abe et al.(8)	2014	USA	40	39	50-78	US	Thickness	3.44 cm	2.45 cm	69%
Abe et al. (3)	1998	JPN	29	22	~20	US	Thickness	3.92 cm	2.71 cm	69%
Sanada et al. (400)	2006	JPN	41	34	18-61	US	Thickness	3.07 cm	2.19 cm	71%
Abe et al. (2)	2021	USA	21(SP)	10(SP)	~30	US	Thickness	4.72 cm	3.35 cm	71%
Abe et al. (7)	2014	JPN	108	83	30-39	US	Thickness	3.11 cm	2.24 cm	72%
Abe et al. (7)	2014	JPN	180	146	40-49	US	Thickness	3.07 cm	2.25 cm	73%
Arts et al. (24)	2010	NLD	47	48	17-90	US	Thickness	2.96 cm	2.19 cm	74%
Abe et al. (7)	2014	JPN	167	195	50-59	US	Thickness	3.07 cm	2.38 cm	78%
Abe et al. (7)	2014	JPN	125	189	60-69	US	Thickness	2.93 cm	2.32 cm	79%
Abe et al. (7)	2014	JPN	63	76	70-70	US	Thickness	2.77 cm	2.18 cm	79%
Takai et al. (453)	2014	JPN	33	44	52-78	US	Thickness	3.20 cm	2.70 cm	84%
Triceps brachii										
Schantz et al. (404)	1983	SWE	8	6	~27	CT	CSA	31.3 cm ²	19.0 cm ²	61%
Kanehisa et al. (232)	1994	JPN	27	26	18-25	US	CSA	18.6 cm ²	11.7 cm ²	63%
Merrigan et al. (309)	2018	USA	15	15	~23	US	Thickness	2.61 cm	1.70 cm	65%
Abe et al. (7)	2014	JPN	108	83	30-39	US	Thickness	3.47 cm	2.35 cm	68%
Sanada et al. (400)	2006	JPN	41	34	18-61	US	Thickness	3.41 cm	2.34 cm	69%
Abe et al. (7)	2014	JPN	103	124	20-29	US	Thickness	3.40 cm	2.33 cm	69%
Ichinose et al. (217)	1998	JPN	7(OA)	7(OA)	~20	US	Thickness	4.09 cm	2.96 cm	72%
Abe et al. (5)	2000	USA	17	20	25-50	US	Thickness	4.55 cm	3.26 cm	72%
Abe et al.(8)	2015	USA	40	39	50-78	US	Thickness	3.89 cm	2.81 cm	72%
Abe et al. (2)	2021	USA	21(SP)	10(SP)	~30	US	Thickness	5.85 cm	4.23 cm	72%
Kubo et al. (254)	2003	JPN	67	46	20-39	US	Thickness	1.99 cm	1.46 cm	73%
Abe et al. (7)	2014	JPN	180	146	40-49	US	Thickness	3.51 cm	2.62 cm	75%
Abe et al. (7)	2014	JPN	167	195	50-59	US	Thickness	3.39 cm	2.53 cm	75%
Abe et al. (5)	2000	USA	6	7	25-50	US	Thickness	4.33 cm	3.27 cm	76%
Abe et al. (3)	1998	JPN	29	22	~20	US	Thickness	4.60 cm	3.51 cm	76%
Kubo et al. (254)	2003	JPN	54	144	60-85	US	Thickness	1.82 cm	1.42 cm	78%
Abe et al. (7)	2014	JPN	125	189	60-69	US	Thickness	3.08 cm	2.46 cm	80%
Takai et al. (453)	2014	JPN	33	44	52-78	US	Thickness	3.10 cm	2.50 cm	81%
Ichinose et al. (217)	1998	JPN	16(OA)	20(OA)	~20	US	Thickness	3.43 cm	2.81 cm	82%
Abe et al. (7)	2014	JPN	63	76	70-70	US	Thickness	2.74 cm	2.28 cm	83%
Ichinose et al. (217)	1998	JPN	5(OA)	6(OA)	~20	US	Thickness	4.38 cm	3.88 cm	89%
Forearm										
Abe et al. (7)	2014	JPN	103	124	20-29	US	Thickness	2.37 cm	1.70 cm	72%
Abe et al. (4)	2015	USA	43	43	18-34	US	Thickness	2.55 cm	1.86 cm	73%
Sanada et al. (400)	2006	JPN	41	34	18-61	US	Thickness	2.32 cm	1.71 cm	74%
Abe et al. (3)	1998	JPN	29	22	~20	US	Thickness	2.96 cm	2.21 cm	75%
Abe et al.(8)	2015	USA	40	39	50-78	US	Thickness	2.47 cm	1.87 cm	76%
Abe et al. (7)	2014	JPN	108	83	30-39	US	Thickness	2.28 cm	1.73 cm	76%
Abe et al. (7)	2014	JPN	180	146	40-49	US	Thickness	2.22 cm	1.75 cm	79%
Abe et al. (2)	2021	USA	21(SP)	10(SP)	~30	US	Thickness	3.52 cm	2.78 cm	79%
Arts et al. (24)	2010	NLD	47	48	17-90	US	Thickness	3.04 cm	2.44 cm	80%
Abe et al. (10)	2014	USA	32	21	70-83	US	Thickness	1.92 cm	1.55 cm	81%
Takai et al. (453)	2014	JPN	33	44	52-78	US	Thickness	1.80 cm	1.50 cm	83%
Abe et al. (7)	2014	JPN	63	76	70-70	US	Thickness	1.90 cm	1.60 cm	84%
Abe et al. (7)	2014	JPN	167	195	50-59	US	Thickness	2.16 cm	1.81 cm	84%
Abe et al. (7)	2014	JPN	125	189	60-69	US	Thickness	2.08 cm	1.79 cm	86%

BB = bodybuilder; CAN = Canada; CSA = cross sectional area; CT = computerized tomography; DEXA = dual-energy X-ray absorptiometry; F = female; JPN = Japan; M = male; MRI = magnetic resonance imaging; NR = not reported; OA = Olympic athlete; S = swimmers; SP = strength power athletes; SWE = Sweden; US = ultrasonography; USA = United States of America. *Computed by dividing female group mean by male group mean then multiplying by 100. +Elbow flexor muscles of the anterior arm other than biceps brachii included in the measure (i.e., brachialis).

Supplementary Table 22. Lower-body muscle size in men and women as determined by imaging.

Muscle Reference	Year	Country	M n	F n	Age (yr)	Imaging tool	Measure	M mean	F mean	F% of M*
Quadriceps - all										
Maden-Wilkinson et al. (284)	2014	UK	20	18	~22	MRI	Volume	2240.0 cm ³	1368.0 cm ³	61%
Ivey et al. (219)	2000	USA	11	11	65-75	MRI	Volume	1766.3 cm ³	1125.2 cm ³	64%
Walts et al. (475)	2008	USA	78	92	50-85	CT	Volume	1845.5 cm ³	1172.8 cm ³	64%
Ivey et al. (219)	2000	USA	11	9	20-30	MRI	Volume	2297.2 cm ³	1494.4 cm ³	65%
Maden-Wilkinson et al. (284)	2014	UK	25	28	~72	MRI	Volume	1533.0 cm ³	993.0 cm ³	65%
Roth et al. (391)	2001	USA	8	6	20-30	MRI	CSA	174.6 cm ²	113.6 cm ²	65%
Yasuda et al. (498)	2007	CAN	13	14	~21	MRI	CSA	~82 cm ²	~54 cm ²	65%
Da Boit et al. (99)	2016	UK	12	10	~70	MRI	CSA	56.7 cm ²	37.1 cm ²	65%
O'Brien et al. (340)	2010	UK	10	10	~28	MRI	Volume	2052.7 cm ³	1359.2 cm ³	66%
Sood et al. (429)	2012	USA	52	62	50-85	DEXA	Volume	1759.0 cm ³	1153.0 cm ³	66%
Bagley et al. (26)	2021	UK	16	15	20-69	MRI	CSA	86.2 cm ²	56.7 cm ²	66%
Maughan et al. (296)	1983	SCO	25	25	20-36	CT	CSA	83.2 cm ²	55.4 cm ²	67%
Katsiaras et al. (234)	2005	USA	713	799	70-79	CT	CSA	62.1 cm ²	42.3 cm ²	68%
Leenders et al. (273)	2013	NLD	29	24	~70	CT	CSA	68.8 cm ²	46.6 cm ²	68%
Miller et al. (314)	1993	CAN	8	8	19-31	CT	CSA	~79.0 cm ²	~55.0 cm ²	70%
O'Brien et al. (340)	2010	UK	10	10	~28	MRI	CSA	231.8 cm ²	162.8 cm ²	70%
Hakkinen et al. (176)	1995	FIN	10	11	64-73	US	CSA	47.9 cm ²	34.0 cm ²	71%
Roth et al. (391)	2001	USA	9	10	65-75	MRI	CSA	146.5 cm ²	104.0 cm ²	71%
Trappe et al. (466)	2003	USA	6	6	~25	MRI	CSA	73.0 cm ²	52.0 cm ²	71%
Wust et al. (496)	2008	UK	29	35	19-45	MRI	CSA	75.5 cm ²	55.6 cm ²	74%
Behan et al. (30)	2018	UK	32	34	~21	MRI	CSA	93.6 cm ²	70.9 cm ²	76%
Hakkinen et al. (176)	1995	FIN	9	9	43-57	US	CSA	48.2 cm ²	37.4 cm ²	78%
Trappe et al. (466)	2003	USA	6	6	~78	MRI	CSA	58.0 cm ²	45.0 cm ²	78%
Kanehisa et al. (232)	1994	JPN	27	26	18-25	US	CSA	73.6 cm ²	61.5 cm ²	84%
Quadriceps - VL										
Trevino et al. (468)	2019	USA	10	10	~21	US	CSA	25.2 cm ²	16.1 cm ²	64%
Mersmann et al. (310)	2015	GER	20	17	~31	MRI	CSA	32.9 cm ²	23.6 cm ²	72%
			(VB)	(VB)						
Schantz et al. (404)	1983	SWE	11	10	~27	CT	CSA	55.4 cm ²	42.4 cm ²	77%
Fujisawa et al. (155)	2017	JPN	10	9	~21	US	Thickness	2.05 cm	1.69 cm	82%
Stock et al. (438)	2020	USA	15	15	~22	US	CSA	19.6 cm ²	16.0 cm ²	82%
Stock et al. (438)	2020	USA	11	15	~72	US	CSA	14.4 cm ²	12.1 cm ²	83%
Nishikawa et al. (326)	2017	JPN	15	15	21-32	US	Thickness	2.19 cm	1.83 cm	83%
Kubo et al. (254)	2003	JPN	67	46	20-39	US	Thickness	2.51 cm	2.11 cm	84%
Wu et al. (495)	2016	IRE	11	13	~24	US	Thickness	2.46 cm	2.16 cm	88%
Wu et al. (495)	2016	IRE	11	9	~66	US	Thickness	2.03 cm	1.86 cm	92%
Abe et al. (3)	1998	JPN	29	22	~20	US	Thickness	2.94 cm	2.74 cm	92%
Kubo et al. (254)	2003	JPN	54	144	60-85	US	Thickness	1.83 cm	1.71 cm	93%
Quadriceps - VM										
Schantz et al. (404)	1983	SWE	11	10	~27	CT	CSA	32.9 cm ²	24.1 cm ²	73%
Fujisawa et al. (155)	2017	JPN	10	9	~21	US	Thickness	2.12 cm	1.64 cm	77%
Frontera et al. (153)	2000	USA	12	12	~73	CT	CSA	56.1 cm ²	44.9 cm ²	80%
Quadriceps - RF + VI										
Abe et al. (5)	2000	USA	6	7	25-50	US	Thickness	5.53 cm	4.30 cm	78%
Abe et al. (5)	2000	USA	17	20	25-50	US	Thickness	5.28 cm	4.30 cm	81%
Abe et al. (8)	2015	USA	40	39	50-78	US	Thickness	5.39 cm	4.40 cm	82%
Takai et al. (453)	2014	JPN	33	44	52-78	US	Thickness	4.70 cm	3.90 cm	83%
Sanada et al. (400)	2006	JPN	41	34	18-61	US	Thickness	5.44 cm	4.56 cm	84%
Abe et al. (9)	2014	JPN	119	88	30-39	US	Thickness	4.95 cm	4.25 cm	86%
Abe et al. (7)	2014	JPN	108	83	30-39	US	Thickness	5.09 cm	4.38 cm	86%
Abe et al. (7)	2014	JPN	63	76	70-70	US	Thickness	3.83 cm	3.28 cm	86%
Abe et al. (7)	2014	JPN	103	124	20-29	US	Thickness	5.31 cm	4.68 cm	88%
Arts et al. (24)	2010	NLD	47	48	17-90	US	Thickness	4.16 cm	3.64 cm	88%
Abe et al. (10)	2014	USA	32	21	70-83	US	Thickness	4.32 cm	3.82 cm	88%
Abe et al. (9)	2014	JPN	64	86	20-29	US	Thickness	5.42 cm	4.82 cm	89%
Abe et al. (7)	2014	JPN	167	195	50-59	US	Thickness	4.48 cm	3.99 cm	89%
Abe et al. (7)	2014	JPN	125	189	60-69	US	Thickness	4.05 cm	3.69 cm	91%
Abe et al. (7)	2014	JPN	180	146	40-49	US	Thickness	4.79 cm	4.37 cm	91%
Hida et al. (189)	2018	JPN	99	102	~66	US	Thickness	3.87 cm	3.57 cm	92%
Abe et al. (9)	2014	JPN	206	179	40-49	US	Thickness	4.61 cm	4.22 cm	92%
Abe et al. (9)	2014	JPN	252	342	60-69	US	Thickness	3.77 cm	3.52 cm	93%
Abe et al. (2)	2021	USA	21(SP)	10(SP)	~30	US	Thickness	3.52 cm	3.26 cm	93%
Abe et al. (9)	2014	JPN	79	87	70-85	US	Thickness	3.37 cm	3.17 cm	94%
Abe et al. (9)	2014	JPN	176	316	50-59	US	Thickness	3.96 cm	3.78 cm	95%
Abe et al. (3)	1998	JPN	29	22	~20	US	Thickness	5.88 cm	5.67 cm	96%
Hamstrings - all or multiple										
Maden-Wilkinson et al. (284)	2014	UK	20	18	~22	MRI	Volume	2309.0 cm ³	1536.0 cm ³	67%
Blackburn et al. (51)	2009	USA	20	20	~20	US	CSA	11.9 cm ²	8.3 cm ²	70%
Behan et al. (30)	2018	UK	32	34	~21	MRI	CSA	55.1 cm ²	38.8 cm ²	70%
Katsiaras et al. (234)	2005	USA	713	799	70-79	CT	CSA	31.3 cm ²	22.9 cm ²	73%
Maden-Wilkinson et al. (284)	2014	UK	25	28	~72	MRI	Volume	1805.0 cm ³	1321.0 cm ³	73%
Takai et al. (453)	2014	JPN	33	44	52-78	US	Thickness	6.20 cm	4.90 cm	79%
Kanehisa et al. (232)	1994	JPN	27	26	18-25	US	CSA	55.4 cm ²	44.4 cm ²	80%
Abe et al. (5)	2000	USA	17	20	25-50	US	Thickness	6.09 cm	5.25 cm	86%
Abe et al. (7)	2014	JPN	103	124	20-29	US	Thickness	5.90 cm	5.19 cm	88%
Abe et al. (9)	2014	JPN	64	86	20-29	US	Thickness	5.99 cm	5.34 cm	89%
Abe et al. (5)	2000	USA	6	7	25-50	US	Thickness	6.02 cm	5.44 cm	90%
Abe et al. (3)	1998	JPN	29	22	~20	US	Thickness	6.80 cm	6.15 cm	90%
Sanada et al. (400)	2006	JPN	41	34	18-61	US	Thickness	5.93 cm	5.36 cm	90%

Abe et al. (7)	2014	JPN	108	83	30-39	US	Thickness	5.95 cm	5.34 cm	90%
Abe et al.(8)	2015	USA	40	39	50-78	US	Thickness	6.50 cm	5.95 cm	92%
Abe et al. (7)	2014	JPN	63	76	70-70	US	Thickness	5.47 cm	5.02 cm	92%
Abe et al. (7)	2014	JPN	180	146	40-49	US	Thickness	5.76 cm	5.38 cm	93%
Abe et al. (7)	2014	JPN	167	195	50-59	US	Thickness	5.85 cm	5.43 cm	93%
Abe et al. (2)	2021	USA	21(SP)	10(SP)	~30	US	Thickness	8.40 cm	7.82 cm	93%
Abe et al. (9)	2014	JPN	119	88	30-39	US	Thickness	5.94 cm	5.60 cm	94%
Abe et al. (7)	2014	JPN	125	189	60-69	US	Thickness	5.63 cm	5.35 cm	95%
Abe et al. (9)	2014	JPN	206	179	40-49	US	Thickness	5.91 cm	5.69 cm	96%
Abe et al. (9)	2014	JPN	79	87	70-85	US	Thickness	5.44 cm	5.23 cm	96%
Abe et al. (9)	2014	JPN	176	316	50-59	US	Thickness	5.78 cm	5.62 cm	97%
Abe et al. (9)	2014	JPN	252	342	60-69	US	Thickness	5.54 cm	5.52 cm	100%
Tibialis anterior										
Abe et al. (7)	2014	JPN	108	83	30-39	US	Thickness	2.96 cm	2.41 cm	81%
Takai et al. (453)	2014	JPN	33	44	52-78	US	Thickness	3.10 cm	2.60 cm	84%
Abe et al. (7)	2014	JPN	103	124	20-29	US	Thickness	3.03 cm	2.58 cm	85%
Arts et al. (24)	2010	NLD	47	48	17-90	US	Thickness	2.53 cm	2.15 cm	85%
Abe et al. (7)	2014	JPN	180	146	40-49	US	Thickness	2.93 cm	2.54 cm	87%
Abe et al. (7)	2014	JPN	63	76	70-70	US	Thickness	2.74 cm	2.38 cm	87%
Abe et al.(8)	2015	USA	40	39	50-78	US	Thickness	3.11 cm	2.70 cm	87%
Abe et al. (7)	2014	JPN	167	195	50-59	US	Thickness	2.81 cm	2.46 cm	88%
Abe et al. (7)	2014	JPN	125	189	60-69	US	Thickness	2.72 cm	2.45 cm	90%
Abe et al. (3)	1998	JPN	29	22	~20	US	Thickness	3.10 cm	2.86 cm	92%
Abe et al. (2)	2021	USA	21(SP)	10(SP)	~30	US	Thickness	3.52 cm	3.26 cm	93%
Triceps surae - all or multiple										
Rantalainen et al. (370)	2008	FIN	20	20	~24	US	Volume	1000.0 cm ³	726.0 cm ³	73%
Vandervoort et al. (471)	1986	CAN	11	11	80-100	US	CSA	28.0 cm ²	20.9 cm ²	75%
Takai et al. (453)	2014	JPN	33	44	52-78	US	Thickness	6.90 cm	5.70 cm	83%
Vandervoort et al. (471)	1986	CAN	11	11	20-32	US	CSA	36.5 cm ²	31.1 cm ²	85%
Abe et al. (7)	2014	JPN	108	83	30-39	US	Thickness	6.86 cm	5.92 cm	86%
Weiss and Clark (481)	1985	USA	15	15	18-28	US	Thickness	5.93 cm	5.18 cm	87%
Sanada et al. (400)	2006	JPN	41	34	18-61	US	Thickness	6.96 cm	6.06 cm	87%
Abe et al.(8)	2015	USA	40	39	50-78	US	Thickness	7.41 cm	6.49 cm	88%
Abe et al. (7)	2014	JPN	103	124	20-29	US	Thickness	6.92 cm	6.06 cm	88%
Abe et al. (7)	2014	JPN	180	146	40-49	US	Thickness	6.68 cm	5.91 cm	88%
Weiss et al. (482)	1988	USA	14	14	~21	US	Thickness	5.32 cm	4.74 cm	89%
Abe et al. (7)	2014	JPN	167	195	50-59	US	Thickness	6.52 cm	5.79 cm	89%
Abe et al. (7)	2014	JPN	63	76	70-70	US	Thickness	6.17 cm	5.49 cm	89%
Abe et al. (7)	2014	JPN	125	189	60-69	US	Thickness	6.22 cm	5.71 cm	92%
Abe et al. (2)	2021	USA	21(SP)	10(SP)	~30	US	Thickness	8.40 cm	7.82 cm	93%
Abe et al. (3)	1998	JPN	29	22	~20	US	Thickness	7.24 cm	6.80 cm	94%
Triceps surae - MG										
Kubo et al. (254)	2003	JPN	67	46	20-39	US	Thickness	2.28 cm	2.02 cm	89%
Kubo et al. (254)	2003	JPN	54	144	60-85	US	Thickness	1.93 cm	1.77 cm	92%
Abe et al. (3)	1998	JPN	29	22	~20	US	Thickness	2.32 cm	2.14 cm	92%
Chow et al. (79)	2002	CAN	19	16	~45	US	Thickness	1.53 cm	1.43 cm	93%

CAN = Canada; CSA = cross sectional area; CT = computerized tomography; DEXA = dual-energy X-ray absorptiometry; F = female; GER = Germany; JPN = Japan; M = male; MG = medial gastrocnemius; MRI = magnetic resonance imaging; NR = not reported; RF = rectus femoris; S = swimmers; SCO = Scotland; SWE = Sweden; UK = United Kingdom; US = ultrasonography; USA = United States of America; VB = volleyball players; VI = vastus intermedius; VM = vastus medialis; VL = vastus lateralis. *Computed by dividing female group mean by male group mean then multiplying by 100.

Supplementary Table 23. Trunk muscle size in men and women as determined by imaging.

Muscle Reference	Year	Country	M n	F n	Age (yr)	Imaging tool	Measure	M mean	F mean	F% of M*
Rectus abdominis										
Rankin et al. (369)	2006	UK	55	68	21-72	US	CSA	8.27 cm ²	5.44 cm ²	66%
Takai et al. (453)	2014	JPN	33	44	52-78	US	Thickness	1.20 cm	0.80 cm	67%
Abe et al. (7)	2014	JPN	108	83	30-39	US	Thickness	1.27 cm	0.90 cm	71%
Deering et al. (111)	2017	USA	15	18	~24	US	Thickness	1.40 cm	1.00 cm	71%
Abe et al. (8)	2015	USA	40	39	50-78	US	Thickness	1.33 cm	0.96 cm	72%
Abe et al. (7)	2014	JPN	167	195	50-59	US	Thickness	1.14 cm	0.82 cm	72%
Sanada et al. (400)	2006	JPN	41	34	18-61	US	Thickness	1.46 cm	1.07 cm	73%
Seo et al. (410)	2003	JPN	152	82	15-75	MRI	CSA	7.40 cm ²	5.05 cm ²	74%
Abe et al. (2)	2021	USA	21(SP)	10(SP)	~30	US	Thickness	2.17 cm	1.60 cm	74%
Abe et al. (7)	2014	JPN	103	124	20-29	US	Thickness	1.42 cm	1.06 cm	75%
Abe et al. (7)	2014	JPN	180	146	40-49	US	Thickness	1.20 cm	0.91 cm	76%
Abe et al. (7)	2014	JPN	63	76	70-70	US	Thickness	0.97 cm	0.74 cm	76%
Abe et al. (7)	2014	JPN	125	189	60-69	US	Thickness	1.03 cm	0.79 cm	77%
Rankin et al. (369)	2006	UK	55	68	21-72	US	Thickness	1.25 cm	1.02 cm	82%
Teyhen et al. (457)	2012	USA	244	96	18-35	US	Thickness	1.41 cm	1.16 cm	82%
Abe et al. (3)	1998	JPN	29	22	~20	US	Thickness	1.74 cm	1.49 cm	86%
Lateral abdominal wall										
Springer et al. (433)	2006	USA	17	15	~32	US	Thickness	2.53 cm	1.66 cm	66%
Rankin et al. (369)	2006	UK	55	68	21-72	US	Thickness	3.86 cm	2.96 cm	76%
Teyhen et al. (457)	2012	USA	244	96	18-35	US	Thickness	2.23 cm	1.75 cm	79%
Multifidus										
Abe et al. (2)	2021	USA	21(SP)	10(SP)	~30	US	Thickness	4.46 cm	3.05 cm	68%
Stokes et al. (439)	2005	UK	52	68	20-69	US	CSA	7.87 cm ²	5.55 cm ²	71%
Abe et al. (7)	2014	JPN	108	83	30-39	US	Thickness	2.39 cm	1.69 cm	71%
Abe et al. (7)	2014	JPN	103	124	20-29	US	Thickness	2.35 cm	1.71 cm	73%
Abe et al. (7)	2014	JPN	180	146	40-49	US	Thickness	2.27 cm	1.70 cm	75%
Watson et al. (479)	2008	USA	8	17	23-62	US	CSA	7.57 cm ²	5.97 cm ²	79%
Abe et al. (7)	2014	JPN	63	76	70-70	US	Thickness	1.98 cm	1.63 cm	82%
Abe et al. (7)	2014	JPN	167	195	50-59	US	Thickness	2.17 cm	1.84 cm	85%
Abe et al. (7)	2014	JPN	125	189	60-69	US	Thickness	2.10 cm	1.81 cm	86%
Teyhen et al. (457)	2012	USA	244	96	18-35	US	Thickness	3.11 cm	2.67 cm	86%

CSA = cross sectional area; ES = erector spinae; F = female; JPN = Japan; M = male; MF = multifidus; MRI = magnetic resonance imaging; RA = rectus abdominis; UK = United Kingdom; US = ultrasonography; USA = United States of America. *Computed by dividing female group mean by male group mean then multiplying by 100.

Supplementary Table 24. Relative numbers and areas of Type I and Type IIA muscle fibers in living men and women as determined by muscle biopsy.

Muscle Reference	Year	Country	M <i>n</i>	F <i>n</i>	Age (yr)	Type I numb %		Type IIA numb %		Type I area %		Type IIA area %		Type IIA/I area ratio	
						M	F	M	F	M	F	M	F	M	F
Biceps brachii															
Nygaard et al. (336)	1983	DEN	4	4	28-43	42	42	NR	NR	39	43	NR	NR	NR	NR
Sale et al. (396)	1987	CAN	13	8	~22	39	39	NR	NR	32	34	NR	NR	1.38*	1.23*
Alway et al. (17)	1989	USA	8	5	~35	40	50	NR	NR	NR	NR	NR	NR	1.60*	1.10*
			(BB)	(BB)											
Miller et al. (314)	1993	CAN	8	8	19-31	~45	~45	NR	NR	~40	~36	NR	NR	NR	NR
Triceps brachii															
Schantz et al. (404)	1983	SWE	11	7	~27	50	51	41	36	NR	NR	NR	NR	1.61	1.42
Vastus lateralis															
Schantz et al. (404)	1983	SWE	11	7	~27	52	52	35	34	NR	NR	NR	NR	1.29	1.02
Simoneau et al. (423)	1985	CAN	37	38	~25	37	43	42	39	37	48	44	38	NR	NR
Essen-Gustavsson and Borges (138)	1986	SWE	34	31	20-70	58	50	26	34	NR	NR	NR	NR	NR	NR
Borges and Essen-Gustavsson (54)	1989	SWE	7	5	20-30	62	46	NR	NR	NR	NR	NR	NR	NR	NR
Borges and Essen-Gustavsson (54)	1989	SWE	7	3	~70	63	42	NR	NR	NR	NR	NR	NR	NR	NR
Simoneau and Bouchard (422)	1989	CAN	215	203	16-33	46	51	39	37	33	39	35	34	NR	NR
Glenmark et al. (165)	1992	SWE	55	28	~27	48	55	34	31	49	57	38	32	1.20	0.99
Miller et al. (314)	1993	CAN	8	8	19-31	~40	~50	NR	NR	33	53	NR	NR	NR	NR
Esbjörnsson et al. (134)	1993	SWE	18	16	21-30	47	50	35	33	46	52	42	36	1.3	1.1
Gerdle et al. (161)	1997	SWE	11	9	20-38	36	34	41	38	NR	NR	NR	NR	NR	NR
Esbjörnsson-Liljedahl et al. (137)	1999	SWE	20	19	19-42	59	62	30	29	56	66	34	27	NR	NR
Staron et al. (435)	2000	USA	95	55	~21	40	43	32	30	36	44	41	34	NR	NR
Hakkinen et al. (177)	2001	FIN	10	9	~40	53	60	42	35	NR	NR	NR	NR	1.34*	0.69*
Hakkinen et al. (177)	2001	FIN	9	8	~70	57	49	35	44	NR	NR	NR	NR	0.79	0.65
Carter et al. (67)	2001	CAN	8	6	~22	43	47	NR	NR	43	53	NR	NR	NR	NR
Esbjörnsson-Liljedahl et al. (136)	2002	SWE	7	8	19-42	58	56	28	29	57	60	31	29	NR	NR
Toft et al. (462)	2003	NOR	22	18	26-56	55	51	37	37	NR	NR	NR	NR	NR	NR
Toft et al. (462)	2003	NOR	36	15	57-67	57	59	36	36	NR	NR	NR	NR	NR	NR
Yasuda et al. (498)	2005	CAN	13	14	~21	45	48	37	35	27	31	NR	NR	NR	NR
Kosek et al. (250)	2006	USA	13	10	~27	37	39	32	39	35	42	53	47	NR	NR
Kosek et al. (250)	2006	USA	13	11	~64	48	46	51	49	36	48	52	45	NR	NR
Martel et al. (288)	2006	USA	13	9	20-30	48	40	30	31	NR	NR	NR	NR	NR	NR
Martel et al. (288)	2006	USA	11	7	65-75	50	47	26	28	NR	NR	NR	NR	NR	NR
Roepstorff et al. (389)	2006	DEN	8	9	~24	55	68	30	23	49	68	36	24	NR	NR
den Hoed et al. (113)	2009	NLD	7	31	~20	57	60	39	37	NR	NR	NR	NR	NR	NR
Maher et al. (285)	2009	CAN	10	16	~21	NR	NR	27	33	NR	NR	NR	NR	NR	NR
Esbjörnsson et al. (133)	2012	SWE	9	8	20-30	53	60	28	28	NR	NR	NR	NR	NR	NR
Horwarth et al. (197)	2021	SWE	34	30	~27	41	47	NR	NR	37	46	NR	NR	NR	NR
Esbjörnsson et al. (135)	2021	SWE	9	7	~21	56	53	32	33	NR	NR	NR	NR	1.30	0.95
Gastrocnemius lateralis															
Costill et al. (97)	1976	USA	11	10	17-42	51	53	NR	NR	49	56	NR	NR	1.15*	0.98*
Coggan et al. (86)	1992	USA	10	10	20-29	59	57	20	22	NR	NR	NR	NR	NR	NR
Coggan et al. (86)	1992	USA	10	10	60-69	60	62	21	20	NR	NR	NR	NR	NR	NR
Coggan et al. (87)	1992	USA	12	11	60-70	59	59	22	22	NR	NR	NR	NR	1.12*	0.96*
Larsson et al. (263)	2006	SWE	9	43	~24	50	53	41	39	NR	NR	NR	NR	NR	NR
Tibialis anterior															
Porter et al. (361)	2002	SWE	15	15	20-31	72	75	NR	NR	NR	NR	NR	NR	NR	NR
Jaworski et al. (222)	2002	SWE	15	15	20-31	78	77	NR	NR	NR	NR	NR	NR	1.79*	1.50*
Multifidus															
Thorstensson et al. (459)	1987	SWE	9	7	20-30	60	62	23	17	58	75	NR	NR	NR	NR
Longissimus															
Thorstensson et al. (459)	1987	SWE	9	7	20-30	56	58	22	21	54	70	NR	NR	NR	NR

BB = bodybuilders; CAN = Canada; DEN = Denmark; F = female; FIN = Finland; M = male; NLD = Netherlands; NOR = Norway; NR = not reported; SWE = Sweden; USA = United States of America. *Ratio represents TypeII/I rather than Type IIA/I