Table 2: Overall study outlines and Downs and Black checklist [44].

udy	Country	Design [46]	Evidence Level [46]	Training*	Sample Size	Participant characteristics	Age Mean ±SD (Yr)	Age Range (Yr)	Sampling	Key DV	Key Measure(s)	Results	Score [44]
et al	Germany/ USA	Concurrent control Pretest-posttest	III-1	12 stability training; 4 wks - 3x/wk	27	Healthy young	28.1 ±2.1	n/a	Random	Corticospinal excitability; Stability performance	Stability MEP threshold and amplitude, paired-pulse ratio	↑ stability; ↑ MEP amplitude 20.9%; ↑ SICI 6% and ICF 7%.	17
ll et al	Australia	Concurrent control Pretest-posttest	III-1	12 training; 4 wks - 3x/wk	16	Healthy young	n/a	22-36	Random	Corticospinal excitability; Strength performance	Strength, MEP amplitude,	↑ strength 33%; ↓ MEP amplitude 1.7%.	17
ll et al	Australia	Concurrent control Pretest-posttest	III-1	12 training; 4 wks - 3x/wk	17	Healthy young	n/a	19-35	Sub-group of larger study. Random	Corticospinal excitability; Strength performance	Strength, MEP threshold and amplitude	↑ strength 8%; ↑ MEP amplitude 0.7%.	15
tie and en	USA	Concurrent control Pretest-posttest	III-1	6 training; 2 wks - 3x/wk	30	Healthy young	21.9 ±3.1	n/a	Random	Corticospinal excitability; Strength performance	Strength, MEP amplitude, cSP duration	↑ strength 8%; ↓ MEP amplitude 1.4%; ↓ cSP duration 15 ms.	18
bs et]	Australia	Concurrent control Pretest-posttest	III-1	9 training; 3 wks - 3x/wk	23	Healthy young	n/a	18-36	Random	Corticospinal excitability; Strength performance	Strength, MEP amplitude, cSP duration paired-pulse ratio	↑ strength 20% (mean both trained limbs); No change MEP amplitude; ↓ cSP duration ~15 ms No change SICI	19
r et al	USA/ Taiwan	Single group; Pretest/ posttest	III-3	6 training over 1 wk	12	Healthy young	27.7	23-40	Not-stated	Corticospinal excitability; Strength performance	Strength, MEP amplitude, cSP duration	↑ MEP amplitude 41.2%; ↑ cSP duration 22.1 ms.	12
will et]	Australia	Concurrent control Pretest-posttest	III-1	9 training; 3 wks - 3x/wk	14	Healthy young	21.0 ±1.1	18-35	Random	Corticospinal excitability; Strength performance	Strength, MEP threshold and amplitude, paired-pulse ratio	↑ strength 40.7%; ↑ MEP amplitude 16.8%; ↓ SICI 9.8%.	16
n and elli	USA/ Canada	Concurrent control Pretest-posttest	III-2	12 training; 4 wks - 3x/wk	20	Healthy young	n/a	18-32	Not-stated	Corticospinal excitability; Strength performance	Strength, MEP threshold and amplitude	↑ strength 18.1%; ↑ MEP amplitude 16.3%;	17
y and ll	Australia	Concurrent control Pretest-posttest	III-2	9 training; 3 wks - 3x/wk	30	Healthy young	25.7 ±3.1	n/a	Psudeo-random	Corticospinal excitability; Strength performance	Strength, MEP threshold and amplitude, cSP duration, paired-pulse ratio	↑ strength 11.6%; ↑ MEP amplitude 4.5%; ↓ cSP duration 9.9 ms; ↓ SICI 7.8%.	18

en et al	Denmark	Concurrent control Pretest-posttest	III-1	12 training; 4 wks - 3x/wk	24	Healthy young	25.0 ±5.0	n/a	Random	Corticospinal excitability; Strength performance	Strength, MEP amplitude	↑ strength 12.5%; ↓ MEP amplitude 2.7%.	17
ll and ce	Australia	Concurrent control Pretest-posttest	III-1	12 training; 4 wks - 3x/wk	16	Healthy young	24.1 ±5.2	n/a	Random	Corticospinal excitability; Strength performance	Strength, MEP amplitude, cSP duration,	↑ strength 33.8%; ↑ MEP amplitude 9.7%; ↓ cSP duration 25 ms.	18
ll et al	Australia	Concurrent control Pretest-posttest	III-1	12 training; 4 wks - 3x/wk	26	Healthy young	26.8 ±7.3	n/a	Random	Corticospinal excitability; Strength performance	Strength, MEP threshold and amplitude	↑ strength 19.2%; ↑ MEP amplitude 33.1%.	18
ll et al	Australia	Concurrent control Pretest-posttest	III-1	12 training; 4 wks - 3x/wk	23	Healthy young	26.8 ±7.3	n/a	Random	Corticospinal excitability; Strength performance	Strength, MEP threshold and amplitude, cSP duration	↑ strength 19%; ↑ MEP amplitude 33%; ↓ cSP duration 3 ms.	18
a et al	Australia	Concurrent control Pretest-posttest	III-2	12 training; 4 wks - 3x/wk	18	Healthy young	n/a	18-35	Matched for age, gender, pre-train strength	Corticospinal excitability; Strength performance	Strength, MEP amplitude, and cSP duration	↑ strength 29%; ↓ MEP amplitude 0.3%; ↓ cSP duration 17.7 ms.	16
t al	Australia	Concurrent control Pretest-posttest	III-1	12 training; 4 wks - 3x/wk	23	Healthy young	n/a	18.51	Random	Corticospinal excitability; Strength performance	Strength, and MEP amplitude	↑ strength 29%; No change MEP amplitude	18
g et al	Australia	Concurrent control Pretest-posttest	III-1	9 training; 3 wks - 3x/wk	18	Healthy young	24.6 ±1.1	18-35	Random	Corticospinal excitability; Strength performance	Strength, MEP threshold and amplitude	↑ strength 39%; ↑ MEP amplitude 25.5%.	17
a et al	Italy/Isreal/ UK	Concurrent control Pretest-posttest	III-1	12 training; 4 wks - 3x/wk	34	Healthy young	25.5 ±6.0	n/a	Random	Corticospinal excitability; Strength performance	Strength, MEP amplitude; paired-pulse ratio	No change handgrip strength No change MEP amplitude No change paired-pulse measures	23
ce et al	Australia	Concurrent control Pretest-posttest	III-2	9 training; 3 wks - 3x/wk	28	Healthy young	25.2 ±7.4	n/a	Matched for age, gender, pre-train strength	Corticospinal excitability; Strength performance/ maintenance	Strength, MEP threshold and amplitude	↑ strength 13.8%; ↑ MEP amplitude 5.5%.	19
e et al	Germany/ USA	Concurrent control Pretest-posttest	III-1	16 training; 4 wks - 4x/wk	23	Healthy young	25.0 ±3.0	n/a	Random	Corticospinal excitability; Strength performance	Stability MEP amplitude	↑ stability; ↓ MEP amplitude 31%.	19
r et al	Australia	Concurrent control Pretest-	III-2	12 training; 4 wks - 3x/wk	12	Healthy young	n/a	18-27	Psudeo-random	Corticospinal excitability; Strength	Strength, MEP threshold and amplitude,	↑ strength 86.9%; ↑ MEP amplitude 116.2%; ↓ SICI 35.4%.	16

	posttest	performance	paired-pulse ratio

n/a = not applicable

Table 3: Risk of bias as assessed using the Cochrane Risk of Bias Tool [45].

Study	Random sequence generation	Allocation concealment	Blinding of participants and personnel	Blinding of outcome assessment	Incomplete outcome data	Selective reporting	Other potential bias
Beck et al [29]	-	+	+	+	-	-	
Carroll et al [1]	-	+	+	+	?	+	Study completed from same laboratory group as Carroll et al [1]
Carroll et al [55]	-	+	+	+	?	+	Study completed from same laboratory group as Carroll et al [1]
Christie and Kamen [38]	-	+	+	+	?	+	
Coombs et al [31]	-	+	+	+	?	-	Study completed from same laboratory group as Kidgell et al [10]
Fisher et al [51]	+	+	+	+	?	+	
Goodwill et al	+	+	+	+	?	-	Study completed from same laboratory group as Kidgell et

[52]							al [10]
Griffen and Cafarelli [9]	-	+	+	+	?	+	
Hendy and Kidgell [39]	-	+	+	+	?	-	Study completed from same laboratory group as Kidgell et al [10]
Jensen et al [32]	+	+	+	+	?	+	
Kidgell and Pearce [10]	+	+	+	+	-	+	Study completed from same laboratory group as Kidgell et al [10]
Kidgell et al [33]	-	+	+	+	-	-	Study completed from same laboratory group as Kidgell et al [10]
Kidgell et al [34]	+	+	+	+	-	+	Study completed from same laboratory group as Kidgell et al [10]
Latella et al [40]	-	+	+	+	?	+	Study completed from same laboratory group as Kidgell et al [10]
Lee et al [30]	-	+	+	+	?	+	Study completed from same laboratory group as Carroll et al [1]

Leung et al [37]	-	+	+	+	?	+	Study completed from same laboratory group as Kidgell et al [10]
Manca et al [53]	-	-	-	-	-	-	
Pearce et al [35]	-	+	+	+	?	+	Study completed from same laboratory group as Kidgell et al [10]
Taube et al [62]	+	+	+	+	?	+	
Weier et al [36]	-	+	+	+	-	-	Study completed from same laboratory group as Kidgell et al [10]

+, high risk of bias; -, low risk of bias; ?, unclear risk of bias. Criteria established from the Cochran Collaboration tool for assessing risk of bias [45]