

**Table S3.** Characteristics of included studies and measured activities of muscle quality, muscle strength and physical function

Study, year	Sample size (sex), age	Echo intensity outcome measures / device used / position tested	Muscle strength parameter/outcome	Physical function parameter/outcome
Hirata et al., 2022	n=32 (M) Age: 74±6 yr	(ACUSON S3000; Siemens Medical Solutions, USA) / seated / RF and VL	MVC: leg flexors	-
Palmer et al., 2022	n=20 (F) Age: 67±4 yr	(GE Logiq e BT12; GE Healthcare) / right leg / VL	-	MGS (m/s)–6 min walk Chair stand test(s)–TUG
Paris et al., 2022	n=32 (M) Age: 75.4±7.9 yr	(M-turbo Sonosite, Markham, ON) / supine / RF	MVC: leg extensors/flexors	Handgrip strength MGS (m/s)–6-min walk Chair stand test (s)–30SS
Yoshiko et al., 2022	n=38 (M22, F16) Age: 71.6±5.1 yr	(LOGIQ e Premium Ultrasound system; GE Healthcare Japan, Tokyo, Japan) / supine, right leg / RF and VL	MVC: knee extensors	Chair stand test (s)–30SS
Farrow et al., 2021	n=15 (M) Age: 73±4 yr	(GE Logiq S8; GE Healthcare, Milwaukee, WI) / supine, right leg / RF	MVC: knee extensors RTD: knee extensors at 60–180°/s	-
Hill et al., 2021	n=22 (M12, F9) Age, 69.9±4.3 yr	(LOGIQ Book XP, General Electric, Bedford, UK) / seated / right and left VL	-	Chair stand test (s)–5STS, TUG
Yoshiko et al., 2021	n=80 (M37, F43) Age: 72.5±5.4 yr	(LOGIQ e; GE Healthcare Japan, Tokyo, Japan) / supine / QF	RFD: knee extensors	Handgrip strength MGS (m/s)–5-m walk
Akima et al., 2020	n=84 (M46, F38) Age: 70.6±5.5 yr	(LOGIQ e; GE Healthcare, Chicago, IL, USA) / supine, right leg / QF	-	Handgrip strength MGS (m/s)–5-m walk Chair stand test (s)–5STS
Bali et al., 2020	n=25 (M10, F15) Age: 71.5±5.5 yr	(GE Logiq e BT12, GE Healthcare, Milwaukee, WI, USA) / supine, dominant leg / VL and RF	MIT: knee extensors	-
Yoshiko et al., 2020	n=132 (M62, F70) Age: 74.15±2.8 yr	(LOGIQ e; GE Healthcare, Chicago, IL, USA) / right leg / QF	-	Handgrip strength MGS (m/s)–5-m walk UGS (m/s)–6-min walk
Guadagnin et al., 2019	n=15 (M6, F9) Age: 75.4±5 yr	(MyLab30 Gold, Esaote Inc, USA) / supine / RF	-	MGS (m/s)–8-m walk UGS (m/s)–8-m walk
Kawai et al., 2018	n=511 (M) Age: 73.0±5.5 yr	(Miru-Cube, Global Health, Kanagawa, Japan) / seated / QF	MVC: knee extensors/flexors	MGS (m/s)–10-m walk UGS (m/s)–10-m walk Chair stand test(s)–TUG
Magrini et al., 2018	n=18 (F) Age: 74.87±5.8 yr	(GE Logiq 131 S8, Milwaukee, WI, USA) / supine, right leg / RF	MVC: knee extensors/flexors	-
Akima et al., 2017	n=27 (M) Age: 72.9±4.5 yr	(LOGIQ e; GE Healthcare, Chicago, IL, USA) / right leg / QF	-	MGS (m/s)–5m walk UGS (m/s)–6min walk Chair stand test(s)–TUG

	n=37 (F) Age: 71.5±5.3 yr			
Lopez et al., 2017	n=50 (M) Age: 66±5.4 yr	(Nemio XG ultrasound Toshiba, Japan) / supine / QF	MVC: knee extensors/flexors RTD: knee extensors/flexors	Chair stand test(s)-30SS
Mota et al., 2017	n=13 (M) Age: 74±6 yr	(GE Logiq e BT12, GE Healthcare, Milwaukee, WI, USA) / supine, right leg / RF	MVC: knee extensors	-
Taniguchi et al., 2017	n=179 (F) Age: 74.1±4.9 yr	(LOGIQ e; GE Healthcare UK Ltd., Chalfont, UK) / supine / QF	MVC: knee extensors/flexors	-
Bickerstaffe et al., 2015	n=12 (M4, F8) Age: 59±14 yr	(Zonare z.one; Medical Systems Inc., Mountain View, CA, USA) / supine / VL	MVC: knee extensors/flexors	-
Nishihara et al., 2014	n=19 (M14, F5) Age: 73±3.2 yr	(Mysono U6; Samsung Medison, Seoul, Korea) / seat, hips and knees 90 / QF	MVC: knee extensors/flexors	MGS (m/s)-5m walk UGS (m/s)-6m walk Chair stand test(s)-TUG
Rech et al., 2014	n=45 (F) Age: 70.28±6.2 yr	(Nemio XG ultrasound, Toshiba, Japan) / supine, right leg / QF	MVC: knee extensors RTD: knee extensors	Handgrip strength Chair stand test(s)-30SS, TUG
Wilhelm et al., 2014	n=50 (M) Age: 66.1±4.5 yr	(Nemio XG ultrasound Toshiba, Japan) / supine / QF	MVC: knee extensors/flexors RTD: knee extensors	Chair stand test(s)-30SS
Watanabe et al., 2013	n=184 (M) Age: 74.4±5.9 yr	(SonoSite 180 Plus Tokyo, Japan) / seated, right leg / QF	MVC: knee extensors	-
Eduardo et al., 2012	n=31 (M) Age: 65.5±5.0 yr	(Philips, VMI, MG, Brazil) / supine / QF	MVC: knee extensors/flexors	-
Fukumoto et al., 2012	n=92 (F) Age: 70.4±6.6 yr	(LOGIQ e; GE Healthcare UK Ltd, Chalfont, Buckinghamshire, England) / seated, right leg / QF	MVC: knee extensors/flexors	-

M, male; F, female; MVC, maximum voluntary contraction; RTD, rate of torque development; RFD, rate of force development; MIT, maximum voluntary contraction; VL, vastus lateralis; RF, rectus femoris; QF, quadriceps femoris; MGS, maximal gait speed; UGS, usual gait speed; 30SS, 30-second sit-to-stand test; 5STS, 5-time sit-to-stand test; TUG, Timed Up-and-Go test.