Resistance Training Prescription for Muscle Strength and Hypertrophy in Healthy Adults: A Systematic Review and Bayesian Network Meta-Analysis

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ONLINE SUPPLEMENTARY MATERIAL

Currier BS, *et al. Br J Sports Med* 2023; 57:1201–1210. doi: 10.1136/bjsports-2023-106807

CONTENTS

Online Supplementary Appendix 2: MEDLINE search strategy.

10/5/2020 Ovid: Abstract Reference

Database(s): OVID Medline Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid MEDLINE(R) Daily and Ovid MEDLINE(R) 1946 to Present Search Strategy:

#	Searches	Results
1	Resistance Training/	8806
2	Weight Lifting/	4639
3	Circuit-Based Exercise/	64
4	Isometric Contraction/	15384
5	Plyometric Exercise/	591
6	((weight or "weight-bearing" or strength* or resistance or iso* or plyometric or circuit) adj3 (train* or lift* or exercis* or contract*)).ti,ab,kf.	58952
7	or/1-6	71273
8	(((frequency or occur* or tim* or reoccur* or "re-occur*" or "reoccur*" or duration or length or week* or month* or span* or long or last* or load* or weight* or RM* or "max*-rep*" or "rep*-max*" or kilogram* or kg* or pound* or lb* or set* or repeat* or repet* or iterat* or rep* or rest* or break* or interval* or taper* or period* or modif* or chang* or alter* or eccentric* or concentric*) adj3 (train* or contract* or lift*)) and (resistance or strength* or weight*)).ti,ab,kf.	26974
9	((muscle* or muscular) adj3 (strength* or hypertroph* or mass or grow* or gain*)).ti,ab,kf.	59959
10	((muscle* or muscular or isometric or RM or "rep*-max*" or "max*-rep*" or maximum repetition) adj1 (strength or power)).ti,ab,kf.	29791
11	((("6-min*" or "six-min*" or 6min*) adj2 (test* or distance*)) or 6MWT or 6MWD).ti,ab,kf.	12277
12	"berg balance".ti,ab,kf.	2290
13	((time* or "8-feet" or "8-foot" or eight foot or eight feet) adj1 ("up-and-go" or "up-&-go")).ti,ab,kf.	5134
14	((chair or sit*) adj3 stand* adj3 (test* or measur*)).ti,ab,kf.	2391
15	(physical* adj3 (perform* or function* or mobility)).ti,ab,kf.	55592
16	((gait or walk*) adj3 (speed* or pace* or rate* or velocity)).ti,ab,kf.	16856
17	or/9-16	140917
18	7 and 8 and 17	4989
19	animals/ not (humans/ and animals/)	4705549
20	18 not 19	4798

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Online Supplementary Appendix 3: Systematic reviews screened for relevant records.

Androulakis-Korakakis, P., Fisher, J. P., & Steele, J. (2020). The Minimum Effective Training Dose Required to Increase 1RM Strength in Resistance-Trained Men: A Systematic Review and Meta-Analysis. *Sports Med, 50*(4), 751-765. doi:10.1007/s40279-019-01236-0

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Centner, C., Wiegel, P., Gollhofer, A., & Konig, D. (2019). Effects of Blood Flow Restriction Training on Muscular Strength and Hypertrophy in Older Individuals: A Systematic Review and Meta-Analysis. *Sports medicine (Auckland, N.Z.), 49*(1), 95-108. doi:https://dx.doi.org/10.1007/s40279-018-0994-1

Csapo, R., & Alegre, L. M. (2016). Effects of resistance training with moderate vs heavy loads on muscle mass and strength in the elderly: A meta-analysis. *Scand J Med Sci Sports, 26*(9), 995-1006. doi:10.1111/sms.12536

da Rosa Orssatto, L. B., de la Rocha Freitas, C., Shield, A. J., Silveira Pinto, R., & Trajano, G. S. (2019). Effects of resistance training concentric velocity on older adults' functional capacity: A systematic review and meta-analysis of randomised trials. *Exp Gerontol, 127*, 110731. doi:10.1016/j.exger.2019.110731

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Grgic, J., Lazinica, B., Garofolini, A., Schoenfeld, B. J., Saner, N. J., & Mikulic, P. (2019). The effects of time of day-specific resistance training on adaptations in skeletal muscle hypertrophy and muscle strength: A systematic review and meta-analysis. *Chronobiol Int, 36*(4), 449-460. doi:10.1080/07420528.2019.1567524

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Online Supplementary Appendix 4: List of data items sought.

General Information

- Title of paper
- Year of publication
- Lead author
- Corresponding author affiliation and email address
- Country in which the study was conducted
- Setting

Characteristics of included studies

- Study design
- Randomization
- Study groups
- Blinding
- Inclusion criteria
- Exclusion criteria
- Age
- Height
- Number of participants in each group
- Training status and author criteria
- Number of females
- Number of males
- Habitual energy intake
- Habitual protein intake
- Resistance training variable manipulated
- Was volume controlled between groups (yes/no)
- Order of exercises
- Other exercise modes
- Exercise modality
- Time of day
- Length of intervention
- Frequency
- Number of exercises per session
- Set per exercise
- Intensity (load)
- Volitional fatigue/failure
- Supervision
- Time under tension
- Rest between sets
- Contraction type(s)

- Contraction velocity
- Actual participant adherence
- Author criteria for adherence
- Meals/supplements provided

<u>Results</u>

- Body mass: measurement tool, measurement region, change in outcome
- Fat-free mass: measurement tool, measurement region, change in outcome
- Fat- and bone-free mass: measurement tool, measurement region, change in outcome
- Lean mass: measurement tool, measurement region, change in outcome
- Whole-muscle cross-sectional area/volume: measurement tool, measurement region, change in outcome
- Fibre cross-sectional area: measurement tool, measurement region, change in outcome
- 1-repetition maximum: exercise/movement and change in outcome
- Maximum voluntary contraction: exercise/movement and change in outcome
- Functional capacity (if mean participant age ≥55 years): test(s)/protocol and change in outcome
- Balance (if mean participant age ≥55 years): test(s)/protocol and change in outcome

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Online Supplementary Appendix 5: Measurement method hierarchy.

The highest-ranked outcome (by order of appearance below) was selected for analysis.

Strength

1. 1-Repetition Maximum
    a. Lower-Body
        i. Squat
        ii. Leg Press
        iii. Knee extension
    b. Upper-body
        i. Chest Press
        ii. Bicep curl
2. Isokinetic
    a. Lower
        i. Knee extension (angular velocity closest to 60°/s)
    b. Upper
3. Isometric
    a. Lower
        i. Knee extension (angle closest to 60°)
    b. Upper

Hypertrophy

1. Magnetic Resonance Imaging (MRI)
    a. Muscle group volume (eg, quadriceps)
        i. Lower-body
        ii. Upper-body
    b. Muscle volume
        i. Lower-body
            1. Vastus lateralis
            2. Rectus femoris
            3. Vastus medialis
        ii. Upper-body
            1. Pectoralis major
            2. Biceps brachii
            3. Triceps brachii
    c. Muscle group cross-sectional area (CSA)
        i. Lower-body
        ii. Upper-body
    d. Muscle CSA
        i. Lower-body
            1. Vastus lateralis
            2. Rectus femoris

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            3. Vastus medialis
        ii. Upper-body
            1. Pectoralis major
            2. Biceps brachii
            3. Triceps brachii
2. Computed tomography (CT)
    a. Muscle group volume (eg, quadriceps)
        i. Lower-body
        ii. Upper-body
    b. Muscle volume
        i. Lower-body
            1. Vastus lateralis
            2. Rectus femoris
            3. Vastus medialis
        ii. Upper-body
            1. Pectoralis major
            2. Biceps brachii
            3. Triceps brachii
    c. Muscle group cross-sectional area (CSA)
        i. Lower-body
        ii. Upper-body
    d. Muscle CSA
        i. Lower-body
            1. Vastus lateralis
            2. Rectus femoris
            3. Vastus medialis
        ii. Upper-body
            1. Pectoralis major
            2. Biceps brachii
            3. Triceps brachii
3. Ultrasound
    a. Muscle volume
        i. Lower-body
            1. Vastus lateralis
            2. Rectus femoris
            3. Vastus medialis
        ii. Upper-body
            1. Pectoralis major
            2. Biceps brachii
            3. Triceps brachii
    b. Muscle CSA
        i. Lower-body
            1. Vastus lateralis

            2. Rectus femoris
            3. Vastus medialis
        ii. Upper-body
            1. Pectoralis major
            2. Biceps brachii
            3. Triceps brachii
    c. Muscle thickness
        i. Lower-body
            1. Vastus lateralis
            2. Rectus femoris
            3. Vastus medialis
        ii. Upper-body
            1. Pectoralis major
            2. Biceps brachii
            3. Triceps brachii
4. DXA
    a. Appendicular
        i. FFM
        ii. FBFM
        iii. Lean Mass
    b. Whole-body
        i. FFM
        ii. FBFM
        iii. Lean Mass
5. BIA
    a. Lean mass
6. BodPod
    a. Percent non-fat mass
7. Hydrodensitometry
    a. Non-fat mass
8. Fibre CSA
    a. Mixed fibre CSA
    b. Type II fibre CSA
    c. Type I fibre CSA

Online Supplementary Appendix 6: Characteristics and reference of included studies.
Table S1. Characteristics of included studies.

Study	Sample	Intervention	Outcomes
Aarskog 2012 [1]	n = 62 (47 F) Age: 23 years Training status: Untrained	8 weeks HM2: 3 sets of 6 reps at 85% 1RM 2x/wk (n = 32) LM2: 3 sets of 12 reps at 70% 1RM 2x/wk (n = 30)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Abe 2000 [2]	n = 49 (27 F) Age: 40.7 years Training status: Untrained	12 weeks CTRL: Non-exercising control (n = 13) LS3: 1 sets of 10 reps at 65% 1RM 3x/wk (n = 20) LM3: 3 sets of 10 reps at 65% 1RM 3x/wk (n = 16)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (Ultrasound) Mobility: NA Gait Speed: NA Balance: NA
Abonie 2021 [3]	n = 17 (0 F) Age: 25.5 years Training status: Untrained	7 weeks LM2: 3 sets of 10 reps at 60% 1RM 2x/wk (n = 9) CTRL: Non-exercising control (n = 8)	Strength: Upper-body (Isokinetic) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Abrahin 2014 [4]	n = 16 (16 F) Age: 68 years Training status: Trained	12 weeks LS2: 1 sets of 10 reps at 70% 1RM 2x/wk (n = 8) LM2: 3 sets of 10 reps at 70% 1RM 2x/wk (n = 8)	Strength: NA Hypertrophy: NA Mobility: Sit to Stand Gait Speed: NA Balance: NA
Aguiar 2015 [5]	n = 18 (0 F) Age: 20.5 years Training status: Untrained	8 weeks CTRL: Non-exercising control (n = 9) LM2: 3 sets of 10 reps at 75% 1RM 2x/wk (n = 9)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (MRI) Mobility: NA Gait Speed: NA Balance: NA
Aizawa 2003 [6]	n = 19 (19 F)	8 weeks	Strength: Lower-body (1RM)

	Age: 19 years Training status: Untrained	CTRL: Non-exercising control (n = 9) HM2: 3 sets of 7 reps at 82.5% 1RM 2x/wk (n = 10)	Hypertrophy: Whole-body (BIA) Mobility: NA Gait Speed: NA Balance: NA
Akagi 2020 [7]	n = 24 (0 F) Age: 21.5 years Training status: Untrained	8 weeks CTRL: Non-exercising control (n = 12) LM3: 3 sets of 8 reps at 40% 1RM 3x/wk (n = 12)	Strength: Lower-body (Isometric) Hypertrophy: Lower-body (MRI) Mobility: NA Gait Speed: NA Balance: NA
Alcaraz 2011 [8]	n = 18 (0 F) Age: 23 years Training status: Trained	8 weeks CTRL: Non-exercising control (n = 7) HM3: 4.5 sets of 6 reps at 82.5% 1RM 3x/wk (n = 11)	Strength: Lower-body (1RM) Hypertrophy: Whole-body (DXA) Mobility: NA Gait Speed: NA Balance: NA
Alegre 2006 [9]	n = 30 (0 F) Age: 21.1 years Training status: Untrained	13 weeks CTRL: Non-exercising control (n = 14) LM3: 4 sets of 9 reps at 55% 1RM 3x/wk (n = 16)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (Ultrasound) Mobility: NA Gait Speed: NA Balance: NA
Alegre 2015 [10]	n = 30 (30 F) Age: 22 years Training status: Untrained	10 weeks HM3: 3 sets of 6 reps at 80% 1RM 3x/wk (n = 15) LM3: 3 sets of 9 reps at 50% 1RM 3x/wk (n = 15)	Strength: Lower-body (Isometric) Hypertrophy: Lower-body (Ultrasound) Mobility: NA Gait Speed: NA Balance: NA
Amarante do Nascimento 2020 [11]	n = 52 (52 F) Age: 72 years Training status: Untrained	12 weeks LS2: 1 sets of 12.5 reps at 69% 1RM 2x/wk (n = 26)	Strength: Lower-body (1RM) Hypertrophy: Whole-body (DXA) Mobility: NA

		LS3: 1 sets of 12.5 reps at 69% 1RM 3x/wk (n = 26)	Gait Speed: NA Balance: NA
Anderson 1982 [12]	n = 31 (0 F) Age: 21 years Training status: Untrained	9 weeks HM3: 3 sets of 7 reps at 82.5% 1RM 3x/wk (n = 15) LM3: 2 sets of 35 reps at 12.5% 1RM 3x/wk (n = 16)	Strength: Upper-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Arazi 2021 [13]	n = 35 (0 F) Age: 20 years Training status: Trained	8 weeks LM2: 4 sets of 9 reps at 75% 1RM 2x/wk (n = 12) LM3: 2 sets of 9 reps at 75% 1RM 4x/wk (n = 13) CTRL: Non-exercising control (n = 10)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Baker 2004 [14]	n = 16 (0 F) Age: 20 years Training status: Trained	8 weeks HS3: 1 sets of 6 reps at 85% 1RM 3x/wk (n = 8) HM3: 3 sets of 6 reps at 85% 1RM 3x/wk (n = 8)	Strength: Upper-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Barcelos 2015 [15]	n = 36 (0 F) Age: 21.3 years Training status: Untrained	8 weeks CTRL: Non-exercising control (n = 16) LS2: 1 sets of 20 reps at 50% 1RM 2x/wk (n = 10) LM2: 3 sets of 20 reps at 50% 1RM 2x/wk (n = 10)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (MRI) Mobility: NA Gait Speed: NA Balance: NA
Barcelos 2018 [16]	n = 20 (0 F) Age: 23 years Training status: Untrained	8 weeks HM2: 3 sets of 10.5 reps at 80% 1RM 2x/wk (n = 10) HM3: 3 sets of 10.5 reps at 80% 1RM 3x/wk (n = 10)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (Ultrasound) Mobility: NA Gait Speed: NA Balance: NA
Bartolomei 2018 [17]	n = 20 (0 F) Age: 25.6 years	6 weeks HM3: 5 sets of 5 reps at 89% 1RM 4x/wk (n = 9)	Strength: Lower-body (1RM) Hypertrophy: NA

	Training status: Trained	LM3: 5 sets of 11 reps at 67.5% 1RM 4x/wk (n = 11)	Mobility: NA Gait Speed: NA Balance: NA
Bemben 2000 [18]	n = 25 (25 F) Age: 51.2 years Training status: Untrained	24 weeks CTRL: Non-exercising control (n = 8) HM3: 3 sets of 8 reps at 80% 1RM 3x/wk (n = 10) LM3: 3 sets of 16 reps at 40% 1RM 3x/wk (n = 7)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (Ultrasound) Mobility: NA Gait Speed: NA Balance: NA
Bermon 1999 [19]	n = 32 (16 F) Age: 70.3 years Training status: Untrained	8 weeks HM3: 3 sets of 8 reps at 80% 1RM 3x/wk (n = 16) CTRL: Non-exercising control (n = 16)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Bobeuf 2010 [20]	n = 25 (13 F) Age: 66.1 years Training status: NA	24 weeks HM3: 3 sets of 8 reps at 80% 1RM 3x/wk (n = 13) CTRL: Non-exercising control (n = 12)	Strength: NA Hypertrophy: Whole-body (DXA) Mobility: NA Gait Speed: NA Balance: NA
Boiko Ferreira 2021 [21]	n = 49 (49 F) Age: 64.1 years Training status: Untrained	12 weeks LM3: 3 sets of 10 reps at 60% 1RM 3.5x/wk (n = 29) CTRL: Non-exercising control (n = 20)	Strength: NA Hypertrophy: NA Mobility: Sit to Stand Gait Speed: NA Balance: Y-Balance Test
Borst 2001 [22]	n = 22 (9 F) Age: 38 years Training status: Untrained	25 weeks LS3: 1 sets of 10 reps at 75% 1RM 3x/wk (n = 11) LM3: 3 sets of 10 reps at 75% 1RM 3x/wk (n = 11)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Bottaro 2009 [23]	n = 24 (0 F) Age: 22.5 years	6 weeks HS2: 1 sets of 8 reps at 80% 1RM 2x/wk (n = 12)	Strength: Lower-body (Isokinetic) Hypertrophy: NA

	Training status: Untrained	HM2: 3 sets of 8 reps at 80% 1RM 2x/wk (n = 12)	Mobility: NA Gait Speed: NA Balance: NA
Bottaro 2011 [24]	n = 24 (0 F) Age: 22.5 years Training status: Untrained	12 weeks LM2: 3 sets of 10 reps at 75% 1RM 2x/wk (n = 12) LS2: 1 sets of 10 reps at 75% 1RM 2x/wk (n = 12)	Strength: Lower-body (Isokinetic) Hypertrophy: Lower-body (Ultrasound) Mobility: NA Gait Speed: NA Balance: NA
Brandon 2004 [25]	n = 52 (39 F) Age: 71 years Training status: Untrained	24 weeks CTRL: Non-exercising control (n = 23) LM3: 3 sets of 10 reps at 60% 1RM 3x/wk (n = 29)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: TUG Gait Speed: NA Balance: Functional Reach
Brigatto 2019 [26]	n = 20 (0 F) Age: 27.5 years Training status: Trained	8 weeks LM1: 8 sets of 10 reps at 75% 1RM 1x/wk (n = 10) LM2: 4 sets of 10 reps at 75% 1RM 2x/wk (n = 10)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (Ultrasound) Mobility: NA Gait Speed: NA Balance: NA
Camargo 2008 [27]	n = 14 (0 F) Age: 29.5 years Training status: Untrained	12 weeks LM3: 3 sets of 15 reps at 60% 1RM 3x/wk (n = 7) CTRL: Non-exercising control (n = 7)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Campos 2002 [28]	n = 26 (0 F) Age: 23.5 years Training status: Untrained	8 weeks CTRL: Non-exercising control (n = 6) HM3: 4 sets of 4 reps at 90% 1RM 3x/wk (n = 9) LM3: 3 sets of 10 reps at 75% 1RM 3x/wk (n = 11)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (FibreCSA) Mobility: NA Gait Speed: NA Balance: NA

Cannon 2010a [29]	n = 16 (16 F) Age: 24 years Training status: Untrained	10 weeks LS3: 1 sets of 10 reps at 75% 1RM 3x/wk (n = 7) LM3: 3 sets of 10 reps at 75% 1RM 3x/wk (n = 9)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (MRI) Mobility: NA Gait Speed: NA Balance: NA
Cannon 2010b [29]	n = 15 (15 F) Age: 68 years Training status: Untrained	10 weeks LS3: 1 sets of 10 reps at 75% 1RM 3x/wk (n = 7) LM3: 3 sets of 10 reps at 75% 1RM 3x/wk (n = 8)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (MRI) Mobility: NA Gait Speed: NA Balance: NA
Carpenter 1991 [30]	n = 46 (19 F) Age: 35 years Training status: Untrained	12 weeks CTRL: Non-exercising control (n = 15) LS1: 1 sets of 10 reps at 75% 1RM 1x/wk (n = 12) LS2: 1 sets of 10 reps at 75% 1RM 2x/wk (n = 12) LS3: 1 sets of 10 reps at 75% 1RM 3x/wk (n = 7)	Strength: Upper-body (Isometric) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Caserotti 2008a [31]	n = 34 (34 F) Age: 63 years Training status: Untrained	12 weeks CTRL: Non-exercising control (n = 17) LM2: 4 sets of 9 reps at 77.5% 1RM 2x/wk (n = 17)	Strength: Lower-body (Isometric) Hypertrophy: Whole-body (BIA) Mobility: NA Gait Speed: NA Balance: NA
Caserotti 2008b [31]	n = 22 (22 F) Age: 82 years Training status: Untrained	12 weeks CTRL: Non-exercising control (n = 12) LM2: 4 sets of 9 reps at 77.5% 1RM 2x/wk (n = 10)	Strength: Lower-body (Isometric) Hypertrophy: Whole-body (BIA) Mobility: NA Gait Speed: NA Balance: NA

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Charette 1991 [32]	n = 19 (19 F) Age: 69.4 years Training status: Untrained	12 weeks CTRL: Non-exercising control (n = 6) LM3: 6 sets of NA reps at 70% 1RM 3x/wk (n = 13)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (FibreCSA) Mobility: NA Gait Speed: NA Balance: NA
Chestnut 1999 [33]	n = 24 (0 F) Age: 24 years Training status: Untrained	10 weeks CTRL: Non-exercising control (n = 5) HM3: 6 sets of 4 reps at 85% 1RM 3x/wk (n = 10) LM3: 3 sets of 10 reps at 70% 1RM 3x/wk (n = 9)	Strength: Upper-body (1RM) Hypertrophy: Upper-body (MRI) Mobility: NA Gait Speed: NA Balance: NA
Cholewa 2018 [34]	n = 20 (20 F) Age: 20 years Training status: Untrained	9 weeks HM3: 4 sets of 6 reps at 85% 1RM 3x/wk (n = 10) LM3: 2 sets of 12 reps at 65% 1RM 3x/wk (n = 10)	Strength: Lower-body (1RM) Hypertrophy: Whole-body (BIA) Mobility: NA Gait Speed: NA Balance: NA
Coburn 2006 [35]	n = 22 (0 F) Age: 23 years Training status: Untrained	8 weeks CTRL: Non-exercising control (n = 10) HM3: 4 sets of 6 reps at 80% 1RM 3x/wk (n = 12)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (MRI) Mobility: NA Gait Speed: NA Balance: NA
Colliander 1990 [36]	n = 18 (0 F) Age: 26 years Training status: Untrained	12 weeks CTRL: Non-exercising control (n = 7) HM3: 5 sets of 6 reps at 85% 1RM 3x/wk (n = 11)	Strength: Lower-body (Isokinetic) Hypertrophy: Lower-body (FibreCSA) Mobility: NA Gait Speed: NA Balance: NA
Cook 2018 [37]	n = 12 (6 F) Age: 20 years Training status: Untrained	6 weeks CTRL: Non-exercising control (n = 6)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (MRI)

		LM3: 3 sets of 10 reps at 70% 1RM 3x/wk (n = 6)	Mobility: NA Gait Speed: NA Balance: NA
Coratella 2021 [38]	n = 30 (30 F) Age: 22 years Training status: Untrained	8 weeks HM2: 4 sets of 5 reps at 90% 1RM 2x/wk (n = 15) CTRL: Non-exercising control (n = 15)	Strength: Lower-body (Isometric) Hypertrophy: Lower-body (Ultrasound) Mobility: NA Gait Speed: NA Balance: NA
Correa 2012 [39]	n = 58 (58 F) Age: 67 years Training status: Untrained	6 weeks CTRL: Non-exercising control (n = 17) LM2: 2.5 sets of 16 reps at 60% 1RM 2x/wk (n = 41)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (Ultrasound) Mobility: Sit to Stand Gait Speed: NA Balance: NA
Correa 2014 [40]	n = 35 (35 F) Age: 60 years Training status: Untrained	12 weeks CTRL: Non-exercising control (n = 12) LS3: 1 sets of 15 reps at 62.5% 1RM 5x/wk (n = 12) LM3: 3 sets of 15 reps at 62.5% 1RM 5x/wk (n = 11)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (Ultrasound) Mobility: NA Gait Speed: NA Balance: NA
Cuevas-Aburto 2021 [41]	n = 22 (0 F) Age: 21.5 years Training status: Trained	6 weeks LM2: 6 sets of 5 reps at 75% 1RM 2x/wk (n = 12) CTRL: Non-exercising control (n = 10)	Strength: Upper-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Cunha 2020 [42]	n = 62 (62 F) Age: 69 years Training status: Untrained	12 weeks CTRL: Non-exercising control (n = 21) LS3: 1 sets of 12.5 reps at 69% 1RM 3x/wk (n = 21) LM3: 3 sets of 12.5 reps at 69% 1RM 3x/wk (n = 20)	Strength: Lower-body (1RM) Hypertrophy: Whole-body (DXA) Mobility: NA Gait Speed: NA Balance: NA

Daly 2013 [43]	n = 16 (8 F) Age: 75 years Training status: Untrained	6 weeks CTRL: Non-exercising control (n = 8) LM3: 3 sets of 8 reps at 75% 1RM 3x/wk (n = 8)	Strength: Upper-body (Isometric) Hypertrophy: Upper-body (MRI) Mobility: NA Gait Speed: NA Balance: NA
Dankel 2020 [44]	n = 99 (61 F) Age: 21 years Training status: Untrained	6 weeks CTRL: Non-exercising control (n = 51) LM3: 4 sets of 10 reps at 75% 1RM 3x/wk (n = 48)	Strength: Upper-body (1RM) Hypertrophy: Upper-body (Ultrasound) Mobility: NA Gait Speed: NA Balance: NA
DeBeliso 2005 [45]	n = 26 (22 F) Age: 72 years Training status: Untrained	18 weeks CTRL: Non-exercising control (n = 13) LM2: 3 sets of 9 reps at 77.5% 1RM 2x/wk (n = 13)	Strength: Whole-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
De Castro Cesar 2009 [46]	n = 19 (19 F) Age: 20.6 years Training status: Untrained	12 weeks LM3: 3 sets of 15 reps at 62.5% 1RM 3x/wk (n = 9) CTRL: Non-exercising control (n = 10)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
De Souza 2018 [47]	n = 16 (0 F) Age: 25 years Training status: Untrained	12 weeks CTRL: Non-exercising control (n = 8) HM2: 2.5 sets of 8 reps at 80% 1RM 2x/wk (n = 8)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (MRI) Mobility: NA Gait Speed: NA Balance: NA
DiFrancisco-Donoghue 2007 [48]	n = 18 (NA F) Age: 75 years Training status: Untrained	9 weeks LS1: 1 sets of 10 reps at 75% 1RM 1x/wk (n = 9) LS2: 1 sets of 10 reps at 75% 1RM 2x/wk (n = 9)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA

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			Balance: NA
Diniz 2021 [49]	n = 22 (0 F) Age: 24.2 years Training status: Untrained	10 weeks LM3: 3.5 sets of 12 reps at 52.5% 1RM 3x/wk (n = 11) CTRL: Non-exercising control (n = 11)	Strength: Upper-body (1RM) Hypertrophy: Upper-body (MRI) Mobility: NA Gait Speed: NA Balance: NA
Dinyer 2019 [50]	n = 23 (23 F) Age: 21 years Training status: Untrained	9 weeks LM2: 2.5 sets of 28 reps at 30% 1RM 2x/wk (n = 11) HM2: 2.5 sets of 8 reps at 80% 1RM 2x/wk (n = 12)	Strength: Lower-body (1RM) Hypertrophy: Whole-body (DXA) Mobility: NA Gait Speed: NA Balance: NA
Early 2020 [51]	n = 20 (12 F) Age: 23 years Training status: NA	8 weeks LM2: 3 sets of 10 reps at 60% 1RM 2x/wk (n = 10) CTRL: Non-exercising control (n = 10)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Elliott 2002 [52]	n = 15 (15 F) Age: 55.7 years Training status: Untrained	8 weeks CTRL: Non-exercising control (n = 7) LM3: 3 sets of 8 reps at 75% 1RM 3x/wk (n = 8)	Strength: Lower-body (Isokinetic) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Evangelista 2021 [53]	n = 33 (NA F) Age: 23.5 years Training status: Untrained	8 weeks LM2: 3 sets of 10 reps at 75% 1RM 2x/wk (n = 18) HM2: 5 sets of 6 reps at 85% 1RM 2x/wk (n = 15)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (Ultrasound) Mobility: NA Gait Speed: NA Balance: NA
Fatouros 2005 [54]	n = 52 (0 F) Age: 71 years Training status: Untrained	24 weeks CTRL: Non-exercising control (n = 14)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: TUG

		LM3: 2.5 sets of 15 reps at 52.5% 1RM 3x/wk (n = 18) HM3: 2.5 sets of 7 reps at 82.5% 1RM 3x/wk (n = 20)	Gait Speed: 15m Walk Test Balance: NA
Fatouros 2006 [55]	n = 36 (0 F) Age: 70.4 years Training status: Untrained	24 weeks CTRL: Non-exercising control (n = 10) LM3: 2.5 sets of 10 reps at 62.5% 1RM 3x/wk (n = 12) HM3: 2.5 sets of 8 reps at 82.5% 1RM 3x/wk (n = 14)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Firoozi 2020 [56]	n = 22 (0 F) Age: 22 years Training status: Untrained	8 weeks CTRL: Non-exercising control (n = 11) LM3: 3 sets of 8 reps at 72.5% 1RM 3x/wk (n = 11)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Fischetti 2020 [57]	n = 27 (0 F) Age: 23.9 years Training status: Trained	8 weeks HM3: 3.5 sets of 4 reps at 88% 1RM 3x/wk (n = 10) LM3: 2.5 sets of 28 reps at 31% 1RM 3x/wk (n = 10) CTRL: Non-exercising control (n = 7)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Fisher 2017 [58]	n = 14 (0 F) Age: 21 years Training status: Untrained	6 weeks HM1: 3 sets of 8 reps at 80% 1RM 1x/wk (n = 7) LM1: 3 sets of 20 reps at 50% 1RM 1x/wk (n = 7)	Strength: Lower-body (Isometric) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Fisher 2018 [59]	n = 26 (12 F) Age: 22.5 years Training status: Untrained	6 weeks HS1: 1 sets of 8 reps at 80% 1RM 1x/wk (n = 13) LS1: 1 sets of 20 reps at 50% 1RM 1x/wk (n = 13)	Strength: Upper-body (Isometric) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Fjeldstad 2009 [60]	n = 32 (32 F)	12 weeks	Strength: Lower-body (1RM)

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	Age: 34.4 years Training status: Untrained	HM3: 3 sets of 8 reps at 80% 1RM 3x/wk (n = 21) CTRL: Non-exercising control (n = 11)	Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Fonseca 2014 [61]	n = 20 (0 F) Age: 25 years Training status: Untrained	12 weeks CTRL: Non-exercising control (n = 10) HM2: 6 sets of 8 reps at 80% 1RM 2x/wk (n = 10)	Strength: NA Hypertrophy: Lower-body (MRI) Mobility: NA Gait Speed: NA Balance: NA
Franco 2019 [62]	n = 18 (0 F) Age: 22 years Training status: Untrained	8 weeks LM3: 2 sets of 10 reps at 75% 1RM 5x/wk (n = 9) LM1: 10 sets of 10 reps at 75% 1RM 1x/wk (n = 9)	Strength: Lower-body (1RM) Hypertrophy: Whole-body (DXA) Mobility: NA Gait Speed: NA Balance: NA
Frontera 2003 [63]	n = 14 (14 F) Age: 74 years Training status: Untrained	12 weeks CTRL: Non-exercising control (n = 7) HM3: 4 sets of 8 reps at 80% 1RM 3x/wk (n = 7)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (CT) Mobility: NA Gait Speed: NA Balance: NA
Galindo da Silva 2017 [64]	n = 30 (30 F) Age: 68 years Training status: Untrained	12 weeks LS2: 1 sets of 12.5 reps at 69% 1RM 2x/wk (n = 17) LS3: 1 sets of 12.5 reps at 69% 1RM 3x/wk (n = 13)	Strength: Whole-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Gambassi 2016 [65]	n = 26 (26 F) Age: 65 years Training status: Untrained	12 weeks CTRL: Non-exercising control (n = 13) HM2: 3 sets of 8 reps at 80% 1RM 2x/wk (n = 13)	Strength: Lower-body (Isometric) Hypertrophy: Whole-body (BIA) Mobility: NA Gait Speed: NA

			Balance: NA
Gentil 2015 [66]	n = 30 (0 F) Age: 23 years Training status: Untrained	10 weeks LM1: 3 sets of 10 reps at 75% 1RM 1x/wk (n = 15) LM2: 3 sets of 10 reps at 75% 1RM 2x/wk (n = 15)	Strength: Upper-body (Isokinetic) Hypertrophy: Upper-body (Ultrasound) Mobility: NA Gait Speed: NA Balance: NA
Gentil 2018 [67]	n = 16 (0 F) Age: 22.5 years Training status: Trained	10 weeks LM1: 3 sets of 10 reps at 75% 1RM 1x/wk (n = 8) LM2: 3 sets of 10 reps at 75% 1RM 2x/wk (n = 8)	Strength: Upper-body (Isokinetic) Hypertrophy: Upper-body (Ultrasound) Mobility: NA Gait Speed: NA Balance: NA
Granacher 2009 [68]	n = 40 (0 F) Age: 67 years Training status: Untrained	13 weeks HM3: 3 sets of 10 reps at 80% 1RM 3x/wk (n = 20) CTRL: Non-exercising control (n = 20)	Strength: Lower-body (Isometric) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: Functional Reach
Grzyb 2020 [69]	n = 38 (38 F) Age: 61.5 years Training status: Untrained	8 weeks LM2: 3 sets of 25 reps at 37.5% 1RM 2x/wk (n = 19) LM3: 2 sets of 25 reps at 37.5% 1RM 3x/wk (n = 19)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (Ultrasound) Mobility: NA Gait Speed: NA Balance: NA
Harris 2004 [70]	n = 58 (NA F) Age: 70.7 years Training status: Untrained	18 weeks LM2: 2 sets of 15 reps at 67% 1RM 2x/wk (n = 19) HM2: 4 sets of 6 reps at 84% 1RM 2x/wk (n = 18) CTRL: Non-exercising control (n = 21)	Strength: Whole-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Hass 2000 [71]	n = 42 (30 F)	13 weeks	Strength: Lower-body (1RM)

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	Age: 39.5 years Training status: Trained	LS3: 1 sets of 10 reps at 75% 1RM 3x/wk (n = 21) LM3: 3 sets of 10 reps at 75% 1RM 3x/wk (n = 21)	Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Hawkins 1999 [72]	n = 16 (16 F) Age: 21.5 years Training status: Untrained	18 weeks CTRL: Non-exercising control (n = 8) HM3: 3 sets of 4 reps at 90% 1RM 3x/wk (n = 8)	Strength: Lower-body (Isometric) Hypertrophy: Lower-body (DXA) Mobility: NA Gait Speed: NA Balance: NA
Heggelund 2013 [73]	n = 8 (0 F) Age: 26 years Training status: NA	8 weeks HM3: 4.5 sets of 5 reps at 90% 1RM 3x/wk (n = 4) LM3: 3 sets of 10 reps at 75% 1RM 3x/wk (n = 4)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Henwood 2006 [74]	n = 40 (23 F) Age: 69.7 years Training status: Untrained	8 weeks CTRL: Non-exercising control (n = 20) LM2: 3 sets of 8 reps at 75% 1RM 2x/wk (n = 20)	Strength: Whole-body (1RM) Hypertrophy: NA Mobility: Sit to Stand Gait Speed: 6m Walk Test Balance: Functional Reach
Higbie 1996 [75]	n = 35 (35 F) Age: 20.5 years Training status: Untrained	10 weeks CTRL: Non-exercising control (n = 19) LM3: 3 sets of 10 reps at 75% 1RM 3x/wk (n = 16)	Strength: Lower-body (Isokinetic) Hypertrophy: Lower-body (MRI) Mobility: NA Gait Speed: NA Balance: NA
Hisaeda 1996 [76]	n = 11 (11 F) Age: 20 years Training status: Untrained	8 weeks LM3: 5.5 sets of 17.5 reps at 56% 1RM 3x/wk (n = 5) HM3: 8.5 sets of 4.5 reps at 89% 1RM 3x/wk (n = 6)	Strength: Lower-body (Isokinetic) Hypertrophy: Lower-body (MRI) Mobility: NA Gait Speed: NA

			Balance: NA
Hojun 2017 [77]	n = 17 (17 F) Age: 22 years Training status: Untrained	12 weeks LM1: 3 sets of 10 reps at 60% 1RM 1x/wk (n = 9) LM3: 3 sets of 10 reps at 60% 1RM 3x/wk (n = 8)	Strength: Upper-body (1RM) Hypertrophy: Whole-body (BIA) Mobility: NA Gait Speed: NA Balance: NA
Hooshmand-Moghadam 2020 [78]	n = 30 (0 F) Age: 66 years Training status: Untrained	12 weeks CTRL: Non-exercising control (n = 15) LM3: 4 sets of 15 reps at 60% 1RM 3x/wk (n = 15)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Ibrahim 2020 [79]	n = 31 (0 F) Age: 21 years Training status: Untrained	6 weeks HM3: 3 sets of 7 reps at 82.5% 1RM 3x/wk (n = 15) LM3: 2 sets of 35 reps at 12.5% 1RM 3x/wk (n = 16)	Strength: Upper-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Ikezoe 2017 [80]	n = 15 (0 F) Age: 23 years Training status: Untrained	8 weeks LM3: 12 sets of 8 reps at 30% 1RM 3x/wk (n = 7) HM3: 3 sets of 8 reps at 80% 1RM 3x/wk (n = 8)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (Ultrasound) Mobility: NA Gait Speed: NA Balance: NA
Jenkins 2017 [81]	n = 26 (0 F) Age: 23 years Training status: Untrained	6 weeks HM3: 3 sets of 8 reps at 80% 1RM 3x/wk (n = 13) LM3: 3 sets of 28 reps at 30% 1RM 3x/wk (n = 13)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (Ultrasound) Mobility: NA Gait Speed: NA Balance: NA
Kalapotharakos 2004 [82]	n = 33 (21 F) Age: 65.1 years Training status: Untrained	12 weeks CTRL: Non-exercising control (n = 10) HM3: 3 sets of 8 reps at	Strength: Lower-body (1RM) Hypertrophy: Lower-body (CT) Mobility: NA

		80% 1RM 3x/wk (n = 11) LM3: 3 sets of 15 reps at 60% 1RM 3x/wk (n = 12)	Gait Speed: 6MWT Balance: NA
Kalapotharakos 2005 [83]	n = 50 (38 F) Age: 64 years Training status: Untrained	12 weeks CTRL: Non-exercising control (n = 10) HM3: 3 sets of 8 reps at 80% 1RM 3x/wk (n = 11) LM3: 3 sets of 15 reps at 60% 1RM 3x/wk (n = 12) CTRL: Non-exercising control (n = 8) HM3: 3 sets of 8 reps at 80% 1RM 3x/wk (n = 9)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: Sit to Stand Gait Speed: 6m Walk Test Balance: Sit and Reach
Kalapotharakos 2007 [84]	n = 18 (0 F) Age: 68 years Training status: Untrained	10 weeks CTRL: Non-exercising control (n = 9) LM3: 3 sets of 15 reps at 60% 1RM 3x/wk (n = 9)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Kanegusuku 2011 [85]	n = 26 (20 F) Age: 64.2 years Training status: Untrained	16 weeks CTRL: Non-exercising control (n = 11) LM2: 3 sets of 6 reps at 40% 1RM 2x/wk (n = 15)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Keeler 2001 [86]	n = 14 (14 F) Age: 32.6 years Training status: Untrained	10 weeks HS3: 1 sets of 10 reps at 80% 1RM 3x/wk (n = 8) LS3: 1 sets of 10 reps at 50% 1RM 3x/wk (n = 6)	Strength: Lower-body (1RM) Hypertrophy: Whole-body (BodPod) Mobility: NA Gait Speed: NA Balance: NA
Kelly 2007 [87]	n = 40 (19 F) Age: 23.4 years Training status: NA	8 weeks CTRL: Non-exercising control (n = 8) HS2: 1 sets of 8 reps at 80% 1RM 2x/wk (n = 14)	Strength: Lower-body (Isokinetic) Hypertrophy: NA Mobility: NA Gait Speed: NA

		HM2: 3 sets of 8 reps at 80% 1RM 2x/wk (n = 18)	Balance: NA
Kraemer 1997 [88]	n = 30 (0 F) Age: 20.3 years Training status: Trained	14 weeks LS3: 1 sets of 10 reps at 75% 1RM 3x/wk (n = 16) LM3: 3 sets of 10 reps at 72.5% 1RM 3x/wk (n = 14)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Krcmarova 2018 [89]	n = 31 (31 F) Age: 66 years Training status: NA	12 weeks CTRL: Non-exercising control (n = 11) LM2: 3 sets of 11 reps at 72.5% 1RM 2x/wk (n = 20)	Strength: NA Hypertrophy: Lower-body (BIA) Mobility: TUG Gait Speed: NA Balance: NA
Kubo 2021 [90]	n = 32 (0 F) Age: 20.9 years Training status: Untrained	10 weeks HM2: 4 sets of 8 reps at 80% 1RM 2x/wk (n = 12) LM2: 3 sets of 12 reps at 70% 1RM 2x/wk (n = 10) CTRL: Non-exercising control (n = 10)	Strength: Upper-body (1RM) Hypertrophy: Upper-body (MRI) Mobility: NA Gait Speed: NA Balance: NA
Lasevicius 2019a [91]	n = 28 (0 F) Age: 21 years Training status: Trained	10 weeks LM3: 4 sets of 10 reps at 75% 1RM 3x/wk (n = 14) LM2: 6 sets of 10 reps at 75% 1RM 2x/wk (n = 14)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (Ultrasound) Mobility: NA Gait Speed: NA Balance: NA
Lasevicius 2019b [92]	n = 50 (0 F) Age: 24.1 years Training status: Untrained	8 weeks HM2: 3 sets of 8 reps at 80% 1RM 2x/wk (n = 25) LM2: 3 sets of 28 reps at 30% 1RM 2x/wk (n = 25)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (MRI) Mobility: NA Gait Speed: NA Balance: NA
LeMura 2000 [93]	n = 23 (23 F) Age: 20 years Training status: Untrained	16 weeks LM3: 3 sets of 9 reps at 65% 1RM 3x/wk (n = 11)	Strength: NA Hypertrophy: Whole-body (Hydrodensitometry)

		CTRL: Non-exercising control (n = 12)	Mobility: NA Gait Speed: NA Balance: NA
Lexell 1995 [94]	n = 35 (16 F) Age: 73.5 years Training status: Untrained	11 weeks HM3: 3 sets of 6 reps at 85% 1RM 3x/wk (n = 23) CTRL: Non-exercising control (n = 12)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Lim 2019 [95]	n = 42 (0 F) Age: 23.5 years Training status: Untrained	10 weeks HM3: 3 sets of 8 reps at 80% 1RM 3x/wk (n = 21) LM3: 3 sets of 28 reps at 30% 1RM 3x/wk (n = 21)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (FibreCSA) Mobility: NA Gait Speed: NA Balance: NA
Liu-Ambrose 2010 [96]	n = 52 (52 F) Age: 69.5 years Training status: Untrained	52 weeks HM1: 2 sets of 7 reps at 82.5% 1RM 1x/wk (n = 27) HM2: 2 sets of 7 reps at 82.5% 1RM 2x/wk (n = 25)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: 4m Walk Test Balance: NA
Lopes 2016 [97]	n = 25 (25 F) Age: 67.2 years Training status: Untrained	12 weeks HM3: 3 sets of 5 reps at 87.5% 1RM 3x/wk (n = 14) CTRL: Non-exercising control (n = 11)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: TUG Gait Speed: 6MWT Balance: Sit and Reach
Malin 2013 [98]	n = 10 (10 F) Age: 21.2 years Training status: Untrained	7 weeks LM3: 3 sets of 10 reps at 60% 1RM 3x/wk (n = 8) CTRL: Non-exercising control (n = 2)	Strength: Lower-body (1RM) Hypertrophy: Whole-body (DXA) Mobility: NA Gait Speed: NA Balance: NA
Mangine 2015 [99]	n = 29 (0 F) Age: 24.4 years	8 weeks HM3: 4 sets of 4 reps at 90% 1RM 4x/wk (n = 15)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (Ultrasound)

	Training status: Trained	LM3: 4 sets of 11 reps at 70% 1RM 4x/wk (n = 14)	Mobility: NA Gait Speed: NA Balance: NA
Marshall 2011 [100]	n = 22 (0 F) Age: 28.3 years Training status: Trained	6 weeks HS2: 1 sets of 8 reps at 80% 1RM 2x/wk (n = 11) HM2: 4 sets of 8 reps at 80% 1RM 2x/wk (n = 11)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Marston 2019 [101]	n = 44 (36 F) Age: 57.5 years Training status: Untrained	12 weeks HM2: 5 sets of 5 reps at 85% 1RM 2x/wk (n = 14) LM2: 3 sets of 10 reps at 70% 1RM 2x/wk (n = 15) CTRL: Non-exercising control (n = 15)	Strength: Lower-body (1RM) Hypertrophy: Whole-body (DXA) Mobility: NA Gait Speed: NA Balance: NA
Marx 2001 [102]	n = 22 (22 F) Age: 22.7 years Training status: Untrained	24 weeks LS3: 1 sets of 10 reps at 75% 1RM 3x/wk (n = 12) CTRL: Non-exercising control (n = 10)	Strength: Lower-body (1RM) Hypertrophy: Whole-body (Hydrodensitometry) Mobility: NA Gait Speed: NA Balance: NA
Masuda 1999 [103]	n = 22 (0 F) Age: 28.1 years Training status: Untrained	8 weeks LM2: 9 sets of 16 reps at 60% 1RM 2x/wk (n = 11) HM2: 5 sets of 6 reps at 90% 1RM 2x/wk (n = 11)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (FibreCSA) Mobility: NA Gait Speed: NA Balance: NA
Matta 2015 [104]	n = 23 (0 F) Age: 19.4 years Training status: Untrained	14 weeks LM2: 3 sets of 10 reps at 75% 1RM 2x/wk (n = 12) CTRL: Non-exercising control (n = 11)	Strength: Lower-body (Isometric) Hypertrophy: Lower-body (Ultrasound) Mobility: NA Gait Speed: NA Balance: NA

McGinley 2007 [105]	n = 21 (0 F) Age: 26.2 years Training status: Untrained	8 weeks LM2: 2 sets of 10 reps at 65% 1RM 2x/wk (n = 12) CTRL: Non-exercising control (n = 9)	Strength: Upper-body (Isometric) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
McLester 2000 [106]	n = 18 (6 F) Age: 24.9 years Training status: Trained	12 weeks HM1: 3 sets of 8 reps at 80% 1RM 1x/wk (n = 9) HS3: 1 sets of 8 reps at 80% 1RM 3x/wk (n = 9)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Miller 2021a [107]	n = 61 (37 F) Age: 64.5 years Training status: Untrained	40 weeks HM2: 3 sets of 8 reps at 80% 1RM 2x/wk (n = 29) LM2: 3 sets of 16 reps at 40% 1RM 2x/wk (n = 32)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (Ultrasound) Mobility: NA Gait Speed: NA Balance: NA
Miller 2021b [107]	n = 50 (33 F) Age: 63.6 years Training status: Untrained	40 weeks HM3: 3 sets of 8 reps at 80% 1RM 3x/wk (n = 20) LM3: 3 sets of 16 reps at 40% 1RM 3x/wk (n = 30)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (Ultrasound) Mobility: NA Gait Speed: NA Balance: NA
Mitchell 2012 [108]	n = 36 (0 F) Age: 21 years Training status: Untrained	10 weeks LM3: 3 sets of 28 reps at 30% 1RM 3x/wk (n = 12) HM3: 3 sets of 8 reps at 80% 1RM 3x/wk (n = 12) HS3: 1 sets of 8 reps at 80% 1RM 3x/wk (n = 12)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (MRI) Mobility: NA Gait Speed: NA Balance: NA
Moghadasi 2015 [109]	n = 19 (0 F) Age: 25.3 years Training status: Untrained	8 weeks LM3: 3 sets of 10 reps at 72.5% 1RM 3x/wk (n = 9) CTRL: Non-exercising control (n = 10)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA

			Balance: NA
Monteiro 2019 [110]	n = 40 (40 F) Age: 67.8 years Training status: Untrained	24 weeks LM3: 2.5 sets of 10 reps at 70% 1RM 3x/wk (n = 20) CTRL: Non-exercising control (n = 20)	Strength: NA Hypertrophy: Whole-body (DXA) Mobility: TUG Gait Speed: NA Balance: SitandReach
Morganti 1995 [111]	n = 39 (39 F) Age: 59.3 years Training status: Untrained	52 weeks HM2: 3 sets of 8 reps at 80% 1RM 2x/wk (n = 20) CTRL: Non-exercising control (n = 19)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Moss 1993 [112]	n = 30 (30 F) Age: 19.7 years Training status: Untrained	8 weeks HM3: 3 sets of 4 reps at 90% 1RM 3x/wk (n = 15) LM3: 3 sets of 15 reps at 62.5% 1RM 3x/wk (n = 15)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Moss 1997 [113]	n = 20 (0 F) Age: 23.4 years Training status: Trained	9 weeks HM3: 4.5 sets of 2 reps at 90% 1RM 3x/wk (n = 9) LM3: 4.5 sets of 7 reps at 35% 1RM 3x/wk (n = 11)	Strength: Upper-body (1RM) Hypertrophy: Upper-body (CT) Mobility: NA Gait Speed: NA Balance: NA
Munn 2005 [114]	n = 69 (NA F) Age: 20.6 years Training status: Untrained	7 weeks HM3: 3 sets of 7 reps at 82.5% 1RM 3x/wk (n = 23) HS3: 1 sets of 7 reps at 82.5% 1RM 3x/wk (n = 23) CTRL: Non-exercising control (n = 23)	Strength: Upper-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Murlasits 2012 [115]	n = 24 (15 F) Age: 63.9 years Training status: Untrained	8 weeks LM2: 3 sets of 8 reps at 75% 1RM 2x/wk (n = 11)	Strength: NA Hypertrophy: Whole-body (DXA) Mobility: NA

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		LM3: 3 sets of 8 reps at 75% 1RM 3x/wk (n = 13)	Gait Speed: NA Balance: NA
Nichols 1993 [116]	n = 30 (30 F) Age: 66.6 years Training status: Untrained	24 weeks HM3: 3 sets of 9 reps at 80% 1RM 3x/wk (n = 15) CTRL: Non-exercising control (n = 15)	Strength: Lower-body (1RM) Hypertrophy: Whole-body (DXA) Mobility: NA Gait Speed: NA Balance: NA
Nobrega 2018 [117]	n = 27 (0 F) Age: 23 years Training status: Untrained	12 weeks HM2: 3 sets of 8 reps at 80% 1RM 2x/wk (n = 14) LM2: 3 sets of 28 reps at 30% 1RM 2x/wk (n = 13)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (Ultrasound) Mobility: NA Gait Speed: NA Balance: NA
Ochi 2018 [118]	n = 20 (0 F) Age: 22.3 years Training status: Untrained	11 weeks LM1: 6 sets of 12 reps at 67% 1RM 1x/wk (n = 10) LM3: 2 sets of 12 reps at 67% 1RM 3x/wk (n = 10)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (Ultrasound) Mobility: NA Gait Speed: NA Balance: NA
Otsuka 2022 [119]	n = 34 (18 F) Age: 63.5 years Training status: Untrained	24 weeks LM3: 3 sets of 14 reps at 60% 1RM 3x/wk (n = 17) CTRL: Non-exercising control (n = 17)	Strength: Upper-body (Isometric) Hypertrophy: Lower-body (MRI) Mobility: NA Gait Speed: NA Balance: NA
Ozaki 2018 [120]	n = 12 (0 F) Age: 26 years Training status: Untrained	8 weeks HM3: 3 sets of 8 reps at 80% 1RM 3x/wk (n = 6) LM3: 3 sets of 28 reps at 30% 1RM 3x/wk (n = 6)	Strength: Upper-body (1RM) Hypertrophy: Upper-body (MRI) Mobility: NA Gait Speed: NA Balance: NA

Padilha 2015 [121]	n = 27 (27 F) Age: 68.8 years Training status: Untrained	12 weeks LS2: 1 sets of 12.5 reps at 68.75% 1RM 2x/wk (n = 13) LS3: 1 sets of 12.5 reps at 68.75% 1RM 3x/wk (n = 14)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Panton 2001 [122]	n = 21 (10 F) Age: 68.6 years Training status: Untrained	12 weeks HM3: 3 sets of 8 reps at 80% 1RM 3x/wk (n = 11) CTRL: Non-exercising control (n = 10)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Pina 2019 [123]	n = 39 (39 F) Age: 68.5 years Training status: Untrained	12 weeks LS2: 1 sets of 12.5 reps at 68.75% 1RM 2x/wk (n = 19) LS3: 1 sets of 12.5 reps at 68.75% 1RM 3x/wk (n = 20)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (DXA) Mobility: NA Gait Speed: NA Balance: NA
Pina 2020 [124]	n = 47 (47 F) Age: 65.1 years Training status: Untrained	12 weeks LM2: 3 sets of 12.5 reps at 68.75% 1RM 2x/wk (n = 23) LM3: 2 sets of 12.5 reps at 68.75% 1RM 3x/wk (n = 24)	Strength: Lower-body (1RM) Hypertrophy: Whole-body (DXA) Mobility: NA Gait Speed: NA Balance: NA
Pincivero 2004 [125]	n = 10 (0 F) Age: 22.4 years Training status: Untrained	6 weeks LM2: 5.5 sets of 20 reps at 50% 1RM 2x/wk (n = 5) CTRL: Non-exercising control (n = 5)	Strength: Lower-body (Isokinetic) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Pinto 2012 [126]	n = 25 (0 F) Age: 22.8 years Training status: Untrained	10 weeks LM2: 3 sets of 16 reps at 60% 1RM 2x/wk (n = 15) CTRL: Non-exercising control (n = 10)	Strength: Upper-body (1RM) Hypertrophy: Upper-body (Ultrasound) Mobility: NA Gait Speed: NA

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			Balance: NA
Pinto 2014 [127]	n = 36 (36 F) Age: 66 years Training status: Untrained	6 weeks LM2: 2.5 sets of 16 reps at 60% 1RM 2x/wk (n = 19) CTRL: Non-exercising control (n = 17)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (Ultrasound) Mobility: TUG Gait Speed: NA Balance: NA
Pollock 1991 [128]	n = 25 (NA F) Age: 72.2 years Training status: Untrained	26 weeks LS3: 1 sets of 11 reps at 72.5% 1RM 3x/wk (n = 15) CTRL: Non-exercising control (n = 10)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Prabhakaran 1999 [129]	n = 24 (24 F) Age: 27 years Training status: Untrained	14 weeks HM3: 3 sets of 8 reps at 85% 1RM 3x/wk (n = 12) CTRL: Non-exercising control (n = 12)	Strength: Whole-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Pruitt 1995 [130]	n = 26 (26 F) Age: 68.3 years Training status: Untrained	52 weeks HM3: 2 sets of 7 reps at 80% 1RM 3x/wk (n = 8) LM3: 2 sets of 14 reps at 40% 1RM 3x/wk (n = 7) CTRL: Non-exercising control (n = 11)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Rabelo 2004 [131]	n = 61 (61 F) Age: 64.7 years Training status: Untrained	10 weeks LM3: 3 sets of 8 reps at 50% 1RM 3x/wk (n = 21) HM3: 3 sets of 8 reps at 80% 1RM 3x/wk (n = 20) CTRL: Non-exercising control (n = 20)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: Stair Climb Gait Speed: 800m Walk Test Balance: NA
Radaelli 2014 [132]	n = 27 (27 F) Age: 64.4 years Training status: Untrained	6 weeks LS2: 1 sets of 17.5 reps at 56.25% 1RM 2x/wk (n = 14)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (Ultrasound) Mobility: NA

		LM2: 3 sets of 17.5 reps at 56.25% 1RM 2x/wk (n = 13)	Gait Speed: NA Balance: NA
Radaelli 2015 [133]	n = 35 (0 F) Age: 24.4 years Training status: Untrained	24 weeks LS3: 1 sets of 10 reps at 75% 1RM 3x/wk (n = 12) LM3: 3 sets of 10 reps at 75% 1RM 3x/wk (n = 13) CTRL: Non-exercising control (n = 10)	Strength: NA Hypertrophy: Upper-body (Ultrasound) Mobility: NA Gait Speed: NA Balance: NA
Radaelli 2018 [134]	n = 26 (26 F) Age: 65.5 years Training status: Untrained	12 weeks LS2: 1 sets of 10.5 reps at 45% 1RM 2x/wk (n = 13) LM2: 3 sets of 10.5 reps at 45% 1RM 2x/wk (n = 13)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (Ultrasound) Mobility: NA Gait Speed: NA Balance: NA
Raj 2012 [135]	n = 25 (11 F) Age: 67.7 years Training status: Untrained	16 weeks LM2: 2 sets of 10 reps at 75% 1RM 2x/wk (n = 12) CTRL: Non-exercising control (n = 13)	Strength: Lower-body (Isokinetic) Hypertrophy: Lower-body (Ultrasound) Mobility: TUG Gait Speed: 6MWT Balance: NA
Ramirez-Campillo 2016 [136]	n = 24 (24 F) Age: 70.3 years Training status: Untrained	12 weeks LM2: 3 sets of 8 reps at 75% 1RM 2x/wk (n = 8) LM3: 2 sets of 8 reps at 75% 1RM 3x/wk (n = 8) CTRL: Non-exercising control (n = 8)	Strength: Upper-body (Isometric) Hypertrophy: NA Mobility: TUG Gait Speed: 10m Walk Test Balance: StandBalance
Ramirez-Campillo 2018 [137]	n = 37 (37 F) Age: 67.3 years Training status: Untrained	12 weeks LM3: 3 sets of 8 reps at 60% 1RM 3x/wk (n = 20) CTRL: Non-exercising control (n = 17)	Strength: NA Hypertrophy: NA Mobility: TUG Gait Speed: 10m Walk Test Balance: NA
Rana 2008 [138]	n = 15 (15 F)	6 weeks	Strength: Lower-body (1RM)

	Age: 22.6 years Training status: Untrained	LM3: 3 sets of 25 reps at 37.5% 1RM 3x/wk (n = 7) CTRL: Non-exercising control (n = 8)	Hypertrophy: Whole-body (BodPod) Mobility: NA Gait Speed: NA Balance: NA
Raso 2007 [139]	n = 32 (32 F) Age: 67.4 years Training status: Untrained	52 weeks LM3: 3 sets of 12 reps at 60% 1RM 3x/wk (n = 20) CTRL: Non-exercising control (n = 12)	Strength: Lower-body (1RM) Hypertrophy: Whole-body (BIA) Mobility: NA Gait Speed: NA Balance: NA
Reeves 2004 [140]	n = 18 (10 F) Age: 70.7 years Training status: Untrained	14 weeks LM3: 2 sets of 10 reps at 70% 1RM 3x/wk (n = 9) CTRL: Non-exercising control (n = 9)	Strength: Lower-body (Isometric) Hypertrophy: Lower-body (Ultrasound) Mobility: NA Gait Speed: NA Balance: NA
Ribeiro 2015 [141]	n = 30 (30 F) Age: 66.4 years Training status: Untrained	12 weeks LS3: 1 sets of 12.5 reps at 68.75% 1RM 3x/wk (n = 15) LM3: 3 sets of 12.5 reps at 68.75% 1RM 3x/wk (n = 15)	Strength: Lower-body (1RM) Hypertrophy: Whole-body (DXA) Mobility: NA Gait Speed: NA Balance: NA
Ribeiro 2018 [142]	n = 39 (39 F) Age: 69.1 years Training status: Untrained	12 weeks LS2: 1 sets of 12.5 reps at 68.75% 1RM 2x/wk (n = 17) LS3: 1 sets of 12.5 reps at 68.75% 1RM 3x/wk (n = 22)	Strength: NA Hypertrophy: Whole-body (BIA) Mobility: NA Gait Speed: NA Balance: NA
Robbins 2012 [143]	n = 22 (0 F) Age: 28.3 years Training status: Trained	6 weeks HS2: 1 sets of 8 reps at 80% 1RM 2x/wk (n = 11) HM2: 4 sets of 8 reps at 80% 1RM 2x/wk (n = 11)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA

			Balance: NA
Rodriguez-Lopez 2022 [144]	n = 62 (34 F) Age: 70.6 years Training status: Untrained	12 weeks HM2: 6 sets of 6 reps at 80% 1RM 2x/wk (n = 22) LM2: 6 sets of 12 reps at 40% 1RM 2x/wk (n = 21) CTRL: Non-exercising control (n = 19)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (Ultrasound) Mobility: NA Gait Speed: NA Balance: NA
Santos 2010 [145]	n = 16 (16 F) Age: 24.7 years Training status: Untrained	8 weeks LM3: 3 sets of 11 reps at 72.5% 1RM 3x/wk (n = 8) CTRL: Non-exercising control (n = 8)	Strength: Upper-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Santos 2018 [146]	n = 30 (0 F) Age: 24.3 years Training status: Trained	12 weeks LM3: 3 sets of 15 reps at 60% 1RM 3x/wk (n = 15) CTRL: Non-exercising control (n = 15)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Schiffer 2011 [147]	n = 14 (NA F) Age: 22.6 years Training status: Untrained	12 weeks LM3: 3 sets of 9 reps at 75% 1RM 3x/wk (n = 7) CTRL: Non-exercising control (n = 7)	Strength: Lower-body (Isometric) Hypertrophy: Lower-body (FibreCSA) Mobility: NA Gait Speed: NA Balance: NA
Schlicht 2001 [148]	n = 22 (28 F) Age: 72 years Training status: Untrained	8 weeks LM3: 2 sets of 10 reps at 75% 1RM 3x/wk (n = 11) CTRL: Non-exercising control (n = 11)	Strength: NA Hypertrophy: NA Mobility: Sit to Stand Gait Speed: 7.5m Walk Test Balance: One Leg Stance
Schoenfeld 2014 [149]	n = 17 (0 F) Age: 23.1 years Training status: Trained	8 weeks HM3: 7 sets of 3 reps at 92.5% 1RM 3x/wk (n = 8)	Strength: Lower-body (1RM) Hypertrophy: Upper-body (Ultrasound) Mobility: NA

		LM3: 3 sets of 10 reps at 75% 1RM 3x/wk (n = 9)	Gait Speed: NA Balance: NA
Schoenfeld 2016 [150]	n = 19 (0 F) Age: 23.2 years Training status: Trained	8 weeks HM3: 3 sets of 3 reps at 92.5% 1RM 3x/wk (n = 10) LM3: 3 sets of 10 reps at 75% 1RM 3x/wk (n = 9)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (Ultrasound) Mobility: NA Gait Speed: NA Balance: NA
Schoenfeld 2019 [151]	n = 23 (0 F) Age: 23.8 years Training status: Trained	8 weeks LS3: 1 sets of 10 reps at 75% 1RM 3x/wk (n = 11) LM3: 3 sets of 10 reps at 75% 1RM 3x/wk (n = 12)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (Ultrasound) Mobility: NA Gait Speed: NA Balance: NA
Shariat 2017 [152]	n = 22 (0 F) Age: 24.2 years Training status: Trained	9 weeks HM3: 3 sets of 3 reps at 92.5% 1RM 3x/wk (n = 11) LM3: 3 sets of 9 reps at 62.5% 1RM 3x/wk (n = 11)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Shigaki 2018 [153]	n = 44 (NA F) Age: 21.5 years Training status: Untrained	10 weeks LM2: 3 sets of 20 reps at 50% 1RM 2x/wk (n = 15) LS2: 1 sets of 20 reps at 50% 1RM 2x/wk (n = 14) CTRL: Non-exercising control (n = 15)	Strength: Upper-body (Isometric) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Shiotsu 2018 [154]	n = 22 (22 F) Age: 70.3 years Training status: Untrained	10 weeks LM2: 3 sets of 10 reps at 65% 1RM 2x/wk (n = 11) CTRL: Non-exercising control (n = 11)	Strength: NA Hypertrophy: Whole-body (BIA) Mobility: TUG Gait Speed: 10m Walk Test Balance: Sit and Reach
Sieljacks 2019 [155]	n = 22 (0 F) Age: 24 years	6 weeks LM3: 4 sets of 11 reps at	Strength: Lower-body (Isometric)

	Training status: Untrained	70% 1RM 3x/wk (n = 12) CTRL: Non-exercising control (n = 10)	Hypertrophy: Lower-body (FibreCSA) Mobility: NA Gait Speed: NA Balance: NA
Sipila 1996 [156, 157]	n = 23 (23 F) Age: 77 years Training status: NA	9 weeks LM3: 9 sets of 9 reps at 67.5% 1RM 3x/wk (n = 12) CTRL: Non-exercising control (n = 11)	Strength: Lower-body (Isometric) Hypertrophy: Lower-body (Ultrasound) Mobility: NA Gait Speed: 10m Walk Test Balance: NA
Soligon 2020 [158]	n = 25 (11 F) Age: 63 years Training status: Untrained	12 weeks CTRL: Non-exercising control (n = 11) LM2: 3 sets of 12.5 reps at 68% 1RM 2x/wk (n = 14)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (Ultrasound) Mobility: TUG Gait Speed: 15m Walk Test Balance: NA
Sooneste 2013 [159]	n = 16 (0 F) Age: 25 years Training status: Untrained	12 weeks HS2: 1 sets of 10 reps at 80% 1RM 2x/wk (n = 8) HM2: 3 sets of 10 reps at 80% 1RM 2x/wk (n = 8)	Strength: Upper-body (1RM) Hypertrophy: Upper-body (MRI) Mobility: NA Gait Speed: NA Balance: NA
Sousa 2017 [160]	n = 19 (9 F) Age: 21.4 years Training status: Untrained	6 weeks HM2: 4 sets of 8 reps at 80% 1RM 2x/wk (n = 11) LM2: 4 sets of 28 reps at 30% 1RM 2x/wk (n = 8)	Strength: Lower-body (Isometric) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Souza 2014 [161]	n = 14 (0 F) Age: 25.1 years Training status: Untrained	6 weeks HM2: 2.5 sets of 8 reps at 80% 1RM 2x/wk (n = 9) CTRL: Non-exercising control (n = 5)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (MRI) Mobility: NA

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			Gait Speed: NA Balance: NA
Starkey 1996 [162]	n = 48 (27 F) Age: 36.9 years Training status: Untrained	14 weeks HS3: 1 sets of 8 reps at 80% 1RM 3x/wk (n = 18) HM3: 3 sets of 8 reps at 80% 1RM 3x/wk (n = 20) CTRL: Non-exercising control (n = 10)	Strength: Lower-body (Isometric) Hypertrophy: Lower-body (Ultrasound) Mobility: NA Gait Speed: NA Balance: NA
Stec 2017 [163]	n = 29 (14 F) Age: 65.2 years Training status: Untrained	35 weeks LM2: 3 sets of 10 reps at 75% 1RM 2x/wk (n = 15) LM3: 3 sets of 10 reps at 75% 1RM 3x/wk (n = 14)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (DXA) Mobility: Time to Stand Gait Speed: 6MWT Balance: NA
Stefanaki 2019 [164]	n = 26 (26 F) Age: 29.7 years Training status: Untrained	6 weeks LS2: 1 sets of 28 reps at 30% 1RM 2x/wk (n = 13) HS2: 1 sets of 8 reps at 80% 1RM 2x/wk (n = 13)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (Ultrasound) Mobility: NA Gait Speed: NA Balance: NA
Stone 1994 [165]	n = 33 (33 F) Age: 23.1 years Training status: Untrained	9 weeks HM3: 3 sets of 7 reps at 82.5% 1RM 3x/wk (n = 17) LM3: 2 sets of 17.5 reps at 56.25% 1RM 3x/wk (n = 16)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Sundstrup 2016 [166]	n = 16 (0 F) Age: 68.4 years Training status: Untrained	16 weeks LM2: 3 sets of 10 reps at 75% 1RM 2x/wk (n = 9) CTRL: Non-exercising control (n = 7)	Strength: Lower-body (Isokinetic) Hypertrophy: NA Mobility: Sit to Stand Gait Speed: NA Balance: StandBalance
Taaffe 1995 [167]	n = 32 (32 F) Age: 68 years	15 weeks HM3: 3 sets of 7 reps at	Strength: Lower-body (1RM) Hypertrophy: Whole-body

	Training status: Untrained	80% 1RM 3x/wk (n = 10) LM3: 3 sets of 14 reps at 40% 1RM 3x/wk (n = 11) CTRL: Non-exercising control (n = 11)	(DXA) Mobility: NA Gait Speed: NA Balance: NA
Tanimoto 2006 [168]	n = 16 (0 F) Age: 19.7 years Training status: Untrained	12 weeks HM3: 3 sets of 8 reps at 80% 1RM 3x/wk (n = 8) LM3: 3 sets of 20 reps at 50% 1RM 3x/wk (n = 8)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (MRI) Mobility: NA Gait Speed: NA Balance: NA
Tanimoto 2008 [169]	n = 36 (0 F) Age: 19 years Training status: Untrained	13 weeks CTRL: Non-exercising control (n = 12) LM2: 3 sets of 18 reps at 55% 1RM 2x/wk (n = 12) HM2: 3 sets of 6 reps at 85% 1RM 2x/wk (n = 12)	Strength: Whole-body (1RM) Hypertrophy: Whole-body (Ultrasound) Mobility: NA Gait Speed: NA Balance: NA
Tavares 2017 [170]	n = 33 (0 F) Age: 23.7 years Training status: Trained	8 weeks CTRL: Non-exercising control (n = 11) HM1: 4 sets of 7 reps at 82.5% 1RM 1x/wk (n = 11) HM2: 2 sets of 7 reps at 82.5% 1RM 2x/wk (n = 11)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (MRI) Mobility: NA Gait Speed: NA Balance: NA
Teixeira 2019 [171]	n = 20 (20 F) Age: 56 years Training status: Untrained	16 weeks CTRL: Non-exercising control (n = 10) LM3: 2 sets of NA reps at 67.5% 1RM 3x/wk (n = 10)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Timmons 2018 [172]	n = 42 (24 F) Age: 69 years Training status: Untrained	12 weeks CTRL: Non-exercising control (n = 21) LM3: 4 sets of 15 reps at 60% 1RM 3x/wk (n = 21)	Strength: Lower-body (1RM) Hypertrophy: Whole-body (DXA) Mobility: NA Gait Speed: NA Balance: NA

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Toien 2018 [173]	n = 31 (0 F) Age: 23.5 years Training status: Untrained	8 weeks CTRL: Non-exercising control (n = 14) HM3: 4 sets of 4 reps at 92.5% 1RM 3x/wk (n = 17)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Tomberlin 1991 [174]	n = 42 (NA F) Age: 27.1 years Training status: Untrained	6 weeks LM3: 3 sets of 10 reps at 75% 1RM 3x/wk (n = 19) CTRL: Non-exercising control (n = 23)	Strength: Lower-body (NA) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Tracy 2004 [175]	n = 20 (11 F) Age: 73.5 years Training status: Untrained	16 weeks CTRL: Non-exercising control (n = 9) HM3: 3 sets of 10 reps at 80% 1RM 3x/wk (n = 11)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (MRI) Mobility: Composite Physical Function Test Gait Speed: NA Balance: NA
Tracy 2006 [176]	n = 30 (18 F) Age: 71.9 years Training status: Untrained	16 weeks CTRL: Non-exercising control (n = 9) LM3: 3 sets of 10 reps at 30% 1RM 3x/wk (n = 21)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: Composite Physical Function Test Gait Speed: NA Balance: NA
Trindade 2019 [177]	n = 19 (0 F) Age: 31 years Training status: Untrained	9 weeks CTRL: Non-exercising control (n = 7) LM2: 3 sets of 10 reps at 75% 1RM 2x/wk (n = 12)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (Ultrasound) Mobility: NA Gait Speed: NA Balance: NA
Ucan 2014 [178]	n = 25 (25 F) Age: 22.8 years Training status: Untrained	12 weeks LM3: 3 sets of 13 reps at 55% 1RM 3x/wk (n = 13) CTRL: Non-exercising control (n = 12)	Strength: NA Hypertrophy: Whole-body (DXA) Mobility: NA

			Gait Speed: NA Balance: NA
Unlu 2020 [179]	n = 14 (0 F) Age: 21 years Training status: Untrained	12 weeks CTRL: Non-exercising control (n = 7) LM3: 3 sets of 9 reps at 67.5% 1RM 3x/wk (n = 7)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (MRI) Mobility: NA Gait Speed: NA Balance: NA
VanRoie 2013a [180]	n = 24 (14 F) Age: 22 years Training status: Untrained	9 weeks HS3: 1 sets of 10 reps at 80% 1RM 3x/wk (n = 12) LS3: 1 sets of 10 reps at 40% 1RM 3x/wk (n = 12)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
VanRoie 2013b [181]	n = 37 (20 F) Age: 67.5 years Training status: Untrained	12 weeks HM3: 2 sets of 12.5 reps at 80% 1RM 3x/wk (n = 18) LS3: 1 sets of 90 reps at 20% 1RM 3x/wk (n = 19)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (CT) Mobility: TUG Gait Speed: 7.5m Walk Test Balance: NA
Vargas 2019 [182]	n = 25 (0 F) Age: 28.4 years Training status: Trained	8 weeks CTRL: Non-exercising control (n = 5) HM3: 3 sets of 7 reps at 82.5% 1RM 4x/wk (n = 10) LM3: 3 sets of 22.5 reps at 44% 1RM 4x/wk (n = 10)	Strength: NA Hypertrophy: Whole-body (DXA) Mobility: NA Gait Speed: NA Balance: NA
Vechin 2015 [183]	n = 15 (7 F) Age: 63.9 years Training status: Untrained	12 weeks CTRL: Non-exercising control (n = 7) LM2: 4 sets of 10 reps at 75% 1RM 2x/wk (n = 8)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (MRI) Mobility: NA Gait Speed: NA Balance: NA
Vieira 2019 [184]	n = 30 (0 F) Age: 21.4 years	8 weeks LM2: 2 sets of 13 reps at 67.5% 1RM 2x/wk (n = 15)	Strength: Upper-body (1RM) Hypertrophy: NA

	Training status: Untrained	CTRL: Non-exercising control (n = 15)	Mobility: NA Gait Speed: NA Balance: NA
Vincent 2002 [185]	n = 62 (NA F) Age: 68.1 years Training status: Untrained	24 weeks LS3: 1 sets of 13 reps at 50% 1RM 3x/wk (n = 24) HS3: 1 sets of 8 reps at 80% 1RM 3x/wk (n = 22) CTRL: Non-exercising control (n = 16)	Strength: Whole-body (1RM) Hypertrophy: Whole-body (DXA) Mobility: Stair Climb Gait Speed: NA Balance: NA
Weiss 1988 [186]	n = 54 (28 F) Age: 21 years Training status: Untrained	8 weeks CTRL: Non-exercising control (n = 28) LM3: 4 sets of 11 reps at 72.5% 1RM 3x/wk (n = 26)	Strength: Lower-body (1RM) Hypertrophy: Upper-body (Ultrasound) Mobility: NA Gait Speed: NA Balance: NA
Weiss 1999 [187]	n = 31 (0 F) Age: 21 years Training status: Untrained	7 weeks CTRL: Non-exercising control (n = 10) HM3: 4 sets of 4 reps at 90% 1RM 3x/wk (n = 11) LM3: 4 sets of 14 reps at 65% 1RM 3x/wk (n = 10)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Weiss 2000 [188]	n = 27 (0 F) Age: 21 years Training status: Untrained	7 weeks CTRL: Non-exercising control (n = 10) HM3: 4 sets of 4 reps at 90% 1RM 3x/wk (n = 7) LM3: 4 sets of 14 reps at 65% 1RM 3x/wk (n = 10)	Strength: NA Hypertrophy: Lower-body (Ultrasound) Mobility: NA Gait Speed: NA Balance: NA
Willoughby 1998 [189]	n = 11 (0 F) Age: 70.2 years Training status: Untrained	12 weeks CTRL: Non-exercising control (n = 4) LM3: 3 sets of 17.5 reps at 62.5% 1RM 3x/wk (n = 7)	Strength: Lower-body (1RM) Hypertrophy: NA Mobility: NA Gait Speed: NA Balance: NA
Wong 2009 [190]	n = 48 (12 F)	8 weeks	Strength: Lower-body (Isometric)

	Age: 27 years Training status: Untrained	CTRL: Non-exercising control (n = 16) HM3: 5 sets of 5 reps at 87.5% 1RM 3x/wk (n = 16) LM3: 4 sets of 10 reps at 75% 1RM 3x/wk (n = 16)	Hypertrophy: Lower-body (Ultrasound) Mobility: NA Gait Speed: NA Balance: NA
Yasuda 2011 [191]	n = 20 (0 F) Age: 24.5 years Training status: Untrained	6 weeks CTRL: Non-exercising control (n = 10) LM3: 3 sets of 10 reps at 75% 1RM 3x/wk (n = 10)	Strength: Upper-body (1RM) Hypertrophy: Upper-body (MRI) Mobility: NA Gait Speed: NA Balance: NA
Yue 2018 [192]	n = 18 (0 F) Age: 24.5 years Training status: Trained	6 weeks LM2: 4 sets of 10 reps at 75% 1RM 2x/wk (n = 9) LM3: 2 sets of 10 reps at 75% 1RM 4x/wk (n = 9)	Strength: Lower-body (1RM) Hypertrophy: Lower-body (Ultrasound) Mobility: NA Gait Speed: NA Balance: NA

Resistance training prescriptions are denoted with a three-character acronym – XY# – where X is load (H, ≥80% 1-repetition maximum [1RM]; L, <80% 1RM); Y is sets (M, multi-set; S, single-set); and # is the weekly frequency (3, ≥3 d/wk; 2, 2 d/wk; 1, 1 d/wk), respectively. For example, "HM2" denotes high-load, multi-set, twice-weekly training. Abbreviations: 1RM, 1-repetition maximum; 6MWT, 6-minute walk test; BIA, bioelectrical impedance analysis; CT, computed tomography; CTRL, non-exercising control group; DXA, dual-energy X-ray absorptiometry; F, females; FibreCSA, muscle fibre cross-sectional area; MRI, magnetic resonance imaging; TUG, timed up-and-go; x/wk, weekly frequency; NA, not available.

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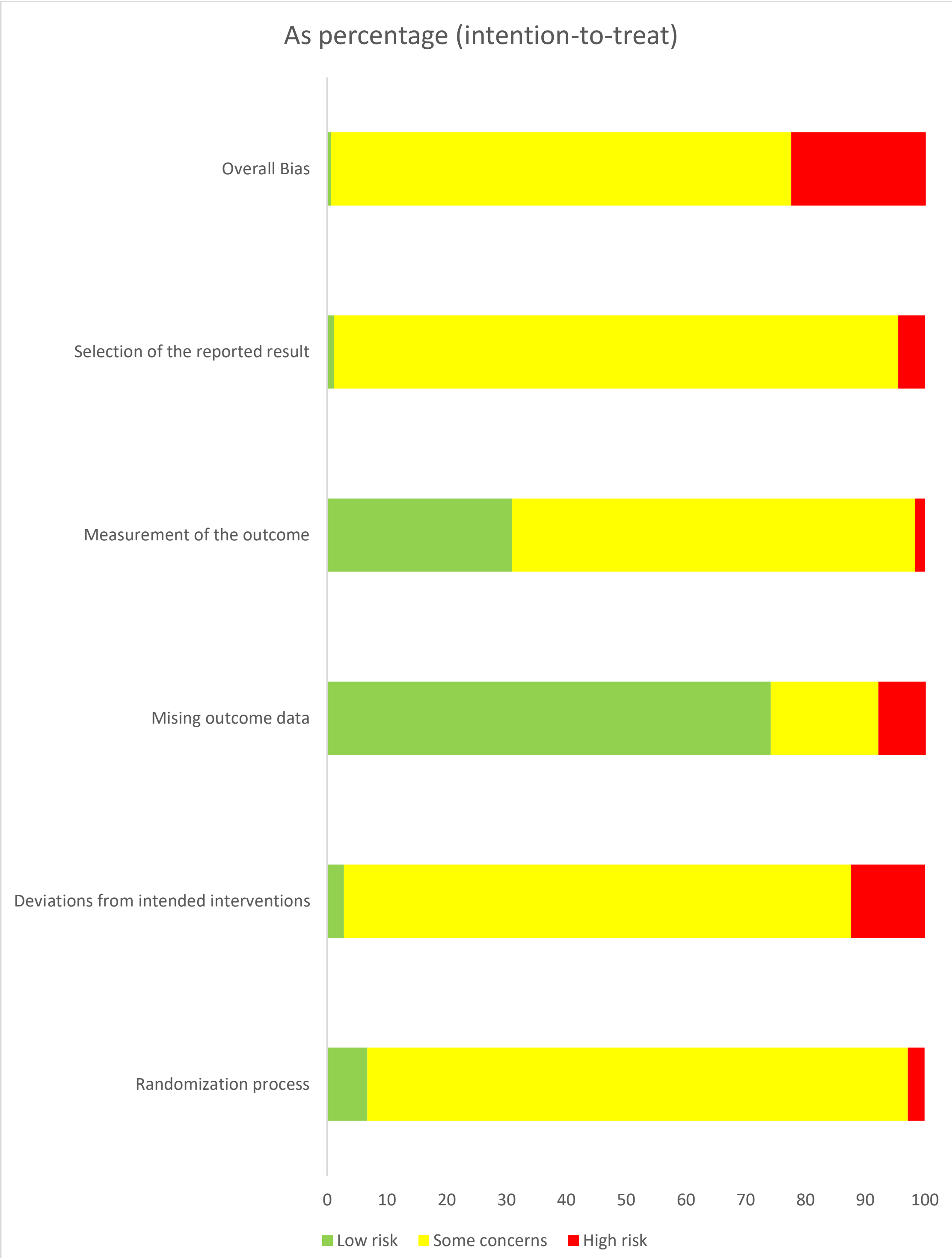
Online Supplementary Appendix 7: Within-study risk of bias.

Figure S1. Strength risk of bias assessment summary.



Domain-level risk of bias assessments for strength.

Study ID	D1	D2	D3	D4	D5	Overall
Aarskog 2012	+	+	+	+	!	!
Abe 2000	!	-	+	!	!	-
Abonie 2021	!	!	+	+	!	!
Aguiar 2015	!	!	+	!	!	!
Aizawa 2003	!	!	+	!	!	!
Akagi 2020	!	!	+	+	!	!
Alcaraz 2011	!	!	+	!	!	!
Alegre 2006	!	!	+	+	!	!
Alegre 2015	!	!	+	+	!	!
Amarante do Nascimento 2020	!	!	+	!	!	!
Anderson 1982	!	!	+	!	!	!
Arazi 2021	!	!	+	!	!	!
Baker 2004	!	!	+	!	!	!
Barcelos 2015	!	!	+	!	!	!
Barcelos 2018	!	!	+	+	!	!
Bartolomei 2018	!	!	+	!	!	!
Bemben 2000	!	!	+	!	!	!
Bermon 1999	!	!	+	!	-	-
Borst 2001	!	!	+	!	!	!
Bottaro 2009	-	!	+	+	!	-
Bottaro 2011	!	!	+	+	!	!
Brandon 2004	!	-	+	!	!	-
Brigatto 2019	!	!	+	!	!	!
Camargo 2008	!	!	+	+	!	!
Campos 2002	!	!	+	!	!	!

+ Low risk
! Some concerns
- High risk

D1 Randomization process
D2 Deviations from intended interventions
D3 Missing outcome data
D4 Measurement of the outcome
D5 Selection of reported result

Carpenter 1991	!	!	+	+	!	!
Charette 1991	!	!	+	!	!	!
Chestnut 1999	!	!	+	!	!	!
Cannon 2010a	!	!	+	!	!	!
Cannon 2010b	!	!	+	!	!	!
Caserotti 2008a	!	!	+	+	!	!
Caserotti 2008b	!	!	+	+	!	!
Cholewa 2018	!	!	+	!	!	!
Coburn 2006	!	!	+	!	!	!
Colliander 1990	!	!	+	+	!	!
Cook 2018	!	!	+	+	!	!
Coratella 2021	+	!	+	+	!	!
Correa 2012	!	!	!	+	!	!
Correa 2014	!	!	+	!	!	!
Cuevas-Aburto 2021	!	-	+	!	!	-
Cunha 2020	+	!	+	+	!	!
Daly 2013	+	!	+	+	!	!
Dankel 2020	+	!	+	!	!	!
DeBeliso 2005	!	-	+	+	!	-
DeCastroCesar 2009	!	!	!	!	!	!
DeSouza 2018	!	!	+	!	!	!
DiFrancisco-Donoghue 2007	!	!	+	+	!	!
Diniz 2021	!	!	+	!	!	!
Dinyer 2019	!	!	+	!	!	!
Early 2020	!	!	+	!	!	!
Elliott 2002	!	!	+	+	!	!
Evangelista 2021	!	!	+	!	!	!

Fatouros 2005	!	!	+	!	!	!
Fatouros 2006	!	!	+	!	!	!
Firoozi 2020	!	!	+	!	!	!
Fisher 2017	!	!	+	+	!	!
Fisher 2018	!	!	+	+	!	!
Fjeldstad 2009	!	!	+	!	!	!
Franco 2019	!	!	+	!	!	!
Frontera 2003	!	!	+	!	!	!
Galindo da Silva 2017	!	!	+	!	-	-
Gambassi 2016	!	!	+	+	!	!
Gentil 2015	!	!	+	+	!	!
Gentil 2018	!	!	+	+	!	!
Granacher 2009	!	!	!	+	!	!
Grzyb 2020	!	!	+	!	!	!
Harris 2004	!	-	!	!	-	-
Hass 2000	!	-	+	+	!	-
Hawkins 1999	!	-	!	+	!	-
Heggelund 2013	!	!	+	!	!	!
Henwood 2006	!	!	+	!	!	!
Higbie 1996	!	!	+	+	!	!
Hisaeda 1996	!	!	+	+	!	!
Hojun 2017	!	!	+	!	!	!
Hooshmand-Moghadam 2020	!	!	+	!	!	!
Ibrahim 2020	!	!	+	!	!	!
Ikezoe 2017	!	+	+	+	!	!
Jenkins 2017	!	!	+	+	!	!
Kalapotharakos 2004	!	!	+	!	!	!

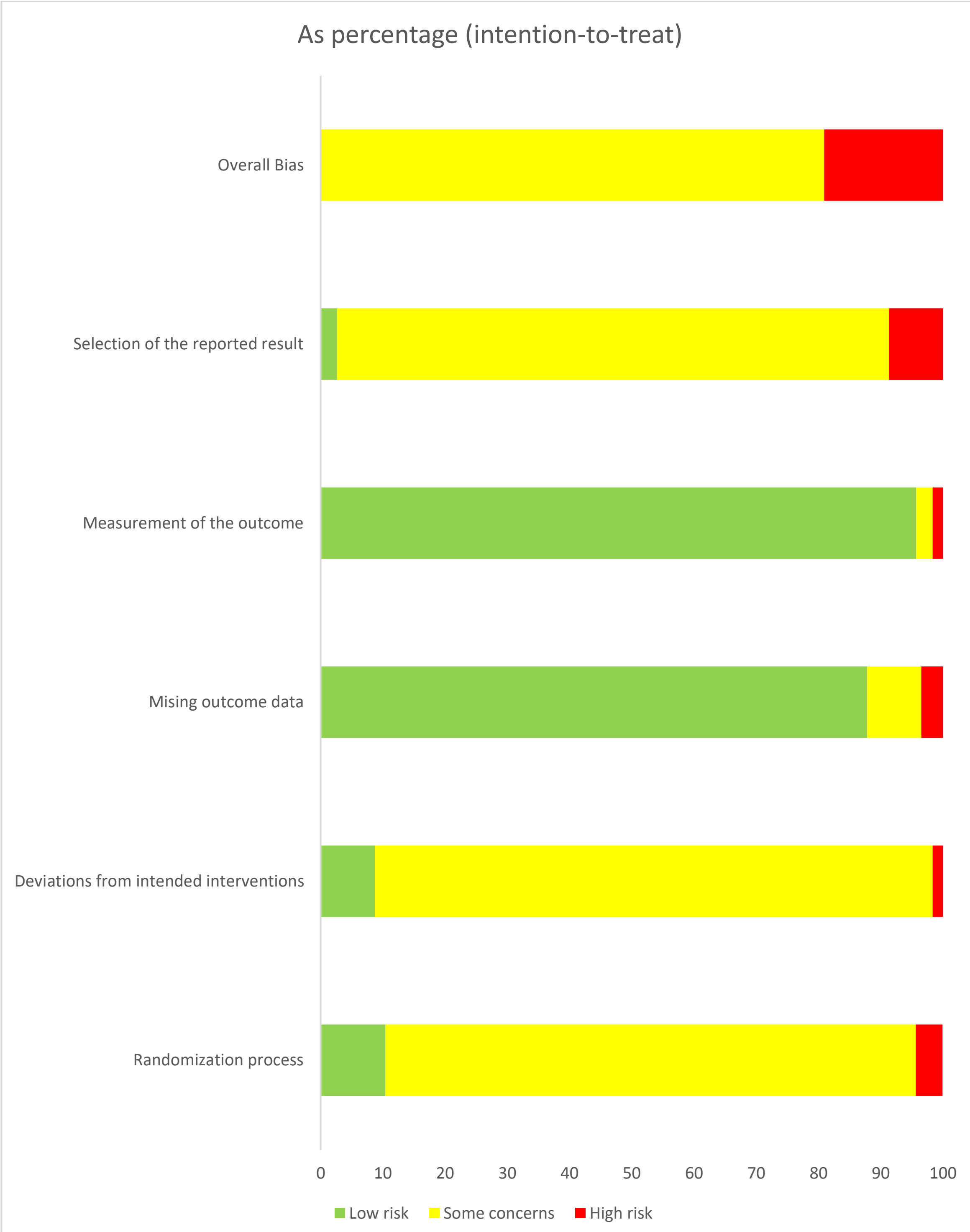
Kalapotharakos 2005a	!	!	+	!	!	!
Kalapotharakos 2005b	!	!	+	!	!	!
Kalapotharakos 2007	!	!	+	!	!	!
Kanegusuku 2011	!	!	+	!	!	!
Keeler 2001	!	!	+	!	!	!
Kelly 2007	!	!	+	+	!	!
Kramer 1997	!	!	+	!	!	!
Kubo 2021	!	!	+	!	!	!
Lasevicius 2019a	!	!	+	!	!	!
Lasevicius 2019b	!	!	+	!	!	!
Lexell 1995	-	-	+	!	!	-
Lim 2019	!	!	+	-	!	-
Liu-Ambrose 2010	+	+	+	+	!	!
Lopes 2016	!	!	+	!	!	!
Malin 2013	!	!	+	!	!	!
Mangine 2015	!	!	!	!	!	!
Marshall 2011	!	!	!	!	!	!
Marston 2019	+	!	+	+	!	!
Marx 2001	!	!	!	!	!	!
Masuda 1999	!	!	!	!	!	!
Matta 2015	!	!	!	+	!	!
McGinley 2007	!	!	!	+	!	!
McLester 2000	!	!	!	!	!	!
Miller 2021a	!	-	-	!	!	-
Miller 2021b	!	-	-	!	!	-
Mitchell 2012	!	!	+	!	!	!
Moghadasi 2015	!	!	+	!	!	!

Morganti 1995	!	!	+	!	!	!
Moss 1993	!	!	!	!	!	!
Moss 1997	!	!	!	!	!	-
Munn 2005	!	!	+	!	!	!
Nichols 1993	!	!	+	!	!	!
Nobrega 2018	!	!	+	!	!	!
Ochi 2018	!	!	!	+	!	!
Otsuka 2022	+	!	+	+	!	!
Ozaki 2018	!	!	+	!	!	!
Padilha 2015	!	!	+	!	!	!
Panton 2001	!	-	-	!	!	-
Pina 2019	!	!	+	!	!	!
Pina 2020	!	!	+	!	!	!
Pincivero 2004	-	!	-	+	!	-
Pinto 2012	!	!	!	!	!	!
Pinto 2014	+	!	+	+	!	!
Pollock 1991	!	!	-	!	!	-
Prabhakaran 1999	!	!	!	-	-	-
Pruitt 1995	!	-	-	!	!	-
Rabelo 2004	!	!	-	!	!	-
Radaelli 2014	!	!	+	!	!	!
Radaelli 2018	!	!	!	!	!	!
Raj 2012	!	!	!	!	!	!
Ramirez-Campillo 2016	!	!	+	+	!	!
Rana 2008	!	!	!	!	!	!
Raso 2007	!	-	-	!	!	-
Reeves 2004	-	!	!	+	!	-

Ribeiro 2015	!	!	+	!	!	!
Robbins 2012	!	!	-	!	!	-
Rodriguez-Lopez 2022	!	!	+	!	+	!
Santos 2010	!	!	+	!	!	!
Santos 2018	-	-	-	!	!	-
Schiffer 2011	!	!	!	-	!	-
Schoenfeld 2014	!	!	!	!	!	!
Schoenfeld 2016	!	!	+	!	!	!
Schoenfeld 2019	!	-	!	!	!	-
Shariat 2017	!	!	+	!	!	!
Shigaki 2018	+	+	+	+	+	+
Sieljacks 2019	!	!	+	+	!	!
Sipila 1996	!	-	+	+	!	-
Soligon 2020	!	!	+	!	!	!
Sooneste 2013	!	!	+	!	!	!
Sousa 2017	!	-	-	!	!	-
Souza 2014	!	-	!	!	!	-
Starkey 1996	!	!	+	+	!	!
Stec 2017	!	!	!	!	!	!
Stefanaki 2019	!	!	+	!	!	!
Stone 1994	!	!	+	!	!	!
Sundstrup 2016	!	+	+	+	!	!
Taaffe 1995	!	!	!	!	-	-
Tanimoto 2006	!	!	+	+	!	!
Tanimoto 2008	!	!	+	!	-	-
Tavares 2017	!	!	+	!	!	!
Teixeira 2019	!	!	-	!	!	-

Timmons 2018	+	!	+	+	!	!
Toien 2018	!	!	!	!	!	!
Tomberlin 1991	!	-	!	+	!	-
Tracy 2004	!	!	+	!	!	!
Tracy 2006	!	!	+	!	!	!
Trindade 2019	+	-	!	!	!	-
Unlu 2020	!	!	+	+	!	!
VanRoie 2013a	!	!	+	!	!	!
VanRoie 2013b	!	!	+	!	!	!
Vechin 2015	!	!	-	!	!	-
Vieira 2019	!	!	+	+	!	!
Vincent 2002	!	-	+	!	!	-
Weiss 1988	!	!	+	!	-	-
Weiss 1999	!	-	-	!	!	-
Willoughby 1998	!	!	!	!	-	-
Wong 2009	!	!	!	+	!	!
Yasuda 2011	!	!	+	!	!	!
Yue 2018	!	!	+	!	!	!

Figure S2. Hypertrophy risk of bias assessment summary.



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Domain-level risk of bias assessments for hypertrophy.

Study ID	D1	D2	D3	D4	D5	Overall
Abe 2000	!	!	+	!	!	!
Aguiar 2015	!	!	+	+	!	!
Aizawa 2003	-	!	+	+	!	-
Akagi 2020	!	-	+	-	!	-
Alcaraz 2011	!	!	+	+	!	-
Barcelos 2018	!	!	+	+	!	!
Alegre 2006	!	!	+	+	!	!
Alegre 2015	!	!	+	+	!	!
AmarantedoNascimento 2020	!	!	+	+	!	!
Barcelos 2015	!	!	+	+	!	!
Bemben 2000	!	!	+	+	!	!
Bobeuf 2010	!	!	+	+	!	!
Bottaro 2011	!	!	+	+	!	!
Campos 2002	!	!	+	+	-	-
Cannon 2010a	!	+	+	+	!	!
Cannon 2010b	!	+	+	+	!	!
Caserotti 2008a	!	!	+	+	!	!
Charette 1991	!	!	+	+	!	!
Chestnut 1999	!	!	+	+	!	!
Cholewa 2018	!	!	+	+	!	!
Coburn 2006	!	!	+	+	-	-
Cook 2018	!	+	+	+	!	!
Coratella 2021	+	+	+	+	!	!
Correa 2012	!	!	+	+	!	!
Correa 2014	!	+	+	+	!	!

+ Low risk
! Some concerns
- High risk

D1 Randomization process
D2 Deviations from intended interventions
D3 Missing outcome data
D4 Measurement of the outcome
D5 Selection of reported result

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Cunha 2020	+	!	+	+	!	!
Daly 2013	-	+	+	+	!	-
Dankel 2020	+	!	+	+	!	!
DeSouza 2018	!	!	+	+	!	!
Diniz 2021	!	!	+	+	!	!
Dinyer 2019	!	+	+	+	!	!
Evangelista 2021	-	!	+	+	!	-
Fonseca 2014	!	!	+	+	!	!
Franco 2019	!	-	+	+	!	-
Frontera 2003	!	!	+	+	!	!
Gambassi 2016	!	!	+	+	!	!
Gentil 2015	!	!	+	+	!	!
Gentil 2018	!	!	+	+	!	!
Gryzb 2020	!	!	+	+	-	-
Hawkins 1999	!	!	+	+	!	!
Higbie 1996	!	+	+	+	!	!
Hisaeda 1996	!	+	+	+	!	!
Hojun 2017	!	!	+	!	!	!
Ikezoe 2017	!	!	+	+	!	!
Jenkins 2017	!	!	+	+	!	!
Kalapotharakos 2004	!	!	+	+	!	!
Keeler 2001	!	!	+	+	!	!
Krcmarova 2018	!	!	+	+	!	!
Kubo 2021	!	!	+	+	!	!
Lasevicius 2019	!	!	+	+	!	!
Lasevicius 2019	!	!	+	+	!	!
LeMura 2000	!	!	+	+	!	!

Lim 2019	!	!	+	+	!	!
Malin 2013	-	!	!	+	!	-
Mangine 2015	!	!	-	+	-	-
Marston 2019	+	!	+	+	-	-
Marx 2001	!	+	+	+	!	!
Masuda 1999	!	!	!	+	!	!
Matta 2015	!	!	!	+	!	!
Miller 2021a	!	!	!	+	!	!
Miller 2021b	!	!	!	+	!	!
Mitchell 2012	!	!	+	+	!	!
Monteiro 2019	!	!	+	+	!	!
Murlasits 2012	!	!	!	+	!	!
Nichols 1993	!	!	+	+	!	!
Nobrega 2018	!	!	+	+	!	!
Ochi 2018	!	!	+	+	!	!
Otsuka 2022	+	!	+	+	+	!
Ozaki 2018	!	!	+	+	!	!
Pina 2019	!	!	+	+	!	!
Pina 2020	!	!	+	+	!	!
Pinto 2012	!	!	+	+	!	!
Pinto 2014	+	!	+	+	!	!
Radaelli 2014	!	!	+	+	!	!
Radelli 2015	!	!	+	+	-	-
Radaelli 2018	!	!	+	+	!	!
Raj 2012	!	!	-	+	!	-
Rana 2008	!	!	+	+	!	!
Raso 2007	!	!	+	!	-	-

Reeves 2004	!	!	+	+	!	!
Ribeiro 2015	!	!	+	+	!	!
Ribeiro 2018	+	!	+	+	!	!
Rodriguez-Lopez 2022	!	!	+	+	+	!
Schiffer 2011	!	!	+	+	!	!
Schoenfeld 2014	!	!	-	+	!	-
Schoenfeld 2016	!	!	!	+	!	!
Schoenfeld 2019	!	!	!	+	!	!
Shiotsu 2018	!	!	+	+	!	!
Sieljacks 2019	!	!	+	+	+	!
Sipila 1996	!	!	+	+	!	!
Soligon 2020	!	!	+	+	!	!
Sooneste 2013	!	!	+	+	!	!
Souza 2014	!	!	+	+	!	!
Starkey 1996	!	!	!	+	!	!
Moss 1997	+	!	+	+	!	!
Stec 2017	!	!	+	+	-	-
Stefanaki 2019	!	!	+	+	!	!
Taaffe 1995	!	!	-	+	!	-
Tanimoto 2006	!	!	+	+	!	!
Tanimoto 2008	!	!	+	+	!	!
Tavares 2017	!	!	+	+	!	!
Timmons 2018	+	!	+	+	!	!
Tracy 2004	+	!	+	+	-	-
Trindade 2019	+	!	!	+	!	!
Ucan 2014	!	!	+	+	!	!
Unlu 2020	+	!	+	+	!	!

VanRoie 2013	!	!	+	+	!	!
Vargas 2019	!	!	+	+	!	!
Vechin 2015	!	!	+	+	!	!
Vincent 2002	!	!	+	+	!	!
Weiss 1988	!	!	+	+	!	!
Weiss 2000	!	!	+	+	-	-
Wong 2009	!	!	+	-	!	-
Yasuda 2011	!	!	+	+	!	!
Yue 2018	-	!	+	+	!	-

Online Supplementary Appendix 8: Posterior rankings.

Table S2. Posterior rank statistics and probabilities for muscle strength and hypertrophy.

	Strength (13 conditions)				**Hypertrophy (11 conditions)**			
	Rank statistics		**Probabilities**		**Rank statistics**		**Probabilities**	
RTx	**Mean**	**95% CrI**	**Best**	**Top 3**	**Mean**	**95% CrI**	**Best**	**Top 3**
HM3	2.3	(1 to 5)	0.26	0.85	4.8	(1 to 8)	0.03	0.24
HM2	2.4	(1 to 5)	0.23	0.83	2.1	(1 to 6)	0.40	0.87
HM1	3.5	(1 to 10)	0.32	0.60	6.3	(1 to 11)	0.21	0.32
HS3	5.9	(2 to 11)	0.02	0.15	7.4	(1 to 10)	0.03	0.10
HS2	6.7	(1 to 12)	0.03	0.14	9.0	(1 to 11)	0.04	0.08
HS1	8.5	(1 to 13)	0.13	0.21	N.D.	N.D.	N.D.	N.D.
LM3	7.6	(5 to 11)	0.00	0.00	5.1	(2 to 8)	0.01	0.14
LM2	5.6	(3 to 9)	0.00	0.06	3.8	(1 to 7)	0.04	0.48
LM1	7.5	(2 to 12)	0.01	0.09	4.2	(1 to 9)	0.19	0.49
LS3	9.4	(6 to 12)	0.00	0.00	7.5	(4 to 10)	0.01	0.02
LS2	9.1	(5 to 12)	0.00	0.01	5.4	(1 to 9)	0.06	0.25
LS1	9.6	(2 to 13)	0.01	0.05	N.D.	N.D.	N.D.	N.D.
CTRL	12.8	(11 to 13)	0.00	0.00	10.4	(9 to 11)	0.00	0.00

Resistance training prescriptions are denoted with a three-character acronym – XY# – where X is load (H, ≥80% 1-repetition maximum [1RM]; L, <80% 1RM); Y is sets (M, multi-set; S, single-set); and # is weekly frequency (3, ≥3 d/wk; 2, 2 d/wk; 1, 1 d/wk), respectively. For example, "HM2" denotes high-load, multi-set, twice-weekly training. Abbreviations: 95% CrI, 95% credible interval; CTRL, non-exercising control group; N.D., no data.

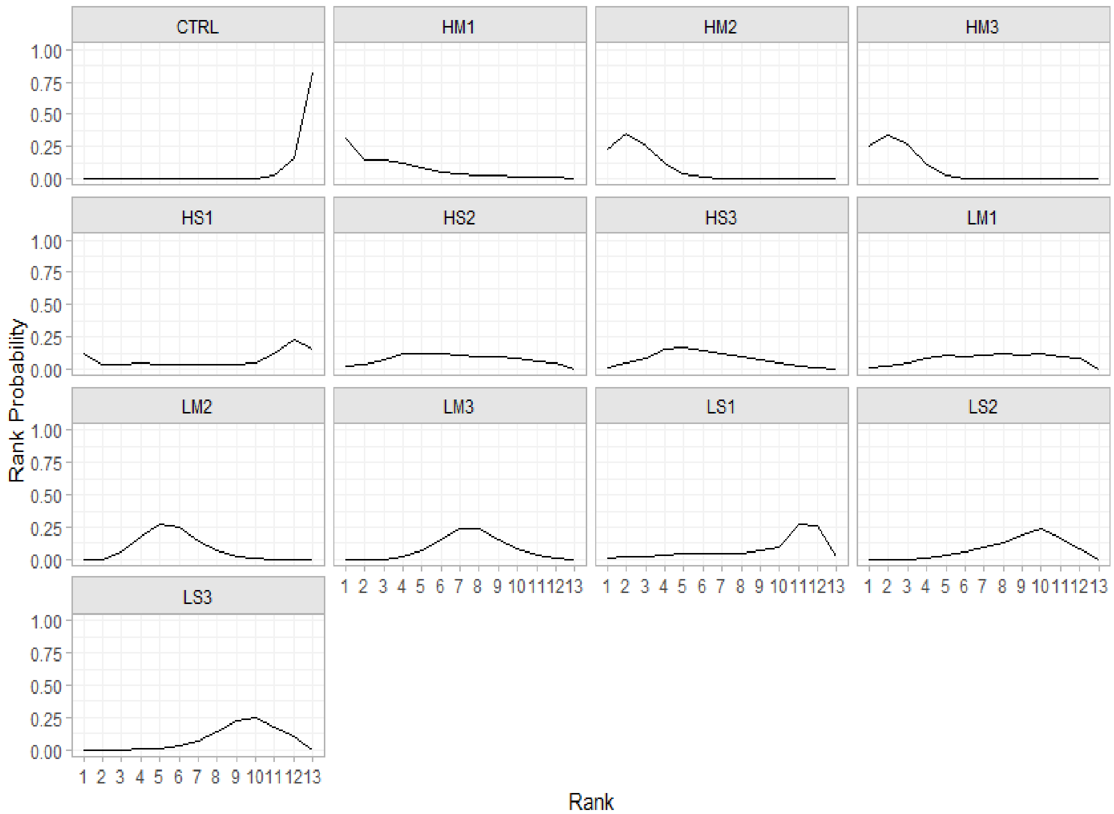

Figure S3. Posterior rank probability distributions for strength. Resistance training prescriptions are denoted with a three-character acronym – XY# – where X is load (H, ≥80% 1-repetition maximum [1RM]; L, <80% 1RM); Y is sets (M, multi-set; S, single-set); and # is the weekly frequency (3, ≥3 d/wk; 2, 2 d/wk; 1, 1 d/wk), respectively. For example, “HM2” denotes high-load, multi-set, twice-weekly training. Abbreviations: CTRL, non-exercising control group.

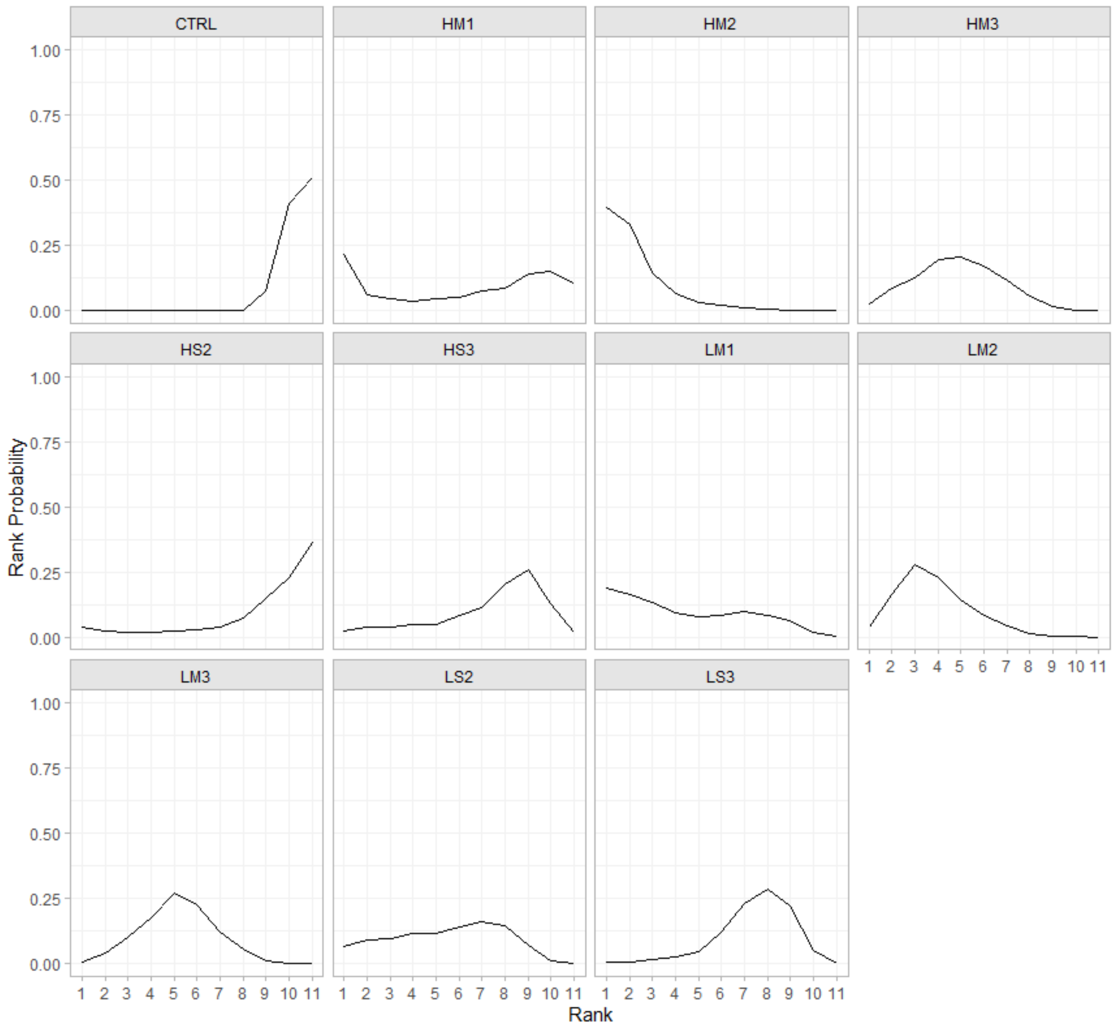

Figure S4. Posterior rank probability distributions for hypertrophy. Resistance training prescriptions are denoted with a three-character acronym – XY# – where X is load (H, ≥80% 1-repetition maximum [1RM]; L, <80% 1RM); Y is sets (M, multi-set; S, single-set); and # is the weekly frequency (3, ≥3 d/wk; 2, 2 d/wk; 1, 1 d/wk), respectively. For example, “HM2” denotes high-load, multi-set, twice-weekly training. Abbreviations: CTRL, non-exercising control group.

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Online Supplementary Appendix 9: Network inconsistency.

Table S3. Model fit summaries for all included studies.

Model	**Strength All studies (on 210 data points)**				**Hypertrophy All studies (on 140 data points)**			
	Residual Deviance	pD	DIC	tau	Residual Deviance	pD	DIC	tau
FE Model	536.2	11.9	548.2	--	126.1	10.1	136.2	--
RE Model	267.1	133.7	400.8	0.58 (0.47, 0.70)	122.8	15	137.8	0.07 (0.00, 0.17)
RE UME	256.9	145.5	402.3	--	117.1	25.9	143.1	--

Values in brackets are 95% credible interval. Abbreviations: DIC, deviance information criterion; FE, fixed effects; pD, number of effective parameters; RE, random effects; UME, unrelated mean effects.

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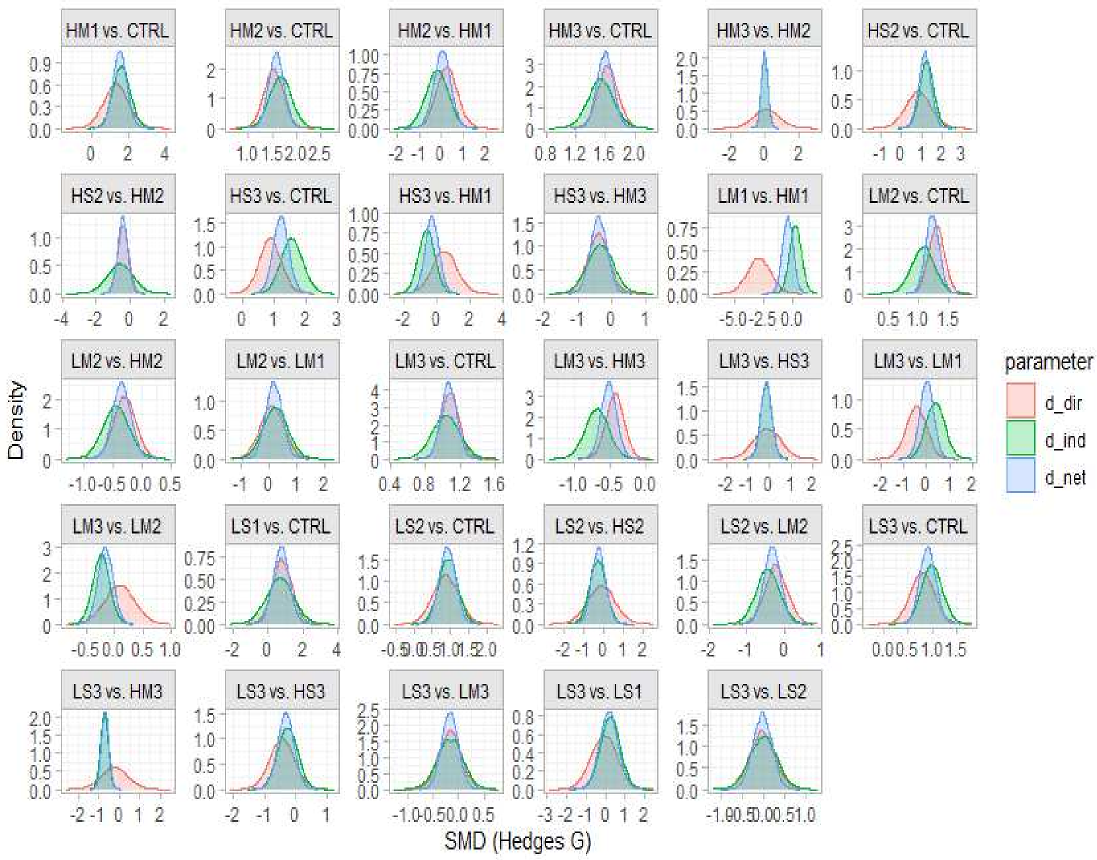

Figure S5. Node-split plot for all studies in strength network. Posterior distribution for direct estimate (red), indirect estimate (green), and network estimate (blue). Resistance training prescriptions are denoted with a three-character acronym – XY# – where X is load (H, ≥80% 1-repetition maximum [1RM]; L, <80% 1RM); Y is sets (M, multi-set; S, single-set); and # is the weekly frequency (3, ≥3 d/wk; 2, 2 d/wk; 1, 1 d/wk), respectively. For example, “HM2” denotes high-load, multi-set, twice-weekly training. Abbreviations: CTRL, non-exercising control group.

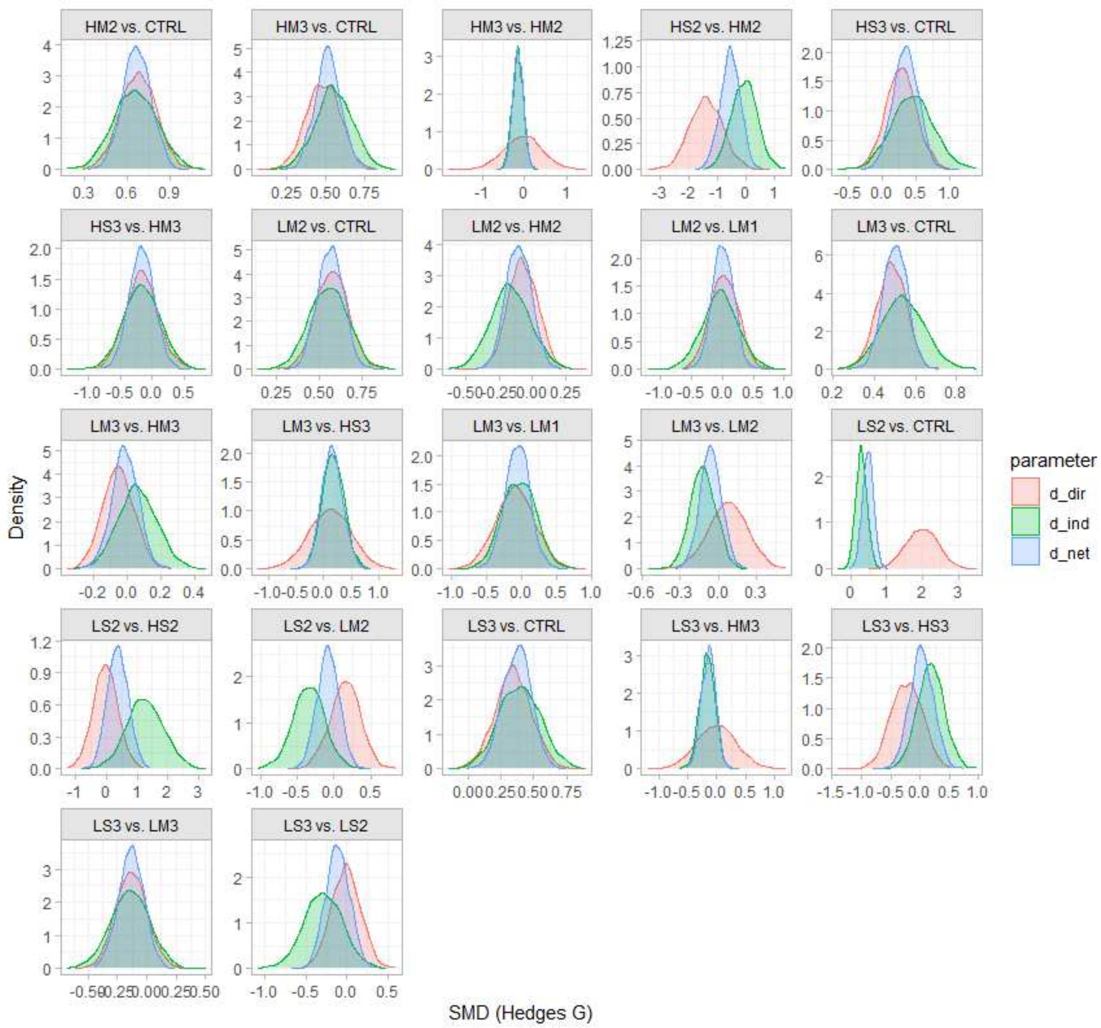

Figure S6. Node-split plot for all studies in hypertrophy network. Posterior distribution for direct estimate (red), indirect estimate (green), and network estimate (blue). Resistance training prescriptions are denoted with a three-character acronym – XY# – where X is load (H, ≥80% 1-repetition maximum [1RM]; L, <80% 1RM); Y is sets (M, multi-set; S, single-set); and # is the weekly frequency (3, ≥3 d/wk; 2, 2 d/wk; 1, 1 d/wk), respectively. For example, “HM2” denotes high-load, multi-set, twice-weekly training. Abbreviations: CTRL, non-exercising control group.

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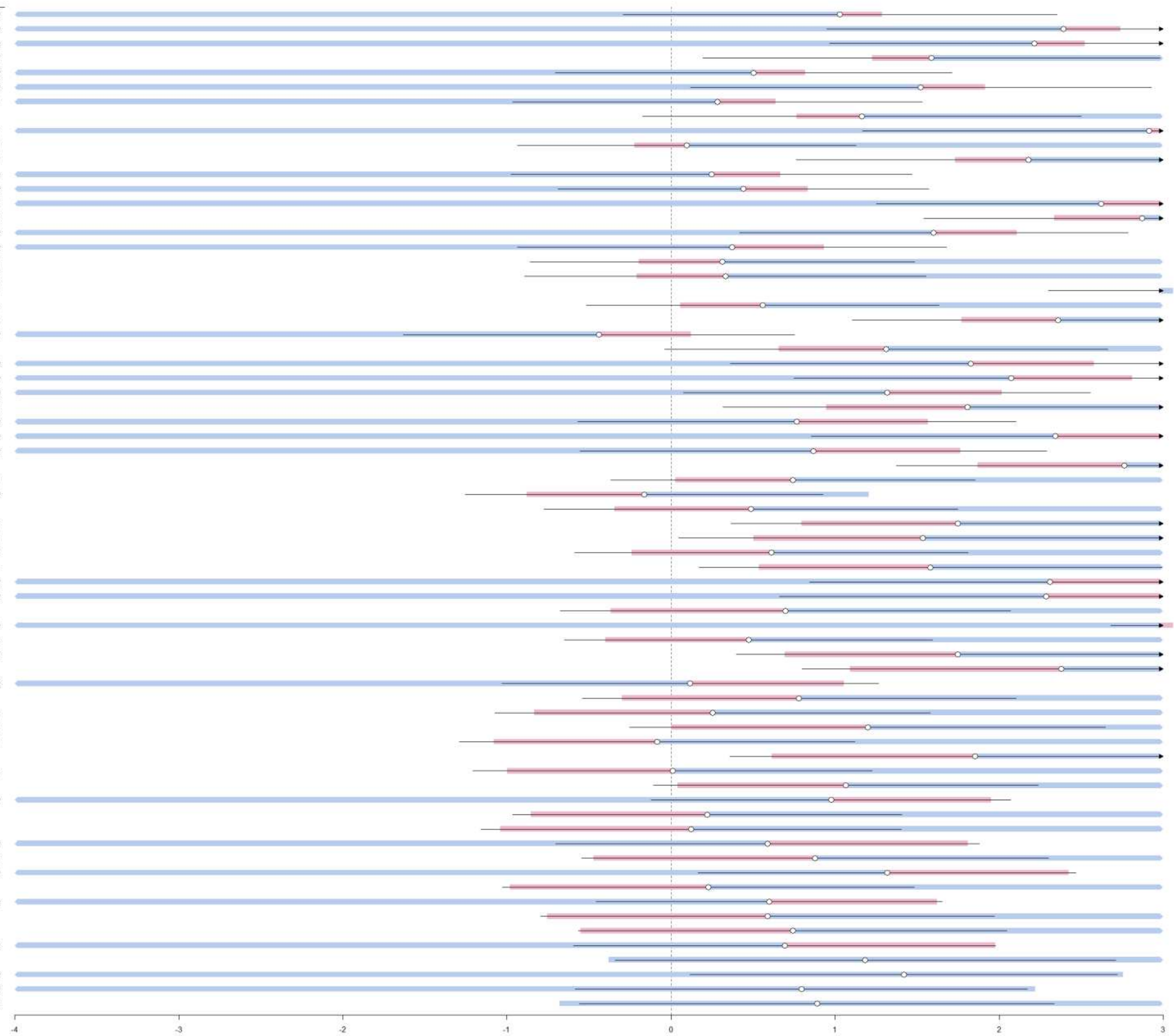
Online Supplementary Appendix 10: Threshold analysis.

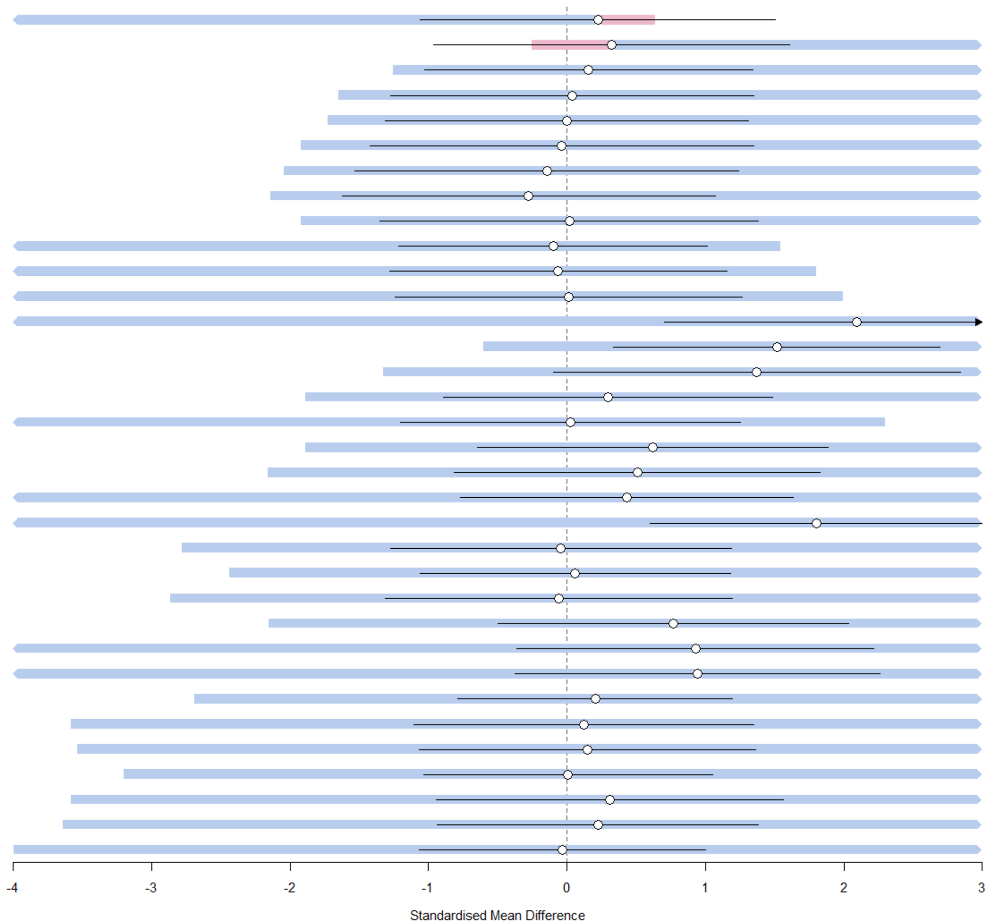
Study (Contrast)	SMD	95% Confidence Interval	Invariant Interval		
Taaffe 1995 (LM3 vs CTRL)	1.03	(-0.29, 2.35)	HS3	(-8.00, 1.29)	HM2
Tanimoto 2008 (HM2 vs CTRL)	2.39	(0.95, 3.84)	HS1	(-34.04, 2.74)	HM2
Harris 2004 (LM2 vs CTRL)	2.21	(0.97, 3.46)	LS1	(-30.15, 2.52)	HM2
Taaffe 1995 (HM3 vs CTRL)	1.59	(0.19, 2.98)	HM2	(1.23, 7.35)	HS3
Abe 2000 (LM3 vs CTRL)	0.50	(-0.70, 1.71)	HS3	(-49.17, 0.82)	HM2
Kubo 2021 (LM2 vs CTRL)	1.52	(0.12, 2.93)	LM2	(-161.79, 1.92)	HM2
Soligon 2020 (LM2 vs CTRL)	0.28	(-0.97, 1.53)	HS1	(-31.44, 0.64)	HM1
Kubo 2021 (HM2 vs CTRL)	1.16	(-0.17, 2.50)	HM2	(0.77, NT)	–
Fisher 2017 (HM1 vs LM1)	2.91	(1.17, 4.66)	LM1	(-4.38, 3.45)	HM1
AmarantedoNascimento 2020 (LS3 vs LS2)	0.10	(-0.94, 1.13)	HM2	(-0.22, 151.24)	HS1
Tanimoto 2008 (LM2 vs CTRL)	2.18	(0.76, 3.60)	HM2	(1.73, 26.56)	HS1
Carpenter 1991 (LS2 vs CTRL)	0.25	(-0.98, 1.47)	HS1	(-37.46, 0.67)	HM2
Vincent 2002 (HS3 vs CTRL)	0.44	(-0.69, 1.57)	LM2	(-30.30, 0.83)	HM2
Bermon 1999 (HM3 vs CTRL)	2.62	(1.25, 3.99)	HS3	(-6.19, 3.13)	HM1
Harris 2004 (HM2 vs CTRL)	2.87	(1.54, 4.20)	HM2	(2.33, 34.49)	LM2
Rodriguez-Lopez 2022 (LM2 vs CTRL)	1.60	(0.42, 2.79)	LM1	(-24.15, 2.11)	HM2
McGinley 2007 (LM2 vs CTRL)	0.37	(-0.94, 1.68)	HS1	(-43.69, 0.93)	HM2
Abe 2000 (LS3 vs CTRL)	0.31	(-0.86, 1.48)	HM2	(-0.20, 20.54)	HS1
Carpenter 1991 (LS1 vs CTRL)	0.33	(-0.89, 1.56)	HM2	(-0.21, 17.72)	HS3
Fatouros 2006 (LM3 vs CTRL)	4.01	(2.30, 5.72)	HM2	(3.22, 145.11)	HS1
Munn 2005 (HS3 vs CTRL)	0.56	(-0.52, 1.63)	HM2	(0.06, 54.31)	LM3
Rodriguez-Lopez 2022 (HM2 vs CTRL)	2.36	(1.10, 3.62)	HM2	(1.77, 32.08)	LM1
Moss 1993 (HM3 vs LM3)	-0.44	(-1.63, 0.75)	HS1	(-52.63, 0.12)	HM2
Kalapotharakos 2004 (LM3 vs CTRL)	1.31	(-0.04, 2.66)	HM2	(0.66, NT)	–
Pruitt 1995 (HM3 vs CTRL)	1.83	(0.36, 3.29)	LM3	(-301.74, 2.58)	HM2
Marston 2019 (LM2 vs CTRL)	2.07	(0.75, 3.40)	LM2	(-13.54, 2.81)	HM2
Toien 2018 (HM3 vs CTRL)	1.32	(0.08, 2.56)	HS3	(-122.23, 2.02)	HM2
Pruitt 1995 (LM3 vs CTRL)	1.81	(0.32, 3.30)	HM2	(0.95, 214.11)	LM3
Early 2020 (LM2 vs CTRL)	0.77	(-0.57, 2.10)	LS1	(-133.63, 1.57)	HM2
Kalapotharakos 2004 (HM3 vs CTRL)	2.34	(0.85, 3.83)	–	(NT, 3.24)	HM2
DeSouza 2018 (HM2 vs CTRL)	0.87	(-0.55, 2.29)	LS2	(-117.38, 1.76)	HM2
Fatouros 2005 (LM3 vs CTRL)	2.76	(1.37, 4.15)	HM2	(1.87, NT)	–
Tomberlin 1991 (LM3 vs CTRL)	0.74	(-0.37, 1.85)	HM2	(0.03, 31.45)	HS1
Lim 2019 (HM3 vs LM3)	-0.16	(-1.25, 0.93)	HM1	(-0.88, 1.21)	HM2
Bottaro 2009 (HM2 vs HS2)	0.49	(-0.78, 1.75)	HM2	(-0.35, NT)	–
Arazi 2021 (LM3 vs CTRL)	1.75	(0.36, 3.13)	HM2	(0.80, 22.16)	HS1
Campos 2002 (LM3 vs CTRL)	1.54	(0.04, 3.03)	HM2	(0.50, 58.22)	LM1
Raso 2007 (LM3 vs CTRL)	0.61	(-0.59, 1.81)	HM2	(-0.24, 7.46)	HM1
Weiss 1999 (LM3 vs CTRL)	1.58	(0.17, 2.99)	HM2	(0.54, 25.39)	LM1
Arazi 2021 (LM2 vs CTRL)	2.31	(0.84, 3.78)	HS1	(-35.61, 3.41)	HM2
Campos 2002 (HM3 vs CTRL)	2.29	(0.66, 3.91)	LM1	(-287.86, 3.54)	HM2
Trindade 2019 (LM2 vs CTRL)	0.70	(-0.68, 2.07)	HM2	(-0.37, NT)	–
Fatouros 2006 (HM3 vs CTRL)	4.41	(2.68, 6.14)	HS3	(-38.45, 5.75)	HM2
Vincent 2002 (LS3 vs CTRL)	0.47	(-0.65, 1.59)	HM2	(-0.40, 15.96)	LM2
Barcelos 2015 (LM2 vs CTRL)	1.75	(0.40, 3.10)	HM2	(0.69, 185.59)	HS3
Kalapotharakos 2005a (HM3 vs CTRL)	2.38	(0.80, 3.96)	HM2	(1.09, NT)	–
Otsuka 2022 (LM3 vs CTRL)	0.12	(-1.03, 1.27)	HS1	(-25.78, 1.05)	HM2
Panton 2001 (HM3 vs CTRL)	0.78	(-0.54, 2.10)	HM2	(-0.30, NT)	–
Carpenter 1991 (LS3 vs CTRL)	0.25	(-1.08, 1.58)	HM1	(-0.83, 7.93)	HS1
Hawkins 1999 (HM3 vs CTRL)	1.20	(-0.25, 2.65)	HM2	(0.00, 31.75)	HM1
Lasevicius 2019b (LM3 vs LM2)	-0.08	(-1.29, 1.12)	HM2	(-1.08, 8.43)	HM1
Colliander 1990 (HM3 vs CTRL)	1.85	(0.36, 3.35)	HM2	(0.62, NT)	–
Padilha 2015 (LS3 vs LS2)	0.01	(-1.21, 1.23)	HM2	(-1.00, 142.14)	HS1
Pinto 2014 (LM2 vs CTRL)	1.06	(-0.11, 2.24)	HM2	(0.04, NT)	–
Munn 2005 (HM3 vs CTRL)	0.97	(-0.12, 2.07)	LM3	(-19.62, 1.95)	HM2
Nichols 1993 (HM3 vs CTRL)	0.22	(-0.97, 1.41)	HM2	(-0.85, NT)	–
Marshall 2011 (HM2 vs HS2)	0.12	(-1.16, 1.40)	HM2	(-1.04, NT)	–
Kelly 2007 (HM2 vs CTRL)	0.59	(-0.70, 1.88)	LM1	(-39.10, 1.81)	HM2
Tanimoto 2006 (HM3 vs LM3)	0.88	(-0.55, 2.30)	HM2	(-0.47, 879.91)	LS3
Rabelo 2004 (LM3 vs CTRL)	1.32	(0.16, 2.47)	HS3	(-16.71, 2.42)	HM2
Mitchell 2012 (HS3 vs LM3)	0.23	(-1.03, 1.48)	HM2	(-0.98, NT)	–
Lasevicius 2019a (HM2 vs LM2)	0.60	(-0.46, 1.65)	HS3	(-71.57, 1.62)	HM2
Abonie 2021 (LM2 vs CTRL)	0.59	(-0.79, 1.97)	HM2	(-0.76, NT)	–
Coburn 2006 (HM3 vs CTRL)	0.74	(-0.56, 2.05)	HM2	(-0.55, NT)	–
Dinyer 2019 (HM2 vs LM2)	0.69	(-0.59, 1.98)	LM2	(-56.44, 1.98)	HM2
Chestnut 1999 (LM3 vs CTRL)	1.18	(-0.34, 2.71)	HM2	(-0.38, NT)	–
Gambassi 2016 (HM2 vs CTRL)	1.42	(0.12, 2.72)	LS1	(-110.27, 2.75)	HM2
Bemben 2000 (HM3 vs CTRL)	0.79	(-0.58, 2.17)	HS2	(-4.68, 2.22)	HM2
Bemben 2000 (LM3 vs CTRL)	0.89	(-0.56, 2.34)	HM2	(-0.68, 10.35)	HS2



○ SMD — 95% Confidence Interval ▬ Invariant Interval

Figure S7. Threshold analysis results for strength. Each row corresponds to a single study estimate and displays the SMD and 95% CI from that study, along with the invariant interval (blue shaded bars). Any changes to a study estimate that lie within the invariant interval will not affect the first-ranked treatment (first ranked treatment for strength: HM3). Bold study labels and red shaded invariant intervals show where a 95% CI crosses the corresponding threshold, indicating sensitivity to the level of uncertainty in this estimate, which could result in a new first-ranked treatment, which are shown as resistance training prescription acronyms at either side of the invariant interval. For brevity, only studies with thresholds < 2 SD from the study estimate are shown and some non-bolded estimates removed to fit page. Abbreviations: SMD, standardized mean difference; 95% CI, 95% confidence interval; SD, standard deviation.

Study (Contrast)	SMD	95% Confidence Interval		Invariant Interval	
Tavares 2017 (HM1 vs CTRL)	0.22	(-1.06, 1.50)	–	(NT, 0.64)	HM1
Tavares 2017 (HM2 vs CTRL)	0.32	(-0.96, 1.61)	HM1	(-0.25, NT)	–
Gentil 2015 (LM2 vs LM1)	0.16	(-1.03, 1.34)	LM1	(-1.25, 51.96)	LM2
Brigatto 2019 (LM2 vs LM1)	0.04	(-1.27, 1.35)	LM1	(-1.65, 76.31)	LM2
Ochi 2018 (LM3 vs LM1)	0.00	(-1.31, 1.31)	LM1	(-1.73, 22.62)	LM3
Gentil 2018a (LM2 vs LM1)	-0.04	(-1.42, 1.35)	LM1	(-1.92, 102.02)	LM2
Gentil 2018b (LM2 vs LM1)	-0.14	(-1.53, 1.24)	LM1	(-2.04, 69.12)	LM2
Franco 2019 (LM3 vs LM1)	-0.28	(-1.63, 1.07)	LM1	(-2.14, 21.88)	HM3
Hojun 2017 (LM3 vs LM1)	0.02	(-1.35, 1.38)	LM1	(-1.92, 22.89)	LM3
Vincent 2002 (LS3 vs CTRL)	-0.10	(-1.21, 1.01)	LS3	(-13.90, 1.55)	HS3
Starkey 1996 (HM3 vs CTRL)	-0.06	(-1.28, 1.16)	HM3	(-14.14, 1.80)	HS3
Mitchell 2012 (HM3 vs LM3)	0.01	(-1.24, 1.26)	HM3	(-12.05, 1.99)	HS3
Barcelos 2015 (LS2 vs CTRL)	2.09	(0.71, 3.48)	LM2	(-18.16, 4.37)	LS2
Rodriguez-Lopez 2022 (LM2 vs CTRL)	1.52	(0.34, 2.69)	LM2	(-0.60, NT)	–
Sooneste 2013 (HM2 vs HS2)	1.37	(-0.10, 2.84)	HS2	(-1.33, NT)	–
Marston 2019 (LM2 vs CTRL)	0.30	(-0.89, 1.49)	LM2	(-1.89, NT)	–
Stefanaki 2019 (HS2 vs LS2)	0.03	(-1.20, 1.25)	LS2	(-7.50, 2.30)	HS2
Tanimoto 2008 (LM2 vs CTRL)	0.62	(-0.65, 1.89)	LM2	(-1.88, NT)	–
Kubo 2021 (LM2 vs CTRL)	0.51	(-0.81, 1.83)	LM2	(-2.16, NT)	–
Marston 2019 (HM2 vs CTRL)	0.43	(-0.77, 1.63)	–	(NT, 3.03)	LM2
Rodriguez-Lopez 2022 (HM2 vs CTRL)	1.80	(0.60, 3.00)	–	(NT, 4.45)	LM2
Starkey 1996 (HS3 vs CTRL)	-0.05	(-1.28, 1.19)	HS3	(-2.78, 6.92)	HM3
Vincent 2002 (HS3 vs CTRL)	0.06	(-1.06, 1.18)	HS3	(-2.44, 6.53)	LS3
Mitchell 2012 (HS3 vs LM3)	-0.06	(-1.31, 1.19)	HS3	(-2.87, 7.93)	HM3
Barcelos 2015 (LM2 vs CTRL)	0.77	(-0.50, 2.03)	LS2	(-2.15, 12.01)	LM2
Tanimoto 2008 (HM2 vs CTRL)	0.93	(-0.36, 2.21)	–	(NT, 3.91)	LM2
Kubo 2021 (HM2 vs CTRL)	0.94	(-0.38, 2.26)	–	(NT, 4.11)	LM2
Miller 2021a (HM2 vs LM2)	0.20	(-0.79, 1.20)	LM2	(-2.69, NT)	–
Radaelli 2018 (LM2 vs LS2)	0.12	(-1.11, 1.35)	LS2	(-3.58, 24.89)	LM2
Radaelli 2014 (LM2 vs LS2)	0.15	(-1.07, 1.37)	LS2	(-3.54, 20.70)	LM2
Lasevicius 2019b (HM2 vs LM2)	0.01	(-1.03, 1.05)	LM2	(-3.20, NT)	–
Bottaro 2011 (LM2 vs LS2)	0.31	(-0.95, 1.57)	LS2	(-3.58, 21.69)	LM2
Evangelista 2021 (HM2 vs LM2)	0.22	(-0.94, 1.38)	LM2	(-3.64, NT)	–
AmarantedoNascimento 2020 (LS3 vs LS2)	-0.03	(-1.06, 1.00)	LS2	(-3.99, 14.89)	LS3



○ SMD —— 95% Confidence Interval ▬ Invariant Interval

Figure S8. Threshold analysis results for hypertrophy. Each row corresponds to a single study estimate and displays the SMD and 95% CI from that study, along with the invariant interval (blue shaded bars). Any changes to a study estimate within the invariant interval will not affect the first-ranked treatment (first-ranked treatment for hypertrophy: HM2). Bold study labels and red-shaded invariant intervals show where a 95% CI crosses the corresponding threshold, indicating sensitivity to the level of uncertainty in this estimate, which could result in a new first-ranked treatment, which is shown as resistance training prescription acronyms at either side of the invariant interval. For brevity, only studies with thresholds < 4 SD from the study estimate are shown. Abbreviations: SMD, standardized mean difference; 95% CI, 95% confidence interval; SD, standard deviation.

Online Supplementary Appendix 11: Sensitivity analyses.

Two sensitivity analyses were conducted to explore the influence of outliers, influential cases, and sources of network inconsistency on model fit, relative effects, and treatment rankings. The first sensitivity analysis excluded outliers and influential cases identified from pairwise meta-analyses and studies that contributed to significant node-split results. The second sensitivity analysis excluded all studies removed during the first sensitivity analysis, plus nodes comprised of only one study.

For the first sensitivity analysis, twenty-one studies were excluded from the strength network [5, 6, 12, 15, 25, 30, 45, 54, 58, 68, 70, 77, 79, 87, 112, 116, 135, 145, 151, 152, 184], and the resulting network included 157 studies (n = 4,441) and 13 conditions. Two studies [32, 175] and two arms (HM2 from [144] and LS2 from [15]) were excluded from the hypertrophy network, and the resulting network included studies 117 (n = 3,282) and 11 conditions (HS1 and LS1 excluded).

For the second sensitivity analysis, twenty-three studies were excluded from the strength network [5, 6, 12, 15, 25, 30, 45, 48, 54, 58, 59, 68, 70, 77, 79, 87, 112, 116, 135, 145, 151, 152, 184], and the resulting network included 155 studies (n = 4,397) with 11 conditions (HS1 and LS1 excluded). Four studies [32, 159, 164, 175] and two arms (HM2 from [144] and LS2 from [15]) were excluded from the hypertrophy network, and the resulting network included 115 studies (n = 3,240) and 9 conditions (HM1, HS1, HS2 and LS1 excluded).

Table S4. Model fit summaries for all included studies and sensitivity analyses.

Model	Strength				Hypertrophy			
	Residual Deviance	pD	DIC	tau	Residual Deviance	pD	DIC	tau
	All studies (on 210 data points)				**All studies (on 140 data points)**			
FE Model	536.2	11.9	548.2	--	126.1	10.1	136.2	--
RE Model	267.1	133.7	400.8	0.58 (0.47, 0.70)	122.8	15	137.8	0.07 (0.00, 0.17)
RE UME	256.9	145.5	402.3	--	117.1	25.9	143.1	--
	Sensitivity 1 (on 183 data points)				**Sensitivity 1 (on 136 data points)**			
FE Model	236.9	12	248.9	--	94.2	10.2	104.4	--
RE Model	210.1	36.6	246.7	0.16 (0.02, 0.29)	92.8	13.2	106	0.05 (0.00, 0.14)
RE UME	208.7	55.7	264.4	--	97.5	23.8	121.4	--
	Sensitivity 2 (on 181 data points)				**Sensitivity 2 (on 133 data points)**			
FE Model	234.8	10	244.8	--	89.3	7.9	97.2	--
RE Model	208	34.8	242.8	0.16 (0.02, 0.29)	88.3	10.8	99.1	0.05 (0.00, 0.14)
RE UME	206.6	53.6	260.2	--	94.8	21.2	116	--

Values in brackets are 95% CrI. Abbreviations: DIC, deviance information criterion; FE, fixed effects; RE, random effects; UME, unrelated mean effects.

Currier BS, *et al. Br J Sports Med* 2023; 57:1201–1210. doi: 10.1136/bjsports-2023-106807

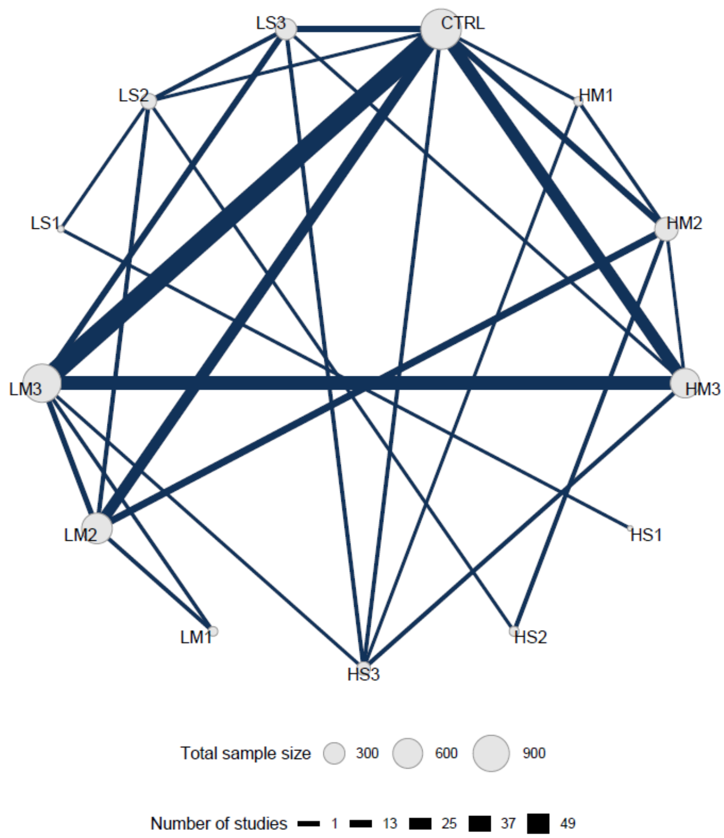


Figure S9. Strength network geometry for the first sensitivity analysis. Each node represents a unique condition, and the size of each node is proportional to the sample size per condition. Each edge represents direct evidence, and the width of each edge is proportional to the number of studies comparing connected nodes. Resistance training prescriptions are denoted with a three-character acronym – XY# – where X is load (H, ≥80% 1-repetition maximum [1RM]; L, <80% 1RM); Y is sets (M, multi-set; S, single-set); and # is the weekly frequency (3, ≥3 d/wk; 2, 2 d/wk; 1, 1 d/wk), respectively. 77or example, "HM2" denotes high-load, multi-set, twice-weekly training. Abbreviations: CTRL, non-exercising control group.

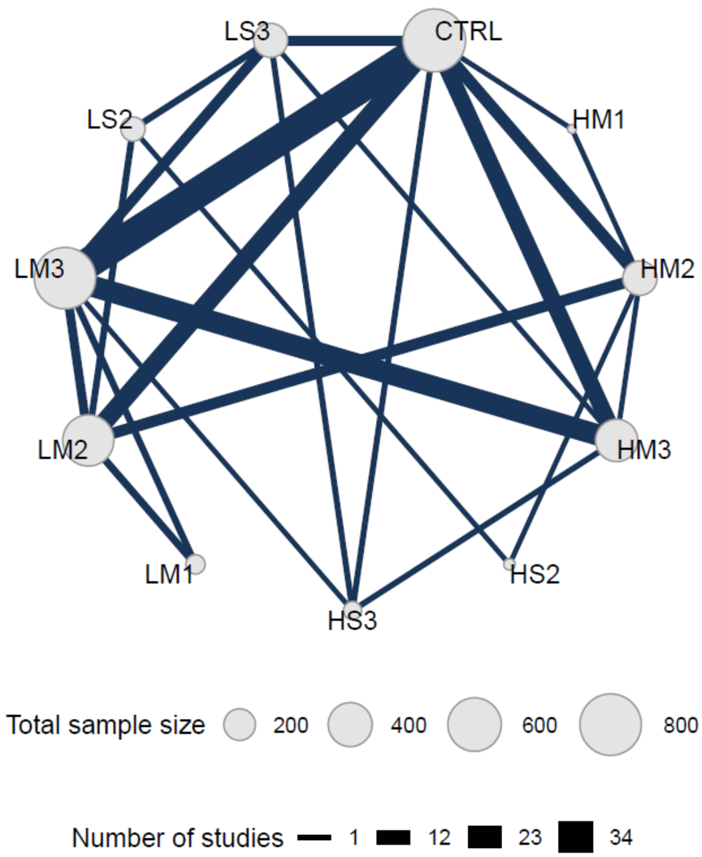


Figure S10. Hypertrophy network geometry for the first sensitivity analysis. Each node represents a unique condition, and the size of each node is proportional to the sample size per condition. Each edge represents direct evidence, and the width of each edge is proportional to the number of studies comparing connected nodes. Resistance training prescriptions are denoted with a three-character acronym – XY# – where X is load (H, ≥80% 1-repetition maximum [1RM]; L, <80% 1RM); Y is sets (M, multi-set; S, single-set); and # is the weekly frequency (3, ≥3 d/wk; 2, 2 d/wk; 1, 1 d/wk), respectively. For example, "HM2" denotes high-load, multi-set, twice-weekly training. Abbreviations: CTRL, non-exercising control group.

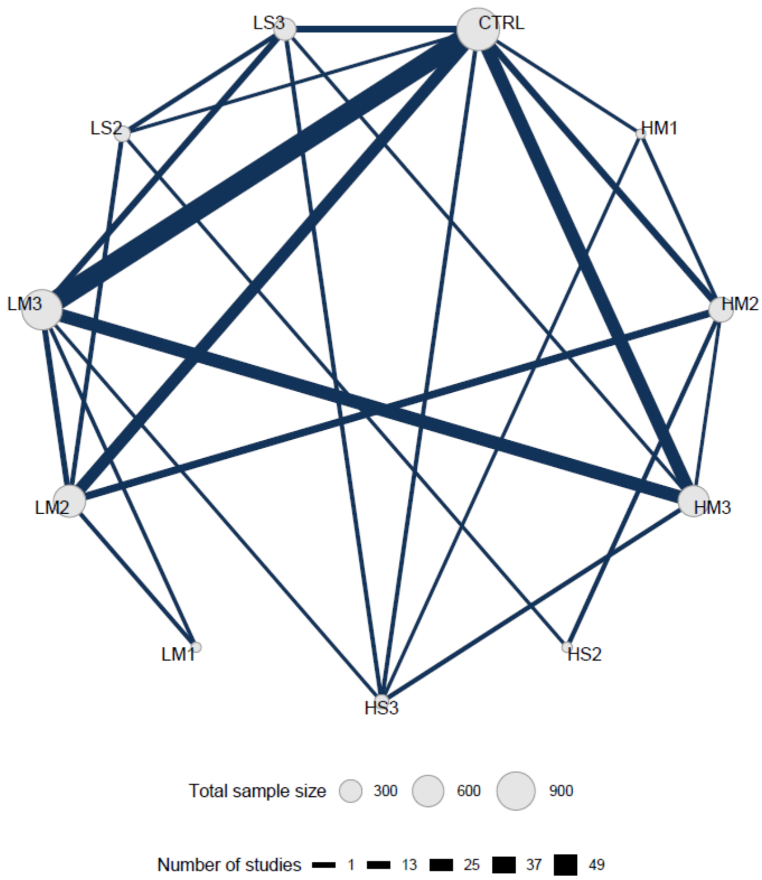


Figure S11. Strength network geometry for the second sensitivity analysis. Each node represents a unique condition, and the size of each node is proportional to the sample size per condition. Each edge represents direct evidence, and the width of each edge is proportional to the number of studies comparing connected nodes. Resistance training prescriptions are denoted with a three-character acronym – XY# – where X is load (H, ≥80% 1-repetition maximum [1RM]; L, <80% 1RM); Y is sets (M, multi-set; S, single-set); and # is the weekly frequency (3, ≥3 d/wk; 2, 2 d/wk; 1, 1 d/wk), respectively. For example, “HM2” denotes high-load, multi-set, twice-weekly training. Abbreviations: CTRL, non-exercising control group.

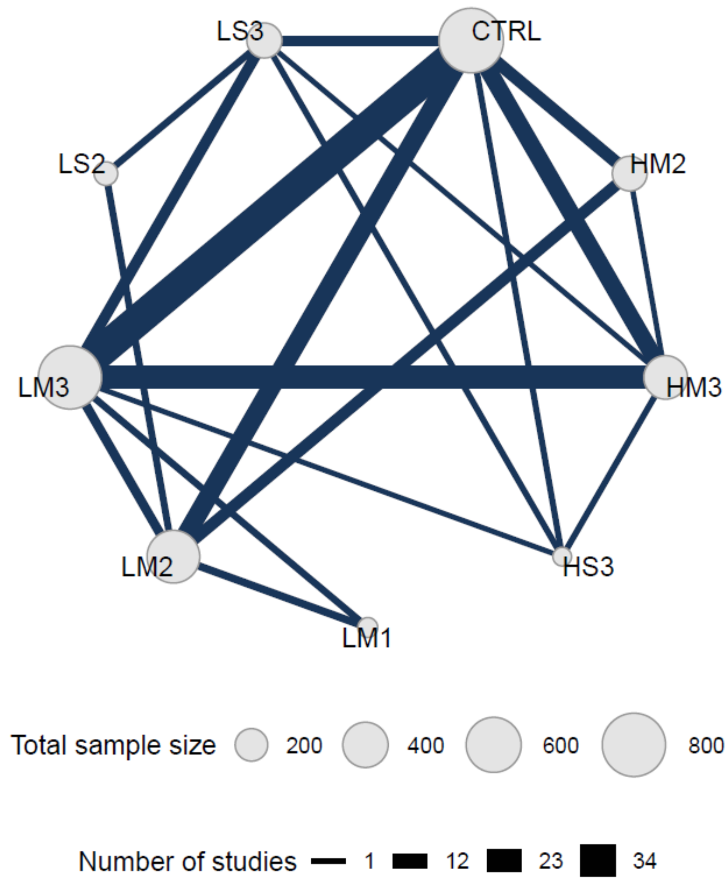


Figure S12. Hypertrophy network geometry for the second sensitivity analysis. Each node represents a unique condition, and the size of each node is proportional to the sample size per condition. Each edge represents direct evidence, and the width of each edge is proportional to the number of studies comparing connected nodes. Resistance training prescriptions are denoted with a three-character acronym – XY# – where X is load (H, ≥80% 1-repetition maximum [1RM]; L, <80% 1RM); Y is sets (M, multi-set; S, single-set); and # is the weekly frequency (3, ≥3 d/wk; 2, 2 d/wk; 1, 1 d/wk), respectively. For example, "HM2" denotes high-load, multi-set, twice-weekly training. Abbreviations: CTRL, non-exercising control group.

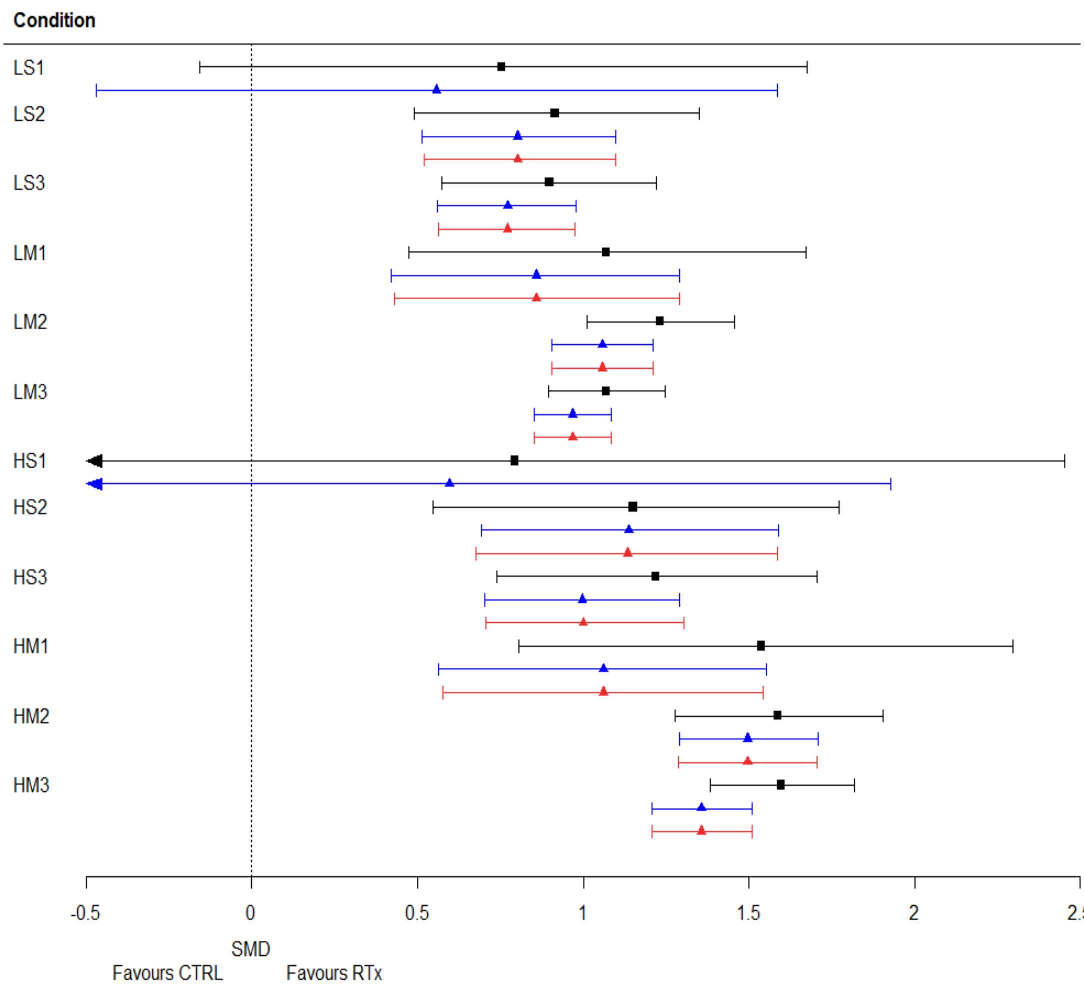


Figure S13. Forest plot displaying network estimates for relative effects of resistance training prescriptions versus non-exercising control on muscle strength following both sensitivity analyses. All studies (black squares), first sensitivity analysis (blue triangles), and second sensitivity analysis (red triangles). Resistance training prescriptions are denoted with a three-character acronym – XY# – where X is load (H, ≥80% 1-repetition maximum [1RM]; L, <80% 1RM); Y is sets (M, multi-set; S, single-set); and # is the weekly frequency (3, ≥3 d/wk; 2, 2 d/wk; 1, 1 d/wk), respectively. For example, "HM2" denotes high-load, multi-set, twice-weekly training. Abbreviations: CTRL, non-exercising control group. Abbreviations: 95% CrI, 95% credible interval; CTRL, non-exercising control group; SMD, standardized mean difference.

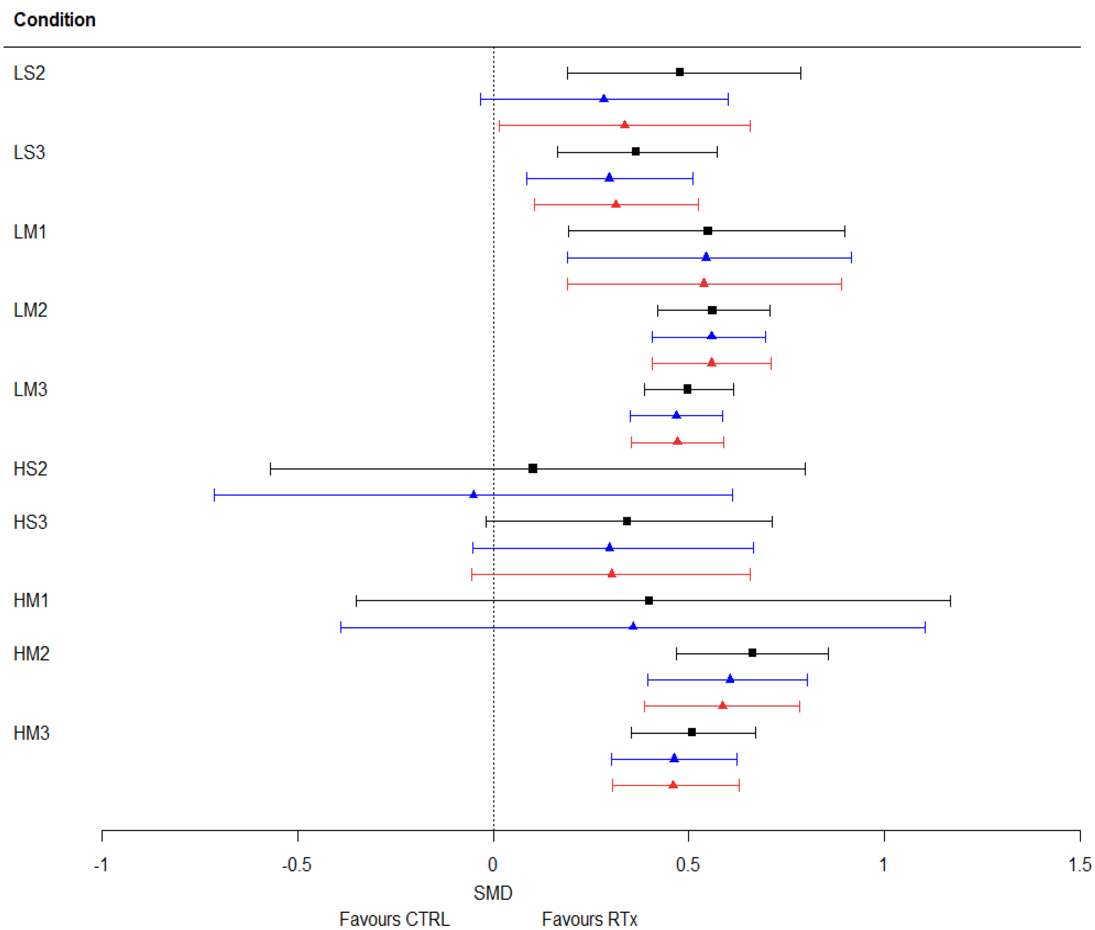


Figure S14. Forest plot displaying network estimates for relative effects of resistance training prescriptions versus non-exercising control on muscle hypertrophy following both sensitivity analyses. All studies (black squares), first sensitivity analysis (blue triangles), and second sensitivity analysis (red triangles). Resistance training prescriptions are denoted with a three-character acronym – XY# – where X is load (H, ≥80% 1-repetition maximum [1RM]; L, <80% 1RM); Y is sets (M, multi-set; S, single-set); and # is the weekly frequency (3, ≥3 d/wk; 2, 2 d/wk; 1, 1 d/wk), respectively. For example, “HM2” denotes high-load, multi-set, twice-weekly training. Abbreviations: CTRL, non-exercising control group. 95% CrI, Abbreviations: 95% credible interval; CTRL, non-exercising control group; SMD, standardized mean difference.

Table S5. League table of all relative effects for the first sensitivity analysis.

	STRENGTH												
HYPERTROPHY	CTRL	HM1	HM2	HM3	HS1	HS2	HS3	LM1	LM2	LM3	LS1	LS2	LS3
CTRL		**1.06 (0.56, 1.55)**	**1.50 (1.29, 1.71)**	**1.36 (1.21, 1.51)**	0.60 (-0.73, 1.93)	**1.14 (0.69, 1.59)**	**1.00 (0.70, 1.29)**	**0.86 (0.42, 1.29)**	**1.06 (0.91, 1.21)**	**0.97 (0.85, 1.08)**	0.56 (-0.47, 1.59)	**0.80 (0.51, 1.10)**	**0.77 (0.56, 0.98)**
HM1	0.36 (-0.39, 1.10)		0.44 (-0.04, 0.91)	0.29 (-0.21, 0.80)	-0.47 (-1.90, 0.96)	0.08 (-0.56, 0.70)	-0.06 (-0.59, 0.48)	-0.20 (-0.84, 0.44)	-0.00 (-0.49, 0.49)	-0.09 (-0.59, 0.41)	-0.50 (-1.65, 0.64)	-0.26 (-0.80, 0.30)	-0.29 (-0.80, 0.23)
HM2	**0.60 (0.39, 0.80)**	0.25 (-0.49, 1.02)		-0.14 (-0.39, 0.11)	-0.90 (-2.24, 0.44)	-0.36 (-0.77, 0.04)	**-0.50 (-0.85, -0.15)**	**-0.64 (-1.10, -0.19)**	**-0.44 (-0.64, -0.25)**	**-0.53 (-0.75, -0.30)**	-0.94 (-1.96, 0.11)	**-0.69 (-1.02, -0.37)**	**-0.73 (-1.01, -0.45)**
HM3	**0.46 (0.30, 0.62)**	0.10 (-0.67, 0.86)	-0.14 (-0.40, 0.10)		-0.76 (-2.10, 0.58)	-0.22 (-0.68, 0.25)	**-0.36 (-0.66, -0.05)**	**-0.50 (-0.95, -0.05)**	**-0.30 (-0.50, -0.10)**	**-0.39 (-0.54, -0.24)**	-0.80 (-1.83, 0.24)	**-0.55 (-0.87, -0.24)**	**-0.58 (-0.82, -0.36)**
HS1	N.D.	N.D.	N.D.	N.D.		0.54 (-0.85, 1.94)	0.40 (-0.96, 1.76)	0.26 (-1.15, 1.67)	0.46 (-0.88, 1.80)	0.37 (-0.97, 1.70)	-0.04 (-0.89, 0.79)	0.21 (-1.09, 1.51)	0.18 (-1.15, 1.52)
HS2	-0.05 (-0.71, 0.61)	-0.41 (-1.41, 0.59)	-0.65 (-1.35, 0.02)	-0.51 (-1.20, 0.17)	N.D.		-0.14 (-0.67, 0.38)	-0.28 (-0.89, 0.33)	-0.08 (-0.52, 0.36)	-0.17 (-0.63, 0.28)	-0.58 (-1.68, 0.52)	-0.34 (-0.81, 0.14)	-0.37 (-0.85, 0.10)
HS3	0.30 (-0.05, 0.66)	-0.06 (-0.89, 0.77)	-0.31 (-0.71, 0.11)	-0.16 (-0.53, 0.21)	N.D.	0.35 (-0.39, 1.09)		-0.14 (-0.66, 0.37)	0.06 (-0.27, 0.38)	-0.03 (-0.33, 0.27)	-0.44 (-1.51, 0.62)	-0.19 (-0.59, 0.20)	-0.23 (-0.55, 0.09)
LM1	**0.54 (0.19, 0.92)**	0.19 (-0.64, 0.99)	-0.06 (-0.45, 0.34)	0.08 (-0.29, 0.46)	N.D.	0.59 (-0.18, 1.35)	0.25 (-0.24, 0.76)		0.20 (-0.22, 0.62)	0.11 (-0.31, 0.54)	-0.30 (-1.41, 0.81)	-0.06 (-0.57, 0.45)	-0.09 (-0.55, 0.39)
LM2	**0.56 (0.41, 0.70)**	0.20 (-0.54, 0.97)	-0.05 (-0.25, 0.15)	0.09 (-0.11, 0.29)	N.D.	0.61 (-0.05, 1.28)	0.26 (-0.13, 0.65)	0.01 (-0.33, 0.34)		-0.09 (-0.26, 0.08)	-0.50 (-1.53, 0.53)	-0.26 (-0.55, 0.04)	**-0.29 (-0.53, -0.05)**
LM3	**0.47 (0.35, 0.59)**	0.11 (-0.63, 0.87)	-0.14 (-0.35, 0.08)	0.01 (-0.15, 0.15)	N.D.	0.52 (-0.14, 1.18)	0.17 (-0.20, 0.55)	-0.08 (-0.44, 0.27)	-0.09 (-0.25, 0.07)		-0.41 (-1.44, 0.62)	-0.17 (-0.47, 0.14)	-0.20 (-0.40, 0.01)
LS1	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.		0.24 (-0.74, 1.24)	0.21 (-0.81, 1.23)
LS2	0.28 (-0.03, 0.60)	-0.08 (-0.87, 0.73)	-0.32 (-0.67, 0.02)	-0.18 (-0.51, 0.16)	N.D.	0.33 (-0.28, 0.96)	-0.02 (-0.46, 0.44)	-0.26 (-0.70, 0.19)	-0.28 (-0.58, 0.04)	-0.19 (-0.50, 0.13)	N.D.		-0.03 (-0.31, 0.25)
LS3	**0.30 (0.08, 0.51)**	-0.06 (-0.85, 0.70)	**-0.31 (-0.59, -0.02)**	-0.17 (-0.40, 0.07)	N.D.	0.35 (-0.33, 1.01)	-0.00 (-0.39, 0.38)	-0.25 (-0.65, 0.16)	**-0.26 (-0.50, -0.02)**	-0.17 (-0.38, 0.03)	N.D.	0.01 (-0.28, 0.31)	

Network estimates for all relative effects of resistance training prescriptions are displayed for strength (column header versus row header; values > 0 favour the column condition) and hypertrophy (row header versus column header; values > 0 favour the row condition). Data are displayed as posterior standardized mean difference (95% credible interval). Bolded numbers indicates a 95% probability one intervention yields a larger relative effect. Resistance training prescriptions are denoted with a three-character acronym – XY# – where X is load (H, ≥80% 1-repetition maximum [1RM]; L, <80% 1RM); Y is sets (M, multi-set; S, single-set); and # is the weekly frequency (3, ≥3 d/wk; 2, 2 d/wk; 1, 1 d/wk), respectively. For example, “HM2” denotes high-load, multi-set, twice-weekly training. Abbreviations: CTRL, non-exercising control group. Abbreviations: CTRL, non-exercise control; N.D., no data.

Table S6. League table of all relative effects for the second sensitivity analysis.

		STRENGTH												
		CTRL	HM1	HM2	HM3	HS1	HS2	HS3	LM1	LM2	LM3	LS1	LS2	LS3
HYPERTROPHY	CTRL		**1.06 (0.58, 1.54)**	**1.49 (1.29, 1.70)**	**1.36 (1.21, 1.51)**	N.D.	**1.13 (0.67, 1.59)**	**1.00 (0.71, 1.30)**	**0.86 (0.43, 1.29)**	**1.06 (0.91, 1.21)**	**0.97 (0.85, 1.08)**	N.D.	**0.80 (0.52, 1.10)**	**0.77 (0.56, 0.98)**
	HM1	N.D.		0.43 (-0.04, 0.90)	0.29 (-0.20, 0.80)	N.D.	0.07 (-0.56, 0.70)	-0.06 (-0.58, 0.47)	-0.20 (-0.84, 0.43)	-0.01 (-0.49, 0.48)	-0.09 (-0.59, 0.40)	N.D.	-0.26 (-0.80, 0.29)	-0.29 (-0.80, 0.22)
	HM2	**0.59 (0.39, 0.78)**	N.D.		-0.14 (-0.39, 0.11)	N.D.	-0.36 (-0.78, 0.07)	**-0.50 (-0.85, -0.14)**	**-0.64 (-1.09, -0.18)**	**-0.44 (-0.64, -0.25)**	**-0.53 (-0.75, -0.30)**	N.D.	**-0.69 (-1.02, -0.36)**	**-0.72 (-1.01, -0.44)**
	HM3	**0.46 (0.31, 0.63)**	N.D.	-0.13 (-0.38, 0.12)		N.D.	-0.22 (-0.70, 0.25)	**-0.36 (-0.66, -0.05)**	**-0.50 (-0.95, -0.04)**	**-0.30 (-0.50, -0.10)**	**-0.39 (-0.54, -0.24)**	N.D.	**-0.55 (-0.86, -0.24)**	**-0.59 (-0.82, -0.35)**
	HS1	N.D.	N.D.	N.D.	N.D.		N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
	HS2	N.D.	N.D.	N.D.	N.D.	N.D.		-0.13 (-0.66, 0.40)	-0.28 (-0.88, 0.33)	-0.08 (-0.53, 0.37)	-0.17 (-0.63, 0.30)	N.D.	-0.33 (-0.81, 0.16)	-0.36 (-0.84, 0.12)
	HS3	0.30 (-0.05, 0.66)	N.D.	-0.28 (-0.68, 0.12)	-0.16 (-0.53, 0.22)	N.D.	N.D.		-0.14 (-0.66, 0.38)	0.06 (-0.27, 0.39)	-0.03 (-0.33, 0.27)	N.D.	-0.20 (-0.60, 0.19)	-0.23 (-0.55, 0.09)
	LM1	**0.54 (0.19, 0.89)**	N.D.	-0.05 (-0.42, 0.33)	0.08 (-0.28, 0.44)	N.D.	N.D.	0.23 (-0.24, 0.72)		0.20 (-0.22, 0.62)	0.11 (-0.32, 0.53)	N.D.	-0.05 (-0.56, 0.46)	-0.09 (-0.56, 0.38)
	LM2	**0.56 (0.40, 0.71)**	N.D.	-0.03 (-0.22, 0.16)	0.10 (-0.12, 0.30)	N.D.	N.D.	0.25 (-0.12, 0.64)	0.02 (-0.31, 0.36)		-0.09 (-0.26, 0.08)	N.D.	-0.25 (-0.54, 0.04)	**-0.29 (-0.53, -0.05)**
	LM3	**0.47 (0.35, 0.59)**	N.D.	-0.11 (-0.34, 0.10)	0.01 (-0.15, 0.16)	N.D.	N.D.	0.17 (-0.19, 0.52)	-0.07 (-0.41, 0.28)	-0.09 (-0.25, 0.08)		N.D.	-0.16 (-0.46, 0.14)	-0.20 (-0.41, 0.01)
	LS1	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.		N.D.	N.D.
	LS2	**0.34 (0.02, 0.66)**	N.D.	-0.25 (-0.59, 0.11)	-0.12 (-0.46, 0.21)	N.D.	N.D.	0.03 (-0.41, 0.49)	-0.20 (-0.63, 0.24)	-0.22 (-0.53, 0.10)	-0.13 (-0.47, 0.18)	N.D.		-0.03 (-0.31, 0.26)
	LS3	**0.31 (0.11, 0.52)**	N.D.	-0.27 (-0.54, 0.01)	-0.15 (-0.38, 0.10)	N.D.	N.D.	0.01 (-0.37, 0.38)	-0.22 (-0.60, 0.17)	**-0.24 (-0.47, -0.01)**	-0.16 (-0.37, 0.05)	N.D.	-0.02 (-0.30, 0.28)	

Network estimates for all relative effects of resistance training prescriptions are displayed for strength (column header versus row header; values > 0 favour the column condition) and hypertrophy (row header versus column header; values > 0 favour the row condition). Data are displayed as posterior standardized mean difference (95% credible interval). Bolded numbers indicates a 95% probability one intervention yields a larger relative effect. Resistance training prescriptions are denoted with a three-character acronym – XY# – where X is load (H, ≥80% 1-repetition maximum [1RM]; L, <80% 1RM); Y is sets (M, multi-set; S, single-set); and # is the weekly frequency (3, ≥3 d/wk; 2, 2 d/wk; 1, 1 d/wk), respectively. For example, "HM2" denotes high-load, multi-set, twice-weekly training. Abbreviations: CTRL, non-exercising control group, non-exercise control; N.D., no data.

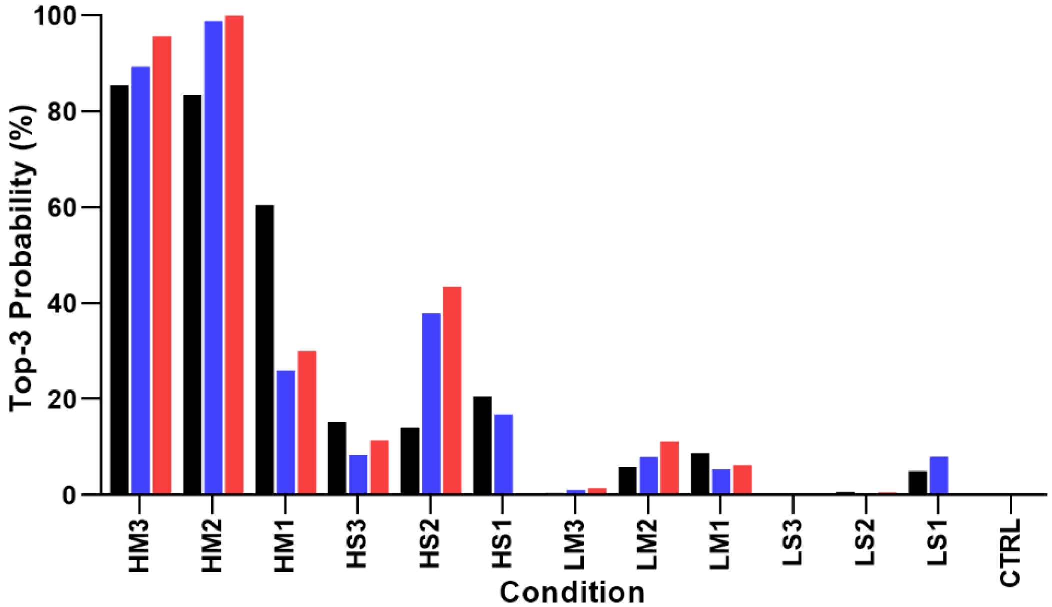


Figure S15. Probability for each condition to be ranked in the top-three most effective for strength following sensitivity analyses. All studies (black bars), first sensitivity analysis (blue bars), second sensitivity analysis (red bars). Scores closer to 100% indicate a greater chance of being ranked in the top-three. Resistance training prescriptions are denoted with a three-character acronym – XY# – where X is load (H, ≥80% 1-repetition maximum [1RM]; L, <80% 1RM); Y is sets (M, multi-set; S, single-set); and # is the weekly frequency (3, ≥3 d/wk; 2, 2 d/wk; 1, 1 d/wk), respectively. For example, "HM2" denotes high-load, multi-set, twice-weekly training. Abbreviations: CTRL, non-exercising control group.

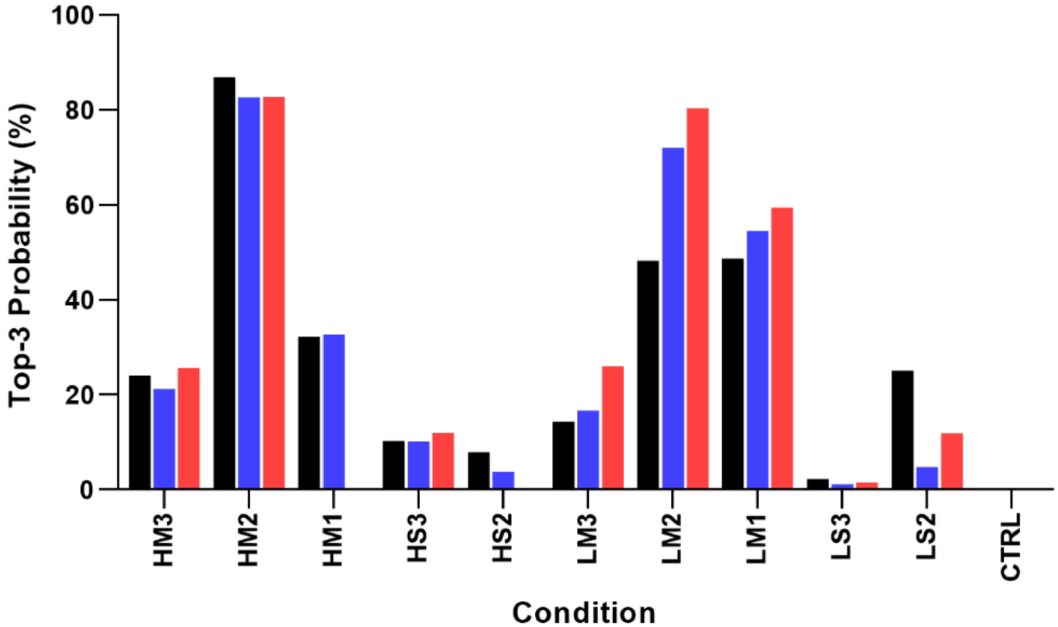


Figure S16. Probability for each condition to be ranked in the top three most effective for hypertrophy following sensitivity analyses. All studies (black bars), first sensitivity analysis (blue bars), second sensitivity analysis (red bars). Scores closer to 100% indicate a greater chance of being ranked in the top three. Resistance training prescriptions are denoted with a three-character acronym – XY# – where X is load (H, ≥80% 1-repetition maximum [1RM]; L, <80% 1RM); Y is sets (M, multi-set; S, single-set); and # is the weekly frequency (3, ≥3 d/wk; 2, 2 d/wk; 1, 1 d/wk), respectively. For example, "HM2" denotes high-load, multi-set, twice-weekly training. Abbreviations: CTRL, non-exercising control group.

Online Supplementary Appendix 12: Network meta-regression.

Network meta-regression (NMR) was performed on data sets with all studies for strength and hypertrophy to determine if additional factors improved model fit and altered treatment effects. Univariate NMR was performed with eight covariates. If less than 10% of studies did not report a covariate value for a given covariate, then missing covariate values were imputed using multivariate imputation with chained equations. If more than 10% of studies did not report a covariate value for a given covariate, the missing value was not imputed, as multiple imputation methods become unreliable with more than 10% missingness*, and NMR was not completed.

NMR models were fitted in a Bayesian framework using Markov chain Monte Carlo (MCMC) methods in R with the statistical package *multinma*. Four chains were run with non-informative priors. There were 10 000 iterations per chain, and the first 4 000 were discarded as burn-in iterations. Values were collected with a thinning interval of 10. Convergence was evaluated by visual inspection of trace plots and the potential scale reduction factor. All betas for each RTx versus CTRL are displayed for strength (Table S9) and hypertrophy (Table S10). Bubble plots were created to visualize each comparison-level SMD and NMR posterior regression line for age, percent female, and duration. In all tables and figures, resistance training prescriptions are denoted with a three-character acronym – XY# – where X is load (H, ≥80% 1-repetition maximum [1RM]; L, <80% 1RM); Y is sets (M, multi-set; S, single-set); and # is the weekly frequency (3, ≥3 d/wk; 2, 2 d/wk; 1, 1 d/wk), respectively. For example, “HM2” denotes high-load, multi-set, twice-weekly training.

* Jakobsen, J.C., et al., When and how should multiple imputation be used for handling missing data in randomised clinical trials – a practical guide with flowcharts. BMC Medical Research Methodology, 2017. 17(1): p. 162.

Currier BS, *et al. Br J Sports Med* 2023; 57:1201–1210. doi: 10.1136/bjsports-2023-106807

Table S7. Definition of Covariates.

Covariate	Definition	Value Imputed
Age	The average age of all participants as reported by the authors of each study. Type of covariate: Study-level, continuous (years).	Not applicable.
Training status	The reported eligibility criteria and participant characteristics were used to classify participants as "Trained" if regularly engaged in resistance training or "Untrained" if naïve to resistance training. Type of covariate: Study-level, categorical.	[51, 73, 87, 156, 157]
Proportion female	The percentage of participants in each study arm that were female. Type of covariate: Arm-level, continuous (percentage).	[48, 53, 70, 114, 128, 147, 153, 174, 185]
Duration	The measurement period for the reported outcome(s) was reported in weeks. Type of covariate: Study-level, continuous (weeks).	Not applicable.
Relative weekly volume load	Relative weekly volume load was calculated as the product of repetitions, load (% 1RM), sets, number of exercises, and frequency. Type of covariate: Arm-level, continuous.	[1, 27, 147]
Exercise fatigue	Each study arm was given the value "Yes" if the authors explicitly stated exercise was performed to volitional fatigue/failure; otherwise, the value "No" was assigned. Type of covariate: Arm-level, categorical (Yes/No).	[38, 68, 98, 101, 126, 147]
Measurement tool	The measurement tool was classified based on the extracted outcome for strength as "1RM", "Isokinetic", or "Isometric" and for hypertrophy as "MRI", "Ultrasound", "DXA", "BIA", "CT", "FibreCSA", "BodPod", or "Hydrodensitometry". Type of covariate: Study-level, categorical.	Not applicable.
Measurement region	The measurement region was classified based on the extracted outcome for strength and hypertrophy as "Upper-body", "Lower-body", or "WholeBody". Type of covariate: Study-level, categorical.	Not applicable.
Publication Year	Publication year was defined as the year each study was published. Type of covariate: Study-level, continuous (year).	Not applicable.

Abbreviations: 1RM, 1-repetition maximum; BIA, bioelectrical impedance analysis; CT, computed tomography; DXA, dual-energy X-ray absorptiometry; FibreCSA, muscle fibre cross-sectional area; MRI, magnetic resonance imaging.

Table S8. Model fit summaries for univariate network meta-regression.

Covariate	**Strength All studies (on 210 data points)**				**Hypertrophy All studies (on 140 data points)**			
	Residual Deviance	pD	DIC	tau	Residual Deviance	pD	DIC	tau
Unadjusted	267.1	133.7	400.8	0.58 (0.47, 0.70)	122.8	15	137.8	0.07 (0.00, 0.17)
Age	261.4	139.2	400.5	0.59 (0.48, 0.72)	120.7	23.5	144.3	0.06 (0.00, 0.18)
Training Status	260.5	140.6	401.1	0.61 (0.49, 0.73)	124.9	20.7	145.6	0.07 (0.00, 0.17)
Percent Female	260.8	137.3	398.1	0.58 (0.46, 0.70)	118.7	23.5	142.2	0.07 (0.00, 0.18)
Duration	259.9	138.2	398.2	0.58 (0.48, 0.70)	120.2	23.2	143.4	0.07 (0.00, 0.18)
Relative Weekly Volume Load	514.2	34.5	548.8	0.08 (0.00, 0.33)	126.4	20.4	146.8	0.04 (0.01, 0.13)
Fatigue	261.2	140	401.2	0.60 (0.48, 0.73)	118.8	22.9	141.7	0.06 (0.00, 0.17)
Measurement Tool	260.7	138.4	399.1	0.57 (0.46, 0.70)	115.8	45	160.8	0.06 (0.00, 0.17)
Measurement Region	267.8	135.4	403.2	0.55 (0.43, 0.68)	117	28.6	145.6	0.06 (0.00, 0.17)
Publication Year	261.1	140.6	401.7	0.60 (0.49, 0.73)	123.9	23.6	147.5	0.07 (0.00, 0.17)

Values in brackets are 95% credible interval. Abbreviations: DIC, deviance information criterion; pD, number of effective parameters.

Table S9. Network meta-regression beta estimates for strength.

Covariate		LS1	LS2	LS3	LM1	LM2	LM3	HS1	HS2	HS3	HM1	HM2	HM3
Continuous Covariates													
Age		-0.01 (-0.06, 0.01)	0.00 (-0.02, 0.02)	0.00 (-0.02, 0.02)	0.10 (-0.20, 0.39)	0.00 (-0.01, 0.01)	0.01 (0.00, 0.01)	-0.05 (-11.3, 11.1)	0.07 (-0.15, 0.15)	-0.01 (-0.04, 0.01)	0.00 (-0.03, 0.04)	0.02 (0.00, 0.03)	0.01 (0.00, 0.02)
Percent Female		-0.02 (-0.20, 0.14)	0.00 (-0.01, 0.01)	0.00 (-0.01, 0.01)	**0.03 (0.01, 0.04)**	0.00 (-0.01, 0.00)	0.00 (-0.01, 0.00)	-0.71 (-156, 160)	-0.01 (-0.02, 0.01)	-0.01 (-0.02, 0.01)	-0.01 (-0.02, 0.01)	0.00 (-0.01, 0.01)	-0.01 (-0.01, 0.00)
Duration		0.02 (-0.61, 0.64)	-0.03 (-0.22, 0.15)	-0.03 (-0.08, 0.03)	**0.51 (0.16, 0.87)**	0.01 (-0.03, 0.04)	0.02 (0.00, 0.04)	0.32 (-30, 30)	-0.03 (-0.31, 0.24)	-0.04 (-0.13, 0.04)	0.02 (-0.03, 0.06)	**0.02 (0.01, 0.05)**	0.01 (-0.02, 0.03)
Relative Weekly Volume Load		0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)
Publication Year		0.01 (-0.11, 0.13)	0.03 (-0.02, 0.08)	0.03 (-0.01, 0.06)	-0.04 (-0.46, 0.39)	-0.02 (-0.07, 0.02)	0.00 (-0.02, 0.02)	0.32 (-23.47, 25.27)	0.02 (-0.13, 0.18)	0.02 (-0.06, 0.06)	0.09 (-0.02, 0.21)	-0.01 (-0.06, 0.03)	0.01 (-0.02, 0.03)
Categorical Covariates													
Training Status [a]		1.55 (-145, 137)	0.54 (-130, 135)	-0.30 (-1.32, 0.77)	-0.15 (-1.63, 1.38)	-0.01 (-0.89, 0.92)	0.03 (-0.70, 0.76)	-3.07 (-138, 139)	-0.54 (-2.64, 1.43)	-0.56 (-2.07, 0.98)	0.86 (-0.88, 2.68)	-0.01 (-1.53, 1.46)	0.04 (-0.89, 0.88)
Volitional Fatigue [b]		0.75 (-130, 140)	-0.06 (-0.97, 0.85)	0.07 (-0.61, 0.74)	-0.90 (-2.14, 0.32)	-0.11 (-0.58, 0.34)	-0.08 (-0.46, 0.28)	1.63 (-138, 137)	-0.07 (-1.39, 1.24)	0.22 (-0.77, 1.26)	0.02 (-1.64, 1.70)	-0.53 (-1.24, 0.20)	-0.23 (-0.68, 0.21)
Measurement Region [c]	Upper body	-0.04 (-1.95, 1.93)	-0.14 (-1.11, 0.82)	-0.44 (-1.78, 0.86)	1.15 (-0.04, 2.33)	0.32 (-0.23, 0.85)	-0.26 (-0.75, 0.24)	0.96 (-136, 142)	-0.47 (-2.55, 1.53)	-0.29 (-1.43, 0.79)	-3.08 (-195, 190)	-0.37 (-1.63, 0.93)	0.03 (-0.64, 0.71)
	Whole body	1.54 (-184, 195)	-0.39 (-2.32, 1.62)	-0.51 (-1.87, 0.85)	-0.21 (-185, 189)	**1.57 (0.79, 2.35)**	0.89 (-193, 199)	3.32 (-200, 199)	1.85 (-199, 191)	-1.01 (-2.39, 0.41)	-0.84 (-194, 186)	**1.38 (0.32, 2.41)**	-0.10 (-1.56, 1.28)
Measurement Tool [d]	Isokinetic dynamometry	-3.56 (-205, 194)	-0.81 (-2.48, 0.88)	1.77 (-191, 200)	-1.14 (-2.60, 0.36)	**-0.86 (-1.62, -0.11)**	-0.62 (-1.39, 0.15)	1.46 (-190, 196)	-1.19 (-2.75, 0.30)	-0.30 (-198, 193)	-1.93 (-193, 204)	-1.12 (-2.38, 0.23)	-0.56 (-1.77, 0.64)
	Isometric dynamometry	-0.34 (-2.33, 1.59)	-0.55 (-1.57, 0.50)	-0.59 (-1.91, 0.80)	-2.36 (-142, 138)	**-0.76 (-1.33, -0.21)**	-0.38 (-0.88, 0.11)	-1.91 (-144, 134)	3.90 (-190, 201)	-0.09 (-1.45, 1.28)	0.91 (-139, 141)	-0.46 (-1.41, 0.40)	0.06 (-0.62, 0.80)

Data are presented as beta (95% CrI). For brevity, betas are only displayed for each resistance training prescription vs CTRL. Bold denotes a 95% probability that there is evidence of effect modification based on the specified covariate.

[a] Data represent the influence of untrained, compared with trained.

[b] Data represent the influence of resistance training performed to volitional fatigue, compared with resistance training, not to volitional fatigue.

[c] Data represent the influence of specified body region strength measurements, compared with lower body strength measurements.

[d] Data represent the influence of specified measurement tools, compared with 1RM

Table S10. Network meta-regression beta estimates for hypertrophy.

Covariate		LS2	LS3	LM1	LM2	LM3	HS2	HS3	HM1	HM2	HM3
Continuous Covariates											
Age		-0.02 (-0.03, 0.00)	0.00 (-0.01, 0.01)	0.00 (-0.14, 0.14)	0.00 (-0.01, 0.00)	0.00 (-0.01, 0.00)	**0.38** **(0.07, 0.68)**	0.00 (-0.02, 0.02)	0.11 (-12.4, 11.6)	0.01 (0.00, 0.02)	0.00 (-0.01, 0.01)
Percent Female		-0.01 (-0.02, 0.00)	0.00 (0.00, 0.01)	0.00 (-0.01, 0.01)	0.00 (-0.01, 0.00)	0.00 (0.00,0.00)	0.01 (0.00, 0.02)	0.00 (-0.01, 0.01)	0.05 (-4.18, 4.11)	0.00 (-0.01, 0.00)	0.00 (-0.01, 0.00)
Duration		-0.11 (-0.24, 0.02)	-0.02 (-0.06, 0.02)	-0.06 (-0.33, 0.20)	-0.02 (-0.05, 0.01)	-0.01 (-0.03, 0.00)	**-0.32** **(-0.57, -0.08)**	-0.02 (-0.08, 0.04)	-0.88 (-48.1, 46.4)	-0.01 (-0.04, 0.02)	-0.02 (-0.04, 0.00)
Relative Weekly Volume Load		0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)	0.00 (0.00, 0.00)
Publication Year		-0.01 (-0.12, 0.09)	0.01 (-0.02, 0.04)	0.07 (-0.17, 0.31)	0.01 (-0.03, 0.04)	0.01 (0.00, 0.02)	0.23 (0.00, 0.48)	0.02 (-0.04, 0.08)	-0.16 (-36.58, 35.39)	0.02 (-0.02, 0.06)	0.01 (0.00, 0.03)
Categorical Covariates											
Training Status [a]		1.05 (-135, 137)	0.93 (-0.22, 2.05)	-0.02 (-1.28, 1.12)	0.06 (-0.99, 0.96)	0.26 (-0.53, 1.0)	-3.22 (-142, 138)	-0.96 (-133, 130)	5.33 (-188, 200)	0.38 (-0.51, 1.29)	0.28 (-0.45, 0.97)
Volitional Fatigue [b]		0.60 (-0.07, 1.28)	0.19 (-0.24, 0.61)	-0.01 (-0.77, 0.73)	-0.09 (-0.38, 0.22)	0.24 (-0.01, 0.48)	**1.54** **(0.02, 3.04)**	0.07 (-0.70, 0.82)	-0.11 (-137, 136)	-0.30 (-0.71, 0.11)	0.00 (-0.34, 0.33)
Measurement Region [c]	Upper body	-0.78 (-199, 198)	-0.23 (-1.10, 0.61)	-0.23 (-1.23, 0.75)	-0.25 (-0.89, 0.36)	0.08 (-0.24, 0.38)	-1.30 (-2.96, 0.37)	1.11 (-179, 205)	0.44 (-194, 192)	0.16 (-0.68, 0.99)	0.14 (-0.47, 0.71)
	Whole body	-0.62 (-1.29, 0.03)	-0.38 (-0.84, 0.10)	-0.32 (-1.24, 0.65)	**-0.37** **(-0.73, -0.04)**	**-0.45** **(-0.72, -0.17)**	1.07 (-188, 195)	-0.23 (-0.99, 0.51)	-2.92 (-196, 191)	-0.29 (-0.73, 0.17)	-0.35 (-0.75, 0.06)
Measurement Tool [d]	MRI	-0.71 (-61.2, 58.4)	-2.26 (-62.6, 56.5	-0.30 (-196, 200)	0.41 (-0.12, 0.96)	0.73 (-0.06, 1.52)	-1.56 (-110, 114)	0.93 (-92.8, 94.72)	-0.52 (-142, 143)	0.21 (-0.48, 0.93)	0.74 (-0.47, 1.97)
	Ultrasound	-2.24 (-62.4, 57.0)	-2.42 (-62.5, 56.8)	0.78 (-0.49, 2.08)	**0.45** **(0.02, 0.89)**	0.71 (-0.05, 1.44)	-0.29 (-109, 115)	0.59 (-93.8, 95.3)	4.60 (-190, 201)	0.44 (-0.20, 1.11)	0.61 (-0.55, 1.82)
	CT	1.66 (-189, 184)	-2.28 (-62.5, 56.7)	-3.43 (-191, 190)	-1.19 (-186, 196)	0.56 (-0.46, 1.57)	0.35 (-200, 195)	-4.45 (-206, 201)	1.99 (-193, 186)	-1.39 (-194, 202)	0.49 (-0.80, 1.83)
	Hydro	-0.75 (-192, 194)	-2.48 (-62.4, 56.5)	3.26 (-190, 190)	-0.60 (-189, 191)	0.67 (-0.40, 1.74)	-1.71 (-203, 196)	-0.74 (-195, 198)	-0.21 (-200, 202)	0.96 (-192, 202)	3.56 (-195, 197)
	fCSA	-0.96 (-190, 192)	0.62 (-190, 196)	-1.64 (-195, 193)	-1.54 (-144, 140)	0.64 (-0.23, 1.53)	-0.59 (-196, 196)	0.34 (-193, 192)	0.11 (-200, 193)	-1.82 (-144, 140)	0.39 (-0.85, 1.66)
	DXA	-2.62 (-63.1, 56.8)	-2.73 (-62.8, 56.6)	0.51 (-1.04, 2.05)	-0.07 (-0.63, 0.47)	0.18 (-0.62, 0.96)	4.91 (-190, 200)	0.44 (-93, 94)	-1.23 (-205, 197)	-0.22 (-1.02, 0.63)	0.16 (-1.03, 1.39)
	BodPod	0.92 (-201, 192)	-2.82 (-147, 150)	1.40 (-193, 199)	-3.57 (-202, 190)	0.42 (-0.87, 1.66)	3.10 (-188, 190)	0.37 (-141, 149)	3.77 (-188, 192)	-0.44 (-197, 194)	-1.63 (-203, 194)

Data are presented as beta (95% CrI). For brevity, betas are only displayed for each resistance training prescription vs CTRL. Bold denotes a 95% probability that there is evidence of effect modification based on the specified covariate.

[a] Data represent the influence of untrained, compared with trained.

[b] Data represent the influence of resistance training performed to volitional fatigue, compared with resistance training, not to volitional fatigue.

[c] Data represent the influence of specified body region measurements, compared with lower body measurements.

[d] Data represent the influence of specified hypertrophy measurement tools, compared with BIA

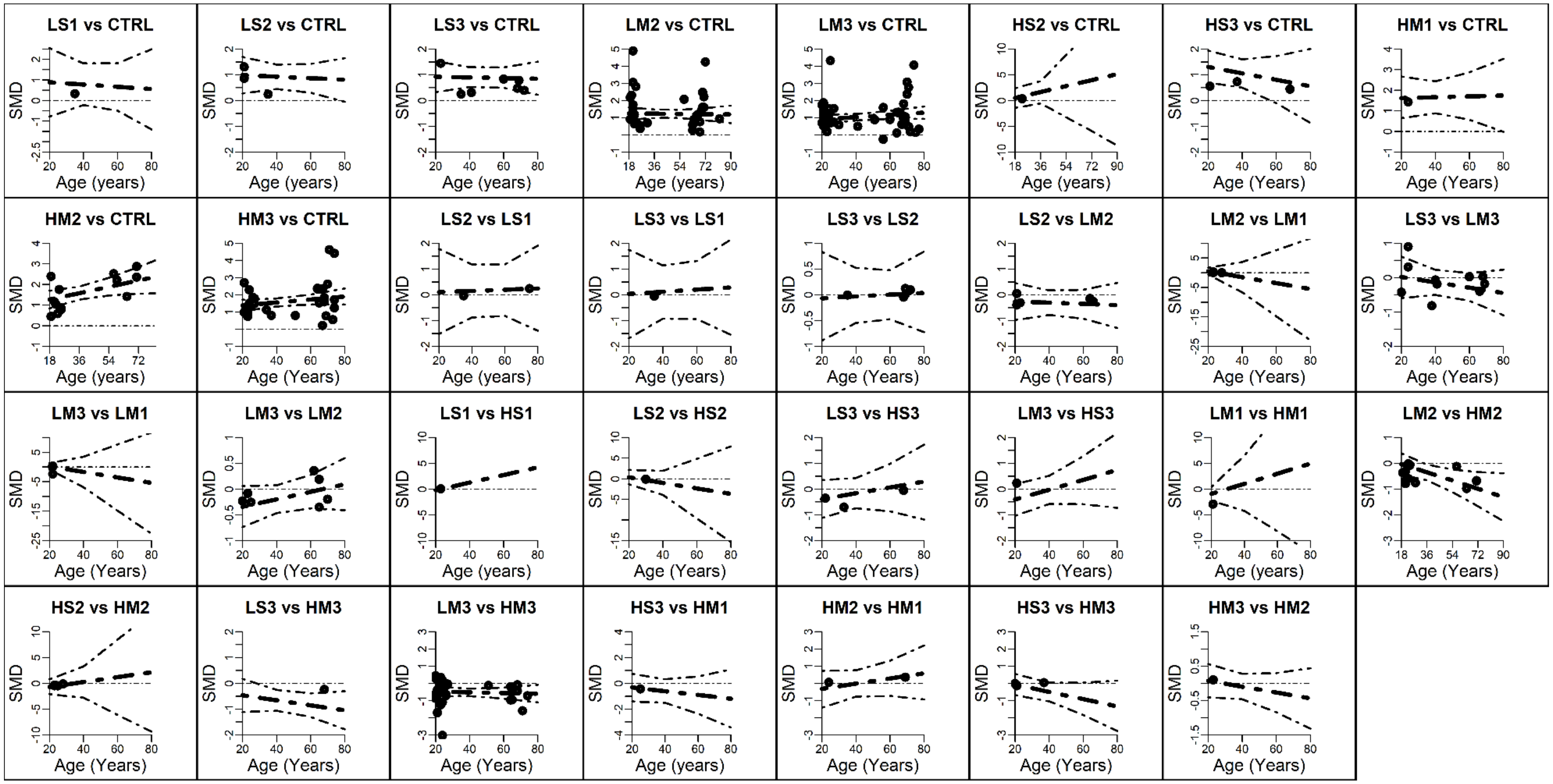


Figure S17. NMR plot displaying the effect of mean age (in years) as a covariate on muscle strength for all direct comparisons. Each circle corresponds to a study estimate at a given covariate value. The bold dot-dash line is the posterior SMD and the 2 dashed lines are the upper and lower 95% credible intervals estimated by the NMR model. For a given comparison (i.e., box), posterior SMDs greater than 0 favours the leftmost condition in the title. Abbreviations: NMR, network meta regression; SMD, standardized mean difference.

Currier BS, *et al. Br J Sports Med* 2023; 57:1201–1210. doi: 10.1136/bjsports-2023-106807

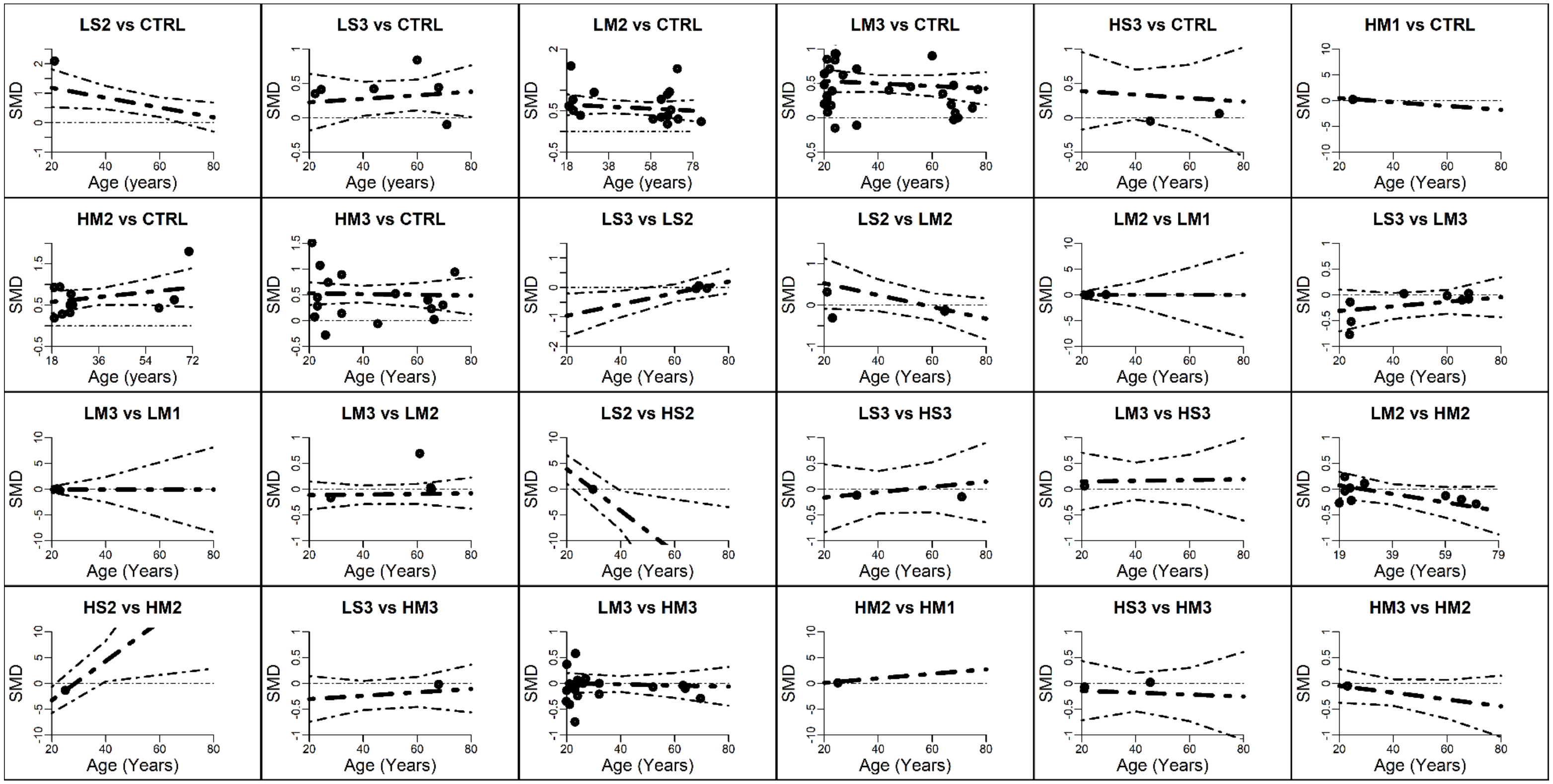


Figure S18. NMR plot displaying the effect of mean age (in years) as a covariate on muscle hypertrophy for all direct comparisons. Each circle corresponds to a study estimate at a given covariate value. The bold dot-dash line is the posterior SMD and the 2 dashed lines are the upper and lower 95% credible intervals estimated by the NMR model. For a given comparison (i.e., box), posterior SMDs greater than 0 favours the leftmost condition in the title. Abbreviations: NMR, network meta regression; SMD, standardized mean difference.

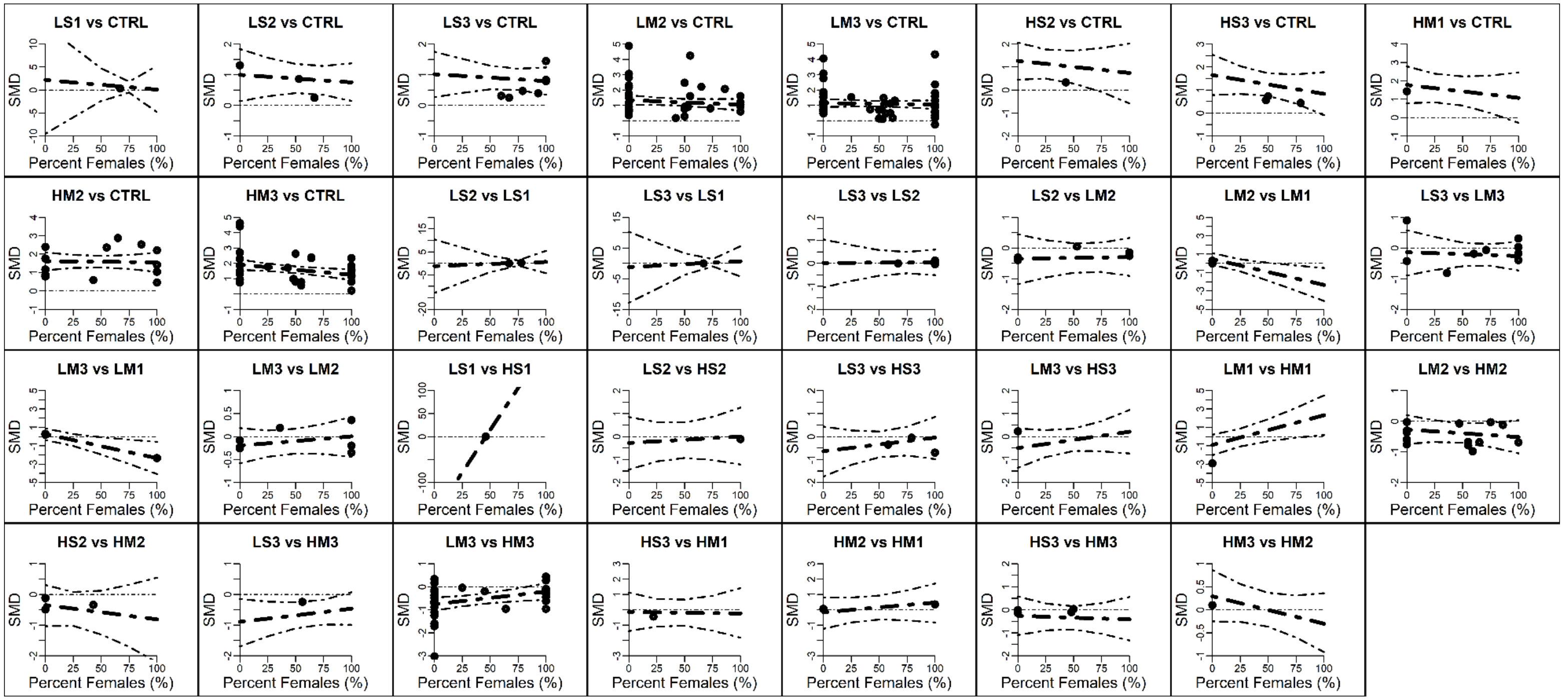


Figure S19. NMR plot displaying the effect of proportion of females (%) as a covariate on muscle strength for all direct comparisons. Each circle corresponds to a study estimate at a given covariate value. The bold dot-dash line is the posterior SMD and the 2 dashed lines are the upper and lower 95% credible intervals estimated by the NMR model. For a given comparison (i.e., box), posterior SMDs greater than 0 favours the leftmost condition in the title. Abbreviations: NMR, network meta regression; SMD, standardized mean difference.

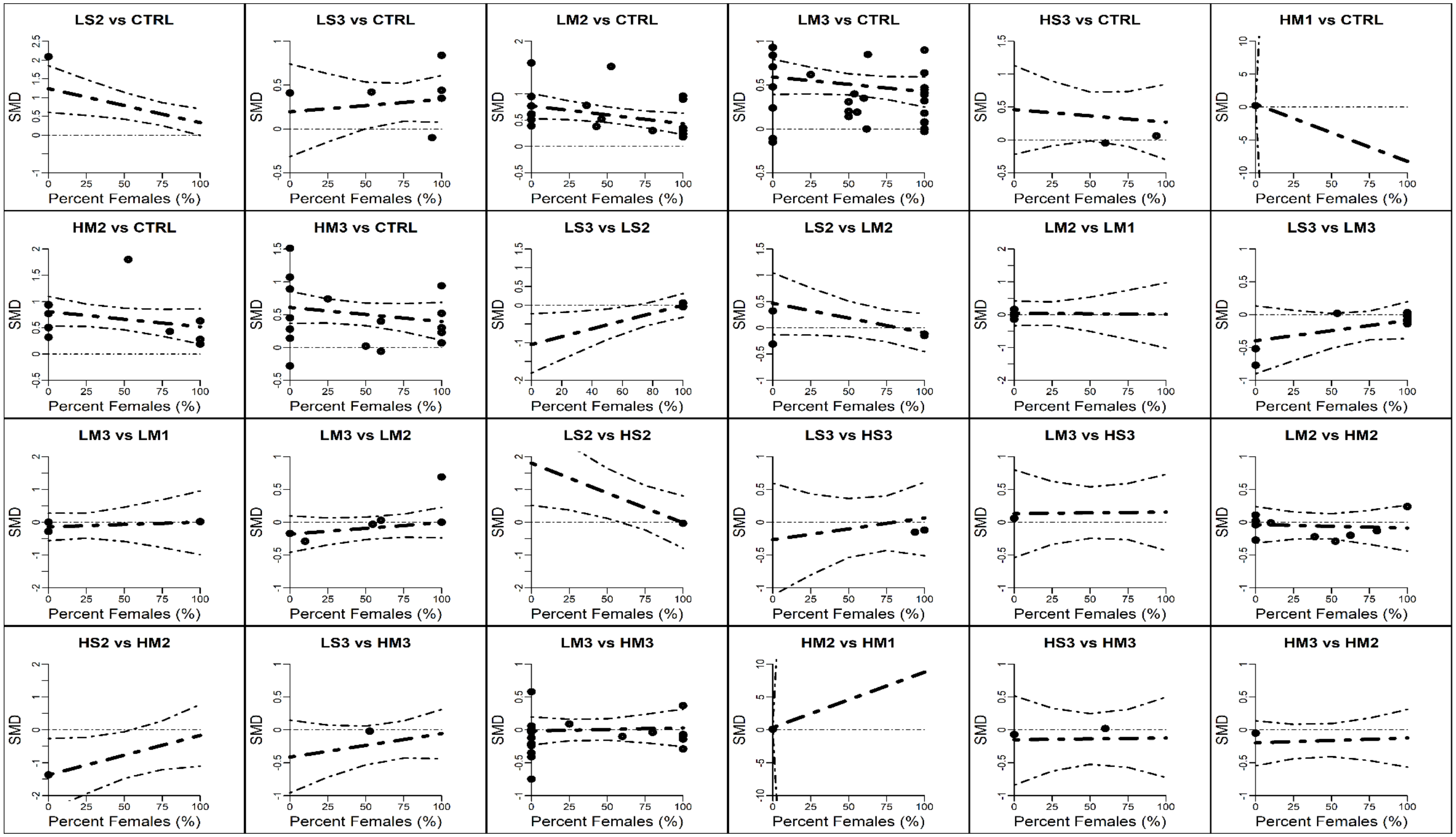


Figure S20. NMR plot displaying the effect of proportion of females (%) as a covariate on muscle hypertrophy for all direct comparisons. Each circle corresponds to a study estimate at a given covariate value. The bold dot-dash line is the posterior SMD and the 2 dashed lines are the upper and lower 95% credible intervals estimated by the NMR model. For a given comparison (i.e., box), posterior SMDs greater than 0 favours the leftmost condition in the title. Abbreviations: NMR, network meta regression; SMD, standardized mean difference.

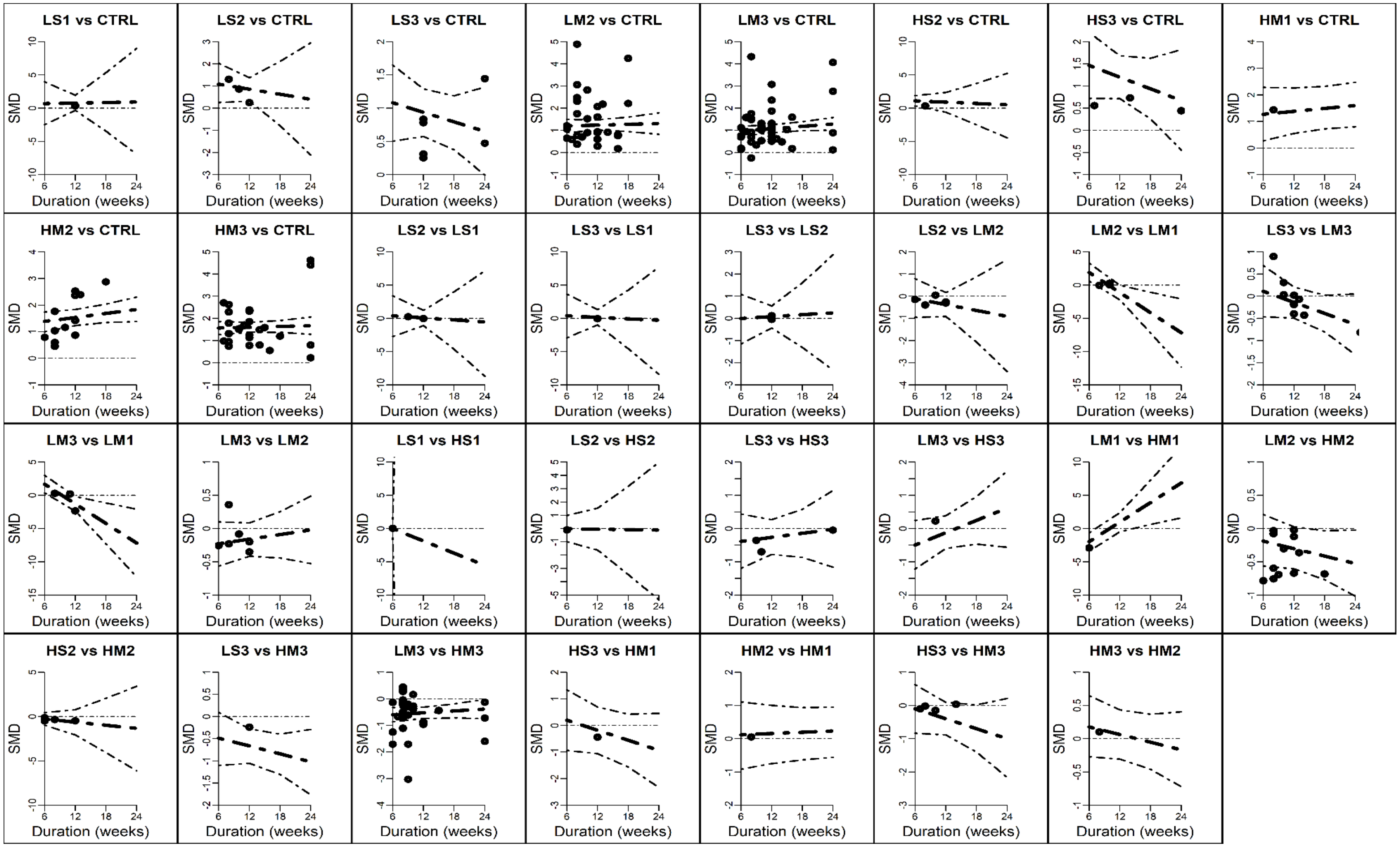


Figure S21. NMR plot displaying the effect of intervention duration as a covariate on muscle strength for all direct comparisons. Each circle corresponds to a study estimate at a given covariate value. The bold dot-dash line is the posterior SMD and the 2 dashed lines are the upper and lower 95% credible intervals estimated by the NMR model. For a given comparison (i.e., box), posterior SMDs greater than 0 favours the leftmost condition in the title. Abbreviations: NMR, network meta regression; SMD, standardized mean difference.

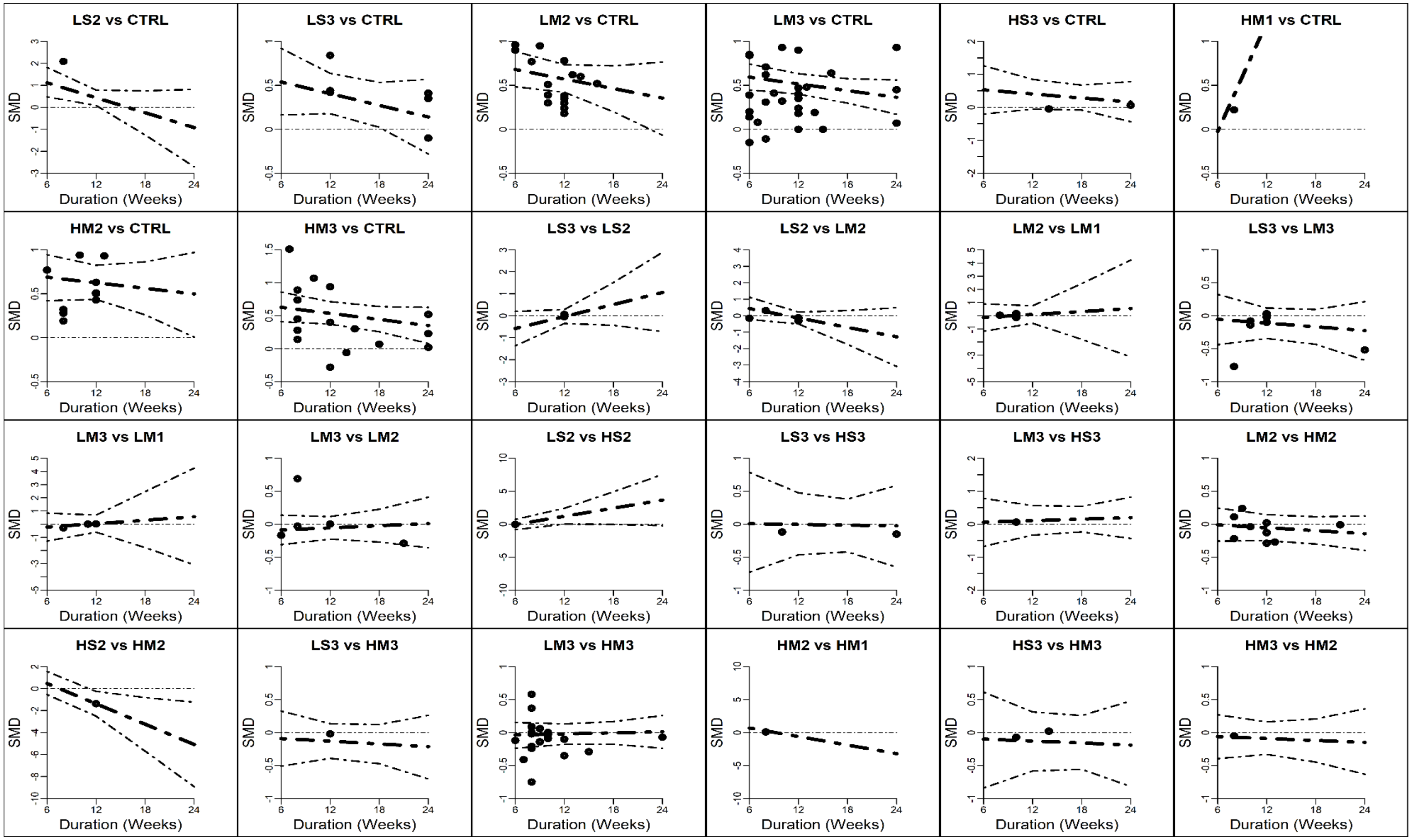


Figure S22. NMR plot displaying the effect of intervention duration as a covariate on muscle hypertrophy for all direct comparisons. Each circle corresponds to a study estimate at a given covariate value. The bold dot-dash line is the posterior SMD and the 2 dashed lines are the upper and lower 95% credible intervals estimated by the NMR model. For a given comparison (i.e., box), posterior SMDs greater than 0 favours the leftmost condition in the title. Abbreviations: NMR, network meta regression; SMD, standardized mean difference.

Online Supplementary Appendix 13: Physical function results.

Measures of physical function (mobility, gait speed, and balance/flexibility) were extracted from included studies when the mean participant age ≥55 years. Standardized mean differences (SMD) were calculated, and pairwise meta-analyses were conducted for all direct comparisons. NMA models were fitted in a Bayesian framework using Markov chain Monte Carlo (MCMC) methods in R with the statistical package *multinma*. Four chains were run with non-informative priors. There were 10,000 iterations per chain, and the first 4,000 were discarded as burn-in iterations. Values were collected with a thinning interval of 10. Convergence was evaluated by visual inspection of trace plots and the potential scale reduction factor. We report network geometry, all relative effects, posterior ranks, model fit, and threshold analysis results for each physical function outcome.

Mobility

Network geometry for mobility is displayed in Figure S23. The mobility NMA included seven conditions from 25 studies (n = 859). One study was identified as an outlier and excluded [21] during sensitivity analysis. Network geometry for mobility following sensitivity analysis is displayed in Figure S24, which included seven conditions from 24 studies (n = 810).

The relative effects for all 21 network comparisons are displayed in Table S11. There was a 95% probability that HM3, LM2, and LM3 were beneficial compared to CTRL. No RTx was superior to another RTx for improving mobility (as demonstrated by all 95% CrI crossing zero). The posterior ranks are reported in Table S12. Model fit is reported in Table S13. Node-splitting was performed on five comparisons (Figure S25), and none were significant ($P \geq 0.6$ for all). Threshold analysis results for mobility are found in Figure S26. Overall, LM2 was the top-ranked condition, and this finding appears relatively robust. Three comparisons suggest there is some sensitivity to the level of uncertainty and potential biases in the evidence, which could lead to LM3 (2/3 comparisons) or LS2 (1/3 comparisons) being ranked the top condition.

Currier BS, *et al. Br J Sports Med* 2023; 57:1201–1210. doi: 10.1136/bjsports-2023-106807

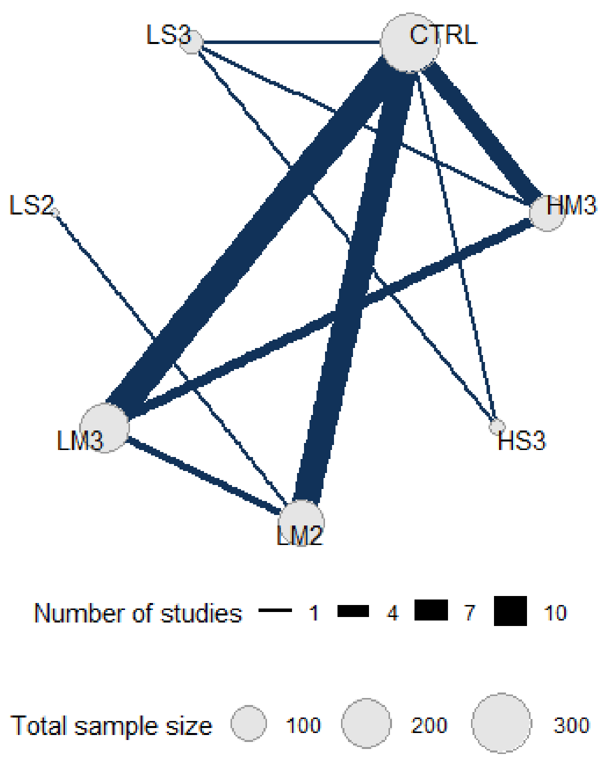


Figure S23. Network geometry for all mobility studies. Each node represents a unique condition, and the size of each node is proportional to the sample size per condition. Each edge represents direct evidence, and the width of each edge is proportional to the number of studies comparing connected nodes. Resistance training prescriptions are denoted with a three-character acronym – XY# – where X is load (H, ≥80% 1-repetition maximum [1RM]; L, <80% 1RM); Y is sets (M, multi-set; S, single-set); and # is the weekly frequency (3, ≥3 d/wk; 2, 2 d/wk; 1, 1 d/wk), respectively. For example, “HM2” denotes high-load, multi-set, twice-weekly training. Abbreviations: CTRL, non-exercising control group.

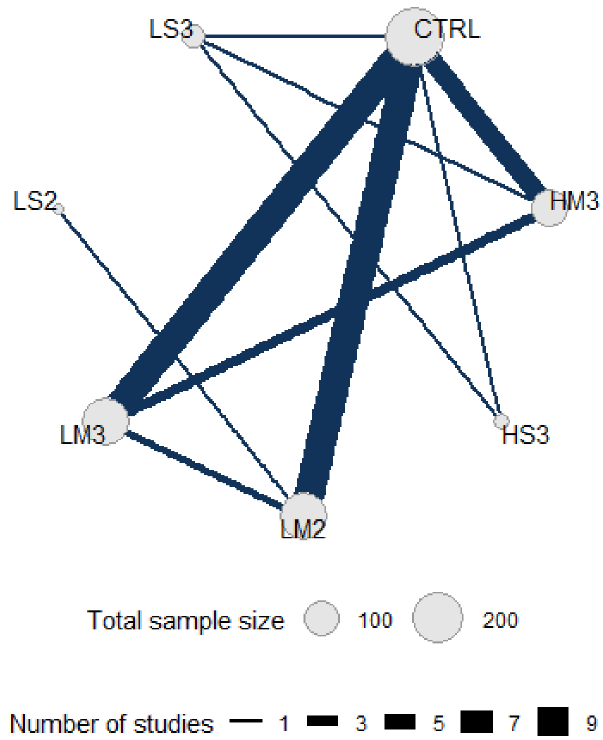


Figure S24. Network geometry for mobility following sensitivity analysis. Each node represents a unique condition, and the size of each node is proportional to the sample size per condition. Each edge represents direct evidence, and the width of each edge is proportional to the number of studies comparing connected nodes. Resistance training prescriptions are denoted with a three-character acronym – XY# – where X is load (H, ≥80% 1-repetition maximum [1RM]; L, <80% 1RM); Y is sets (M, multi-set; S, single-set); and # is the weekly frequency (3, ≥3 d/wk; 2, 2 d/wk; 1, 1 d/wk), respectively. For example, “HM2” denotes high-load, multi-set, twice-weekly training. Abbreviations: CTRL, non-exercising control group.

Table S11. League table of all relative effects for mobility.

		All studies						
		CTRL	HM3	HS3	LM2	LM3	LS2	LS3
Sensitivity Analysis	CTRL		**0.76 (0.17, 1.35)**	0.28 (-1.19, 1.72)	**1.04 (0.50, 1.57)**	**0.90 (0.43, 1.34)**	0.76 (-1.00, 2.48)	0.59 (-0.53, 1.71)
	HM3	**0.70 (0.18, 1.24)**		-0.48 (-1.98, 1.07)	0.28 (-0.48, 1.09)	0.14 (-0.53, 0.84)	0.01 (-1.81, 1.83)	-0.17 (-1.27, 0.97)
	HS3	0.25 (-0.95, 1.47)	-0.45 (-1.71, 0.84)		0.76 (-0.75, 2.26)	0.62 (-0.91, 2.15)	0.48 (-1.81, 2.70)	0.31 (-1.09, 1.72)
	LM2	**1.01 (0.59, 1.45)**	0.31 (-0.34, 0.98)	0.75 (-0.53, 2.07)		-0.14 (-0.79, 0.50)	-0.28 (-1.97, 1.36)	-0.45 (-1.64, 0.83)
	LM3	**0.72 (0.31, 1.17)**	0.02 (-0.56, 0.64)	0.46 (-0.82, 1.79)	-0.29 (-0.86, 0.26)		-0.13 (-1.90, 1.69)	-0.31 (-1.48, 0.87)
	LS2	0.71 (-0.79, 2.25)	0.01 (-1.63, 1.64)	0.46 (-1.52, 2.51)	-0.29 (-1.74, 1.19)	-0.01 (-1.56, 1.60)		-0.18 (-2.32, 1.87)
	LS3	0.54 (-0.36, 1.48)	-0.16 (-1.11, 0.77)	0.29 (-0.94, 1.49)	-0.47 (-1.44, 0.58)	-0.18 (-1.17, 0.86)	-0.17 (-2.00, 1.60)	

Network estimates for all relative effects of resistance training prescriptions are displayed for mobility with all studies (column header versus row header; values > 0 favour the column condition) and following sensitivity analysis (row header versus column header; values > 0 favour the row condition). Data are displayed as posterior standardized mean difference (95% credible interval). Bold text indicates a 95% probability one intervention yields a larger relative effect. Resistance training prescriptions are denoted with a three-character acronym – XY# – where X is load (H, ≥80% 1-repetition maximum [1RM]; L, <80% 1RM); Y is sets (M, multi-set; S, single-set); and # is the weekly frequency (3, ≥3 d/wk; 2, 2 d/wk; 1, 1 d/wk), respectively. For example, “HM2” denotes high-load, multi-set, twice-weekly training. Abbreviations: CTRL, non-exercising control group.

Table S12. Posterior ranks for mobility.

	HM3	HS3	LM3	LM2	LS3	LS2	CTRL
All Studies	3.6 (1, 6)	5.0 (1, 7)	3.1 (1, 6)	2.2 (1, 5)	4.2 (1, 7)	3.6 (1, 7)	6.3 (5, 7)
Sensitivity Analysis	3.5 (1, 6)	5.1 (1, 7)	3.6 (1, 6)	1.9 (1, 4)	4.1 (1, 7)	3.4 (1, 7)	6.4 (5, 7)

Mean posterior ranks (95% credible interval) for all conditions with all studies (first row) and following sensitivity analyses (second row). Mean posterior ranks closer to 1 suggest the most effective condition. Resistance training prescriptions are denoted with a three-character acronym – XY# – where X is load (H, ≥80% 1-repetition maximum [1RM]; L, <80% 1RM); Y is sets (M, multi-set; S, single-set); and # is the weekly frequency (3, ≥3 d/wk; 2, 2 d/wk; 1, 1 d/wk), respectively. For example, "HM2" denotes high-load, multi-set, twice-weekly training. Abbreviations: CTRL, non-exercising control group.

Table S13. Model fit summaries for mobility.

Model	**All Studies (on 30 data points)**				**Sensitivity Analysis (on 29 data points)**			
	Residual Deviance	pD	DIC	Tau (95% CrI)	Residual Deviance	pD	DIC	Tau (95% CrI)
FE Model	90	6.2	96.1	--	64.8	6.1	70.9	--
RE Model	30.6	23.5	54.1	0.68 (0.43, 1.02)	30.6	20.8	51.5	0.53 (0.29, 0.62)
RE UME	30.5	24.6	55.1	--	30.2	22.0	52.2	--

Abbreviations: CrI, credible interval; DIC, deviance information criterion; FE, fixed effects; pD, number of effective parameters; RE, random effects; UME, unrelated mean effects.

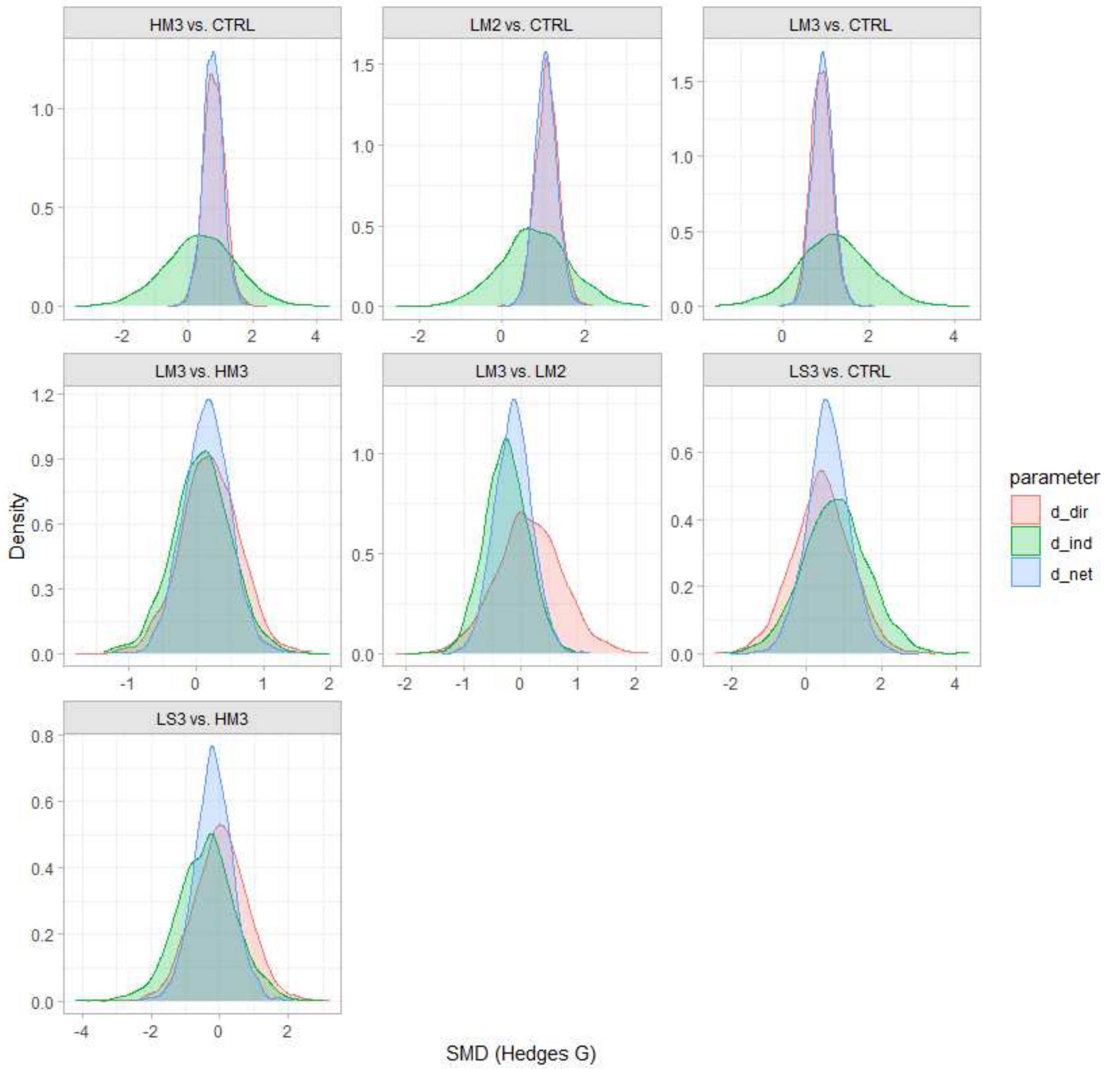


Figure S25. Node-split analysis plot for all studies in mobility network. Posterior distribution for direct estimate (red), indirect estimate (green), and network estimate (blue). Resistance training prescriptions are denoted with a three-character acronym – XY# – where X is load (H, ≥80% 1-repetition maximum [1RM]; L, <80% 1RM); Y is sets (M, multi-set; S, single-set); and # is the weekly frequency (3, ≥3 d/wk; 2, 2 d/wk; 1, 1 d/wk), respectively. For example, "HM2" denotes high-load, multi-set, twice-weekly training. Abbreviations: CTRL, non-exercising control group.

Study (Contrast)	SMD	95% Confidence Interval	Invariant Interval		
Abrahin 2014 (LM2 vs LS2)	0.29	(-1.10, 1.68)	LS2	(-0.30, 94.97)	HS3
BoikoFerreira 2021 (LM3 vs CTRL)	2.79	(1.54, 4.04)	LS3	(-23.74, 8.52)	LM3
Brandon 2004 (LM3 vs CTRL)	0.57	(-0.47, 1.61)	HS3	(-38.29, 7.28)	LM3
Correa 2012 (LM2 vs CTRL)	1.91	(0.77, 3.05)	LM3	(-2.63, NT)	–
Fatouros 2005 (HM3 vs CTRL)	0.67	(-0.51, 1.85)	LM3	(-5.65, 3.52)	HM3
Fatouros 2005 (LM3 vs CTRL)	0.27	(-0.91, 1.45)	HM3	(-4.19, 3.76)	LM3
Henwood 2006 (LM2 vs CTRL)	0.37	(-0.74, 1.48)	LM3	(-3.66, NT)	–
Kalapotharakos 2005a (HM3 vs CTRL)	1.09	(-0.32, 2.50)	CTRL	(-142.54, 6.14)	HM3
Kalapotharakos 2005b (HM3 vs CTRL)	1.86	(0.43, 3.29)	LM3	(-6.06, 4.24)	HM3
Kalapotharakos 2005b (LM3 vs CTRL)	2.06	(0.62, 3.50)	HM3	(-1.26, 4.97)	LM3
Krcmarova 2018 (LM2 vs CTRL)	1.14	(-0.10, 2.38)	LM3	(-2.98, NT)	–
Lopes 2016 (HM3 vs CTRL)	-0.04	(-1.28, 1.20)	HS3	(-46.02, 4.52)	HM3
Monteiro 2019 (LM3 vs CTRL)	0.54	(-0.57, 1.65)	CTRL	(-339.32, 5.39)	LM3
Pinto 2014 (LM2 vs CTRL)	2.33	(1.03, 3.63)	LM3	(-2.09, 56.42)	LS2
Rabelo 2004 (HM3 vs CTRL)	1.30	(0.14, 2.46)	LM3	(-7.44, 4.68)	HM3
Rabelo 2004 (LM3 vs CTRL)	1.50	(0.32, 2.68)	HM3	(-4.03, 5.69)	LM3
Raj 2012 (LM2 vs CTRL)	0.20	(-1.04, 1.44)	LM3	(-3.01, 130.50)	LS2
Ramirez-Campillo 2016a (LM2 vs CTRL)	1.93	(0.39, 3.47)	LS2	(-29.05, 3.20)	LM3
Ramirez-Campillo 2016a (LM3 vs CTRL)	1.71	(0.20, 3.22)	LM3	(0.45, 18.97)	LS2
Ramirez-Campillo 2018b (LM3 vs CTRL)	0.56	(-0.58, 1.70)	HM3	(-15.76, 11.36)	LM3
Schlicht 2001 (LM3 vs CTRL)	0.16	(-1.13, 1.45)	LS3	(-66.16, 4.65)	LM3
Shiotsu 2018 (LM2 vs CTRL)	0.23	(-1.06, 1.52)	LM3	(-3.75, 13.21)	LS2
Soligon 2020 (LM2 vs CTRL)	0.76	(-0.51, 2.03)	LM3	(-4.15, 15.61)	LS2
Sundstrup 2016 (LM2 vs CTRL)	1.33	(-0.14, 2.80)	LM3	(-2.50, NT)	–
Tracy 2004 (HM3 vs CTRL)	0.21	(-1.10, 1.52)	CTRL	(-205.49, 6.03)	HM3
Tracy 2006 (LM3 vs CTRL)	0.00	(-1.24, 1.24)	CTRL	(-235.06, 4.70)	LM3
VanRoie 2013 (HM3 vs LS3)	0.00	(-1.13, 1.13)	LS3	(-2.98, 24.61)	LS2
Vincent 2002 (HS3 vs CTRL)	0.19	(-0.94, 1.32)	LS3	(-9.50, 2.00)	HS3
Vincent 2002 (LS3 vs CTRL)	0.40	(-0.73, 1.53)	HS3	(-3.10, 2.78)	LS3
Stec 2017 (LM3 vs LM2)	0.09	(-1.10, 1.28)	–	(NT, 2.11)	LM3

○ SMD —— 95% Confidence Interval ▬ Invariant Interval

Figure S26. Threshold analysis results for mobility. Each row corresponds to a single study estimate and displays the SMD and 95% CI from that study, along with the invariant interval (blue shaded bars). Any changes to a study estimate that lie within the invariant interval will not affect the first-ranked treatment (first ranked treatment for mobility: LM2). Bold study labels and red shaded invariant intervals show where a 95% CI crosses the corresponding threshold, indicating sensitivity to the level of uncertainty in this estimate, which could result in a new first-ranked treatment, which are shown as resistance training prescription acronyms at either side of the invariant interval. Abbreviations: 95% CI, 95% confidence interval; SD, standard deviation; SMD, standardized mean difference.

Gait Speed

All studies yielded a disconnected network, and one study was excluded [96] to form a connected network for this analysis. Network geometry for gait speed is displayed in Figure S27. The gait speed NMA included five conditions from 15 studies (n = 488). No outliers nor influential cases were identified, so sensitivity analysis was not conducted.

The relative effects for all 10 network comparisons are displayed in Table S14. There was a 95% probability that HM3, LM3, and LM2 were beneficial compared to CTRL. No resistance training prescription was superior when compared to another RTx. The posterior ranks are reported in Table S15. Model fit is reported in Table S16. Node-splitting was performed on four comparisons (Figure S28), and none were significant ($P \geq 0.31$ for all). Threshold analysis results for gait speed were reported in Figure S29. Overall, LM3 was the top-ranked condition; however, 10 comparisons suggest there is some sensitivity to the level of uncertainty and potential biases in the evidence, which could lead to HM3 (8/10 comparisons) or LM2 (2/10 comparisons) being ranked the top condition (Figure S29).

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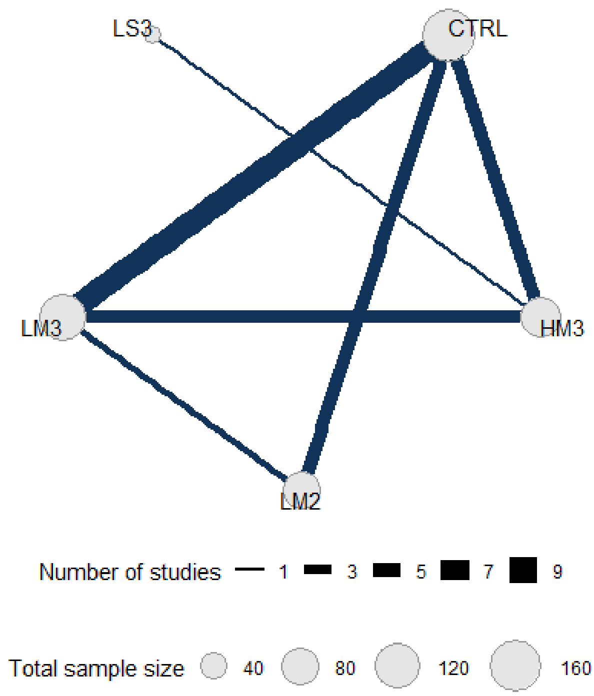

Figure S27. Network geometry for gait speed. Each node represents a unique condition, and the size of each node is proportional to the sample size per condition. Each edge represents direct evidence, and the width of each edge is proportional to the number of studies comparing connected nodes. Resistance training prescriptions are denoted with a three-character acronym – XY# – where X is load (H, ≥80% 1-repetition maximum [1RM]; L, <80% 1RM); Y is sets (M, multi-set; S, single-set); and # is the weekly frequency (3, ≥3 d/wk; 2, 2 d/wk; 1, 1 d/wk), respectively. For example, "HM2" denotes high-load, multi-set, twice-weekly training. Abbreviations: CTRL, non-exercising control group.

Table S14. League table of all relative effects for gait speed.

	CTRL	HM3	LM2	LM3	LS3
CTRL		**0.74 (0.14, 1.39)**	**0.66 (0.08, 1.30)**	**0.88 (0.41, 1.40)**	0.21 (-1.32, 1.78)
HM3			-0.08 (-0.94, 0.71)	0.14 (-0.49, 0.80)	-0.54 (-1.99, 0.87)
LM2				0.22 (-0.45, 0.91)	-0.46 (-2.16, 1.23)
LM3					-0.67 (-2.31, 0.91)

Network estimates for all relative effects of resistance training prescriptions for gait speed (column header versus row header; values >0 favour the column condition). Data are displayed as posterior standardized mean difference (95% credible interval). Bold text indicates a 95% probability one intervention yields a larger relative effect. Resistance training prescriptions are denoted with a three-character acronym – XY# – where X is load (H, ≥80% 1-repetition maximum [1RM]; L, <80% 1RM); Y is sets (M, multi-set; S, single-set); and # is the weekly frequency (3, ≥3 d/wk; 2, 2 d/wk; 1, 1 d/wk), respectively. For example, “HM2” denotes high-load, multi-set, twice-weekly training. Abbreviations: CTRL, non-exercising control group.

Table S15. Posterior ranks for gait speed.

	CTRL	HM3	LM2	LM3	LS3
All Studies	4.6 (4, 5)	2.3 (1, 4)	2.6 (1, 4)	1.7 (1, 4)	3.8 (1, 5)

Data are presented as mean posterior ranks (95% credible interval). Mean posterior ranks closer to 1 suggest the most effective condition. Resistance training prescriptions are denoted with a three-character acronym – XY# – where X is load (H, ≥80% 1-repetition maximum [1RM]; L, <80% 1RM); Y is sets (M, multi-set; S, single-set); and # is the weekly frequency (3, ≥3 d/wk; 2, 2 d/wk; 1, 1 d/wk), respectively. For example, "HM2" denotes high-load, multi-set, twice-weekly training. Abbreviations: CTRL, non-exercising control group.

Table S16. Model fit summaries for gait speed.

Model	**All Studies (on 20 data points)**			
	Residual Deviance	pD	DIC	Tau (95% CrI)
FE Model	43.1	4.1	47.1	--
RE Model	24.3	14.6	38.8	0.56 (0.15, 1.03)
RE UME	23.7	15.3	39	--

Abbreviations: CrI, credible interval; DIC, deviance information criterion; FE, fixed effects; pD, number of effective parameters; RE, random effects; UME, unrelated mean effects.

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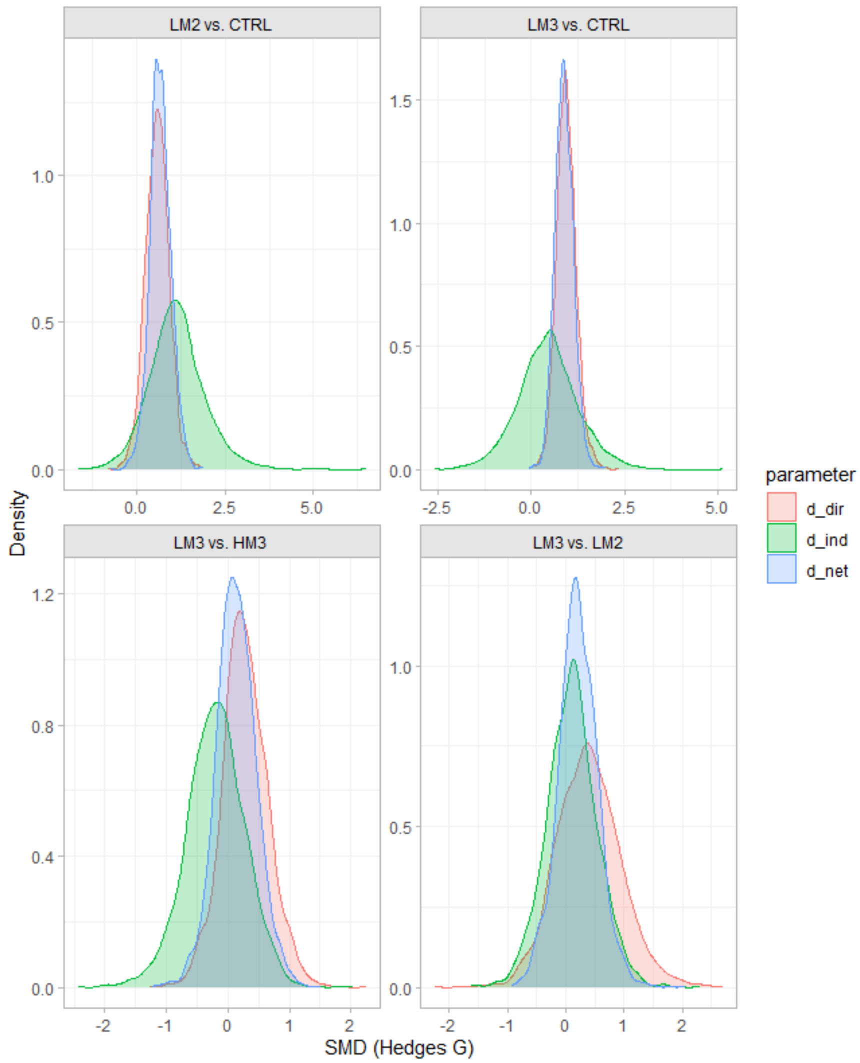
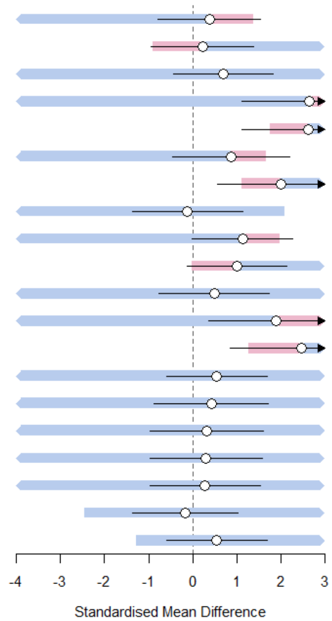


Figure S28. Node-split plot for gait speed network. Posterior distribution for direct estimate (red), indirect estimate (green), and network estimate (blue). Resistance training prescriptions are denoted with a three-character acronym – XY# – where X is load (H, ≥80% 1-repetition maximum [1RM]; L, <80% 1RM); Y is sets (M, multi-set; S, single-set); and # is the weekly frequency (3, ≥3 d/wk; 2, 2 d/wk; 1, 1 d/wk), respectively. For example, “HM2” denotes high-load, multi-set, twice-weekly training. Abbreviations: CTRL, non-exercising control group.

Study (Contrast)	SMD	95% Confidence Interval	Invariant Interval		
Fatouros 2005 (HM3 vs CTRL)	0.37	(-0.79, 1.54)	LM2	(-61.10, 1.37)	HM3
Fatouros 2005 (LM3 vs CTRL)	0.22	(-0.96, 1.39)	HM3	(-0.91, NT)	–
Henwood 2006 (LM2 vs CTRL)	0.69	(-0.43, 1.81)	LS3	(-14.46, 4.76)	LM2
Kalapotharakos 2004 (HM3 vs CTRL)	2.64	(1.11, 4.17)	–	(NT, 3.51)	HM3
Kalapotharakos 2004 (LM3 vs CTRL)	2.62	(1.11, 4.13)	HM3	(1.76, NT)	–
Kalapotharakos 2005 (HM3 vs CTRL)	0.87	(-0.46, 2.20)	–	(NT, 1.66)	HM3
Kalapotharakos 2005 (LM3 vs CTRL)	1.99	(0.57, 3.42)	HM3	(1.11, NT)	–
Lopes 2016 (HM3 vs CTRL)	-0.12	(-1.37, 1.12)	LM2	(-178.41, 2.09)	HM3
Rabelo 2004 (HM3 vs CTRL)	1.12	(-0.02, 2.27)	–	(NT, 1.97)	HM3
Rabelo 2004 (LM3 vs CTRL)	0.99	(-0.14, 2.12)	HM3	(-0.02, NT)	–
Raj 2012 (LM2 vs CTRL)	0.49	(-0.76, 1.74)	LS3	(-28.59, 3.73)	LM2
Ramirez-Campillo 2016 (LM2 vs CTRL)	1.89	(0.36, 3.42)	–	(NT, 3.12)	LM2
Ramirez-Campillo 2016 (LM3 vs CTRL)	2.45	(0.84, 4.07)	LM2	(1.27, NT)	–
Ramirez-Campillo 2018 (LM3 vs CTRL)	0.55	(-0.59, 1.68)	LM2	(-4.56, NT)	–
Schlicht 2001 (LM3 vs CTRL)	0.41	(-0.87, 1.70)	LM2	(-5.69, NT)	–
Shiotsu 2018 (LM2 vs CTRL)	0.32	(-0.97, 1.60)	HM3	(-23.27, 3.31)	LM2
Sipila 1996 (LM3 vs CTRL)	0.30	(-0.97, 1.57)	LM2	(-5.71, NT)	–
Soligon 2020 (LM2 vs CTRL)	0.28	(-0.97, 1.53)	HM3	(-42.75, 3.84)	LM2
Stec 2017 (LM3 vs LM2)	-0.16	(-1.36, 1.03)	LS3	(-2.44, NT)	–
VanRoie 2013 (HM3 vs LS3)	0.54	(-0.59, 1.68)	LM2	(-1.28, NT)	–



○ SMD — 95% Confidence Interval ▬ Invariant Interval

Figure S29. Threshold analysis results for gait speed. Each row corresponds to a single study estimate and displays the SMD and 95% CI from that study, along with the invariant interval (blue shaded bars). Any changes to a study estimate that lie within the invariant interval will not affect the first-ranked treatment (first ranked treatment for gait speed: LM3). Bold study labels and red shaded invariant intervals show where a 95% CI crosses the corresponding threshold, indicating sensitivity to the level of uncertainty in this estimate, which could result in a new first-ranked treatment, which are shown as resistance training prescription acronyms at either side of the invariant interval. Abbreviations: SMD, standardized mean difference; 95% CI, 95% confidence interval; SD, standard deviation.

Balance/Flexibility

Network geometry for balance/flexibility is displayed in Figure S30. The balance/flexibility NMA included four conditions from 13 studies (n = 453). No outliers nor influential cases were identified, so sensitivity analysis was not conducted.

The relative effects for all six network comparisons are displayed in Table S17. There was a 95% probability that HM3 and LM3 were beneficial compared to CTRL. No resistance training prescription was superior when compared to another RTx. The posterior ranks are reported in Table S18. Model fit is reported in Table S19. Node-splitting was performed on four comparisons (Figure S31) and none were significant ($P \geq 0.54$ for all). The base-case for threshold analysis was HM3 and no comparisons potentially impacted this recommendation (Figure S32).

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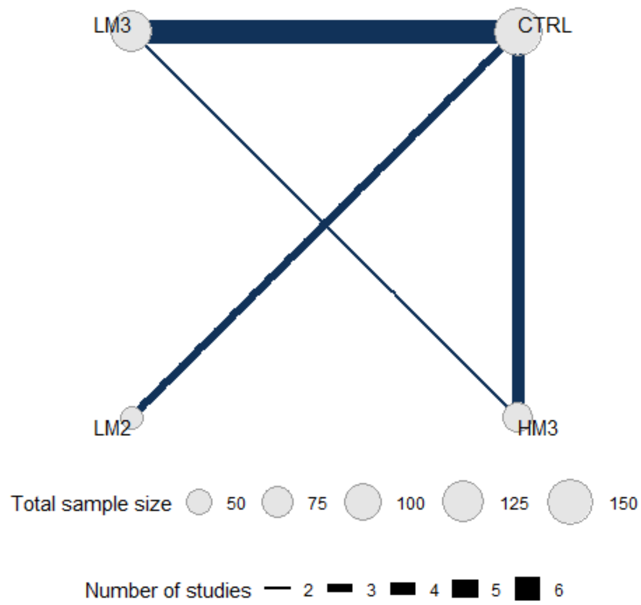

Figure S30. Network geometry for balance/flexibility. Each node represents a unique condition, and the size of each node is proportional to the sample size per condition. Each edge represents direct evidence, and the width of each edge is proportional to the number of studies comparing connected nodes. Resistance training prescriptions are denoted with a three-character acronym – XY# – where X is load (H, ≥80% 1-repetition maximum [1RM]; L, <80% 1RM); Y is sets (M, multi-set; S, single-set); and # is the weekly frequency (3, ≥3 d/wk; 2, 2 d/wk; 1, 1 d/wk), respectively. For example, "HM2" denotes high-load, multi-set, twice-weekly training. Abbreviations: CTRL, non-exercising control group.

Table S17. League table of all relative effects for balance/flexibility.

	CTRL	HM3	LM2	LM3
CTRL		**1.52 (0.08, 2.91)**	0.55 (-1.05, 2.18)	0.83 (-0.29, 1.98)
HM3			-0.97 (-3.04, 1.07)	-0.69 (-2.26, 0.84)
LM2				0.28 (-1.66, 2.18)

Network estimates for all relative effects of resistance training prescriptions are displayed for balance/flexibility (column header versus row header; values >0 favour the column condition). Data are displayed as posterior standardized mean difference (95% credible interval). Bold text indicates a 95% probability one intervention yields a larger relative effect. Resistance training prescriptions are denoted with a three-character acronym – XY# – where X is load (H, ≥80% 1-repetition maximum [1RM]; L, <80% 1RM); Y is sets (M, multi-set; S, single-set); and # is the weekly frequency (3, ≥3 d/wk; 2, 2 d/wk; 1, 1 d/wk), respectively. For example, "HM2" denotes high-load, multi-set, twice-weekly training. Abbreviations: CTRL, non-exercising control group.

Table S18. Posterior ranks for balance/flexibility.

	CTRL	HM3	LM2	LM3
All Studies	3.7 (3, 4)	1.4 (1, 3)	2.7 (1, 4)	2.3 (1, 4)

Data are presented as mean posterior ranks (95% credible interval). Mean posterior ranks closer to 1 suggest the most effective condition. Resistance training prescriptions are denoted with a three-character acronym – XY# – where X is load (H, ≥80% 1-repetition maximum [1RM]; L, <80% 1RM); Y is sets (M, multi-set; S, single-set); and # is the weekly frequency (3, ≥3 d/wk; 2, 2 d/wk; 1, 1 d/wk), respectively. For example, “HM2” denotes high-load, multi-set, twice-weekly training. Abbreviations: CTRL, non-exercising control group.

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Table S19. Model fit summaries for balance/flexibility.

Model	**All Studies (on 13 data points)**			
	Residual Deviance	pD	DIC	Tau (95% CrI)
FE Model	73.4	3.0	76.4	--
RE Model	13.9	12.3	26.3	1.30 (0.73, 2.28)
RE UME	14	12.4	26.4	--

Abbreviations: CrI, credible interval; DIC, deviance information criterion; FE, fixed effects; pD, number of effective parameters; RE, random effects; UME, unrelated mean effects.

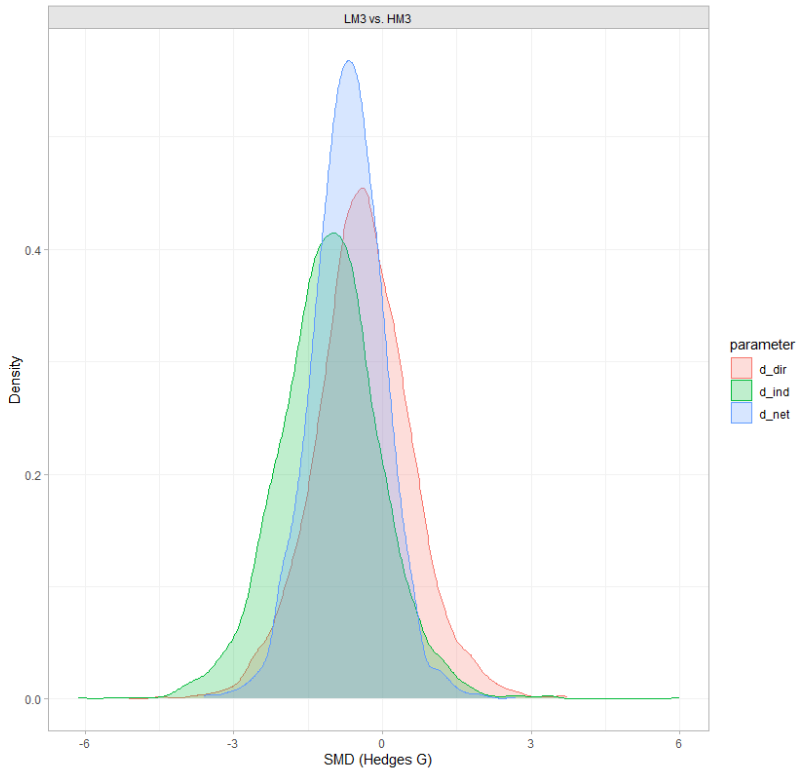

Figure S31. Node-split plot for all studies in balance/flexibility. Posterior distribution for direct estimate (red), indirect estimate (green), and network estimate (blue). Resistance training prescriptions are denoted with a three-character acronym – XY# – where X is load (H, ≥80% 1-repetition maximum [1RM]; L, <80% 1RM); Y is sets (M, multi-set; S, single-set); and # is the weekly frequency (3, ≥3 d/wk; 2, 2 d/wk; 1, 1 d/wk), respectively. For example, "HM2" denotes high-load, multi-set, twice-weekly training. Abbreviations: CTRL, non-exercising control group.

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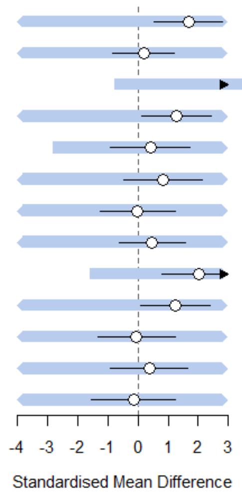
Study (Contrast)	SMD	95% Confidence Interval		Invariant Interval	
BoikoFerreira 2021 (LM3 vs CTRL)	1.67	(0.53, 2.81)	LM2	(-18.99, 62.46)	LM3
Brandon 2004 (LM3 vs CTRL)	0.18	(-0.85, 1.22)	–	(NT, 15.91)	LM3
Granacher 2009 (HM3 vs CTRL)	4.52	(2.99, 6.04)	LM3	(-0.77, NT)	–
Henwood 2006 (LM2 vs CTRL)	1.28	(0.13, 2.44)	–	(NT, 9.84)	LM2
Kalapotharakos 2005 (HM3 vs CTRL)	0.40	(-0.90, 1.71)	LM3	(-2.82, NT)	–
Kalapotharakos 2005 (LM3 vs CTRL)	0.84	(-0.48, 2.15)	–	(NT, 4.13)	LM3
Lopes 2016 (HM3 vs CTRL)	-0.01	(-1.26, 1.23)	LM3	(-10.02, NT)	–
Monteiro 2019 (LM3 vs CTRL)	0.48	(-0.63, 1.59)	LM2	(-21.03, 14.83)	LM3
Rabelo 2004 (HM3 vs CTRL)	2.01	(0.78, 3.23)	LM3	(-1.60, NT)	–
Rabelo 2004 (LM3 vs CTRL)	1.25	(0.10, 2.40)	–	(NT, 6.42)	LM3
Schlicht 2001 (LM3 vs CTRL)	-0.05	(-1.33, 1.23)	–	(NT, 10.94)	LM3
Shiotsu 2018 (LM2 vs CTRL)	0.37	(-0.91, 1.66)	CTRL	(-466.43, 7.36)	LM2
Sundstrup 2016 (LM2 vs CTRL)	-0.14	(-1.54, 1.25)	–	(NT, 4.36)	LM2



○ SMD —— 95% Confidence Interval ▬ Invariant Interval

Figure S32. Threshold analysis results for balance/flexibility. Each row corresponds to a single study estimate and displays the SMD and 95% CI from that study, along with the invariant interval (blue shaded bars). Any changes to a study estimate that lie within the invariant interval will not affect the first-ranked treatment (first-ranked treatment for balance/flexibility: HM3). Bold study labels and red-shaded invariant intervals show where a 95% CI crosses the corresponding threshold, indicating sensitivity to the level of uncertainty in this estimate, which could result in a new first-ranked treatment, which are shown as resistance training prescription acronyms at either side of the invariant interval. Abbreviations: SMD, standardized mean difference; 95% CI, 95% confidence interval; SD, standard deviation.