

SUPPLEMENTARY FILE

CONTENTS

Supplemental Material S1 Comprehensive search strategy

Supplemental Material S2 Risk of bias assessment using the Revised Cochrane risk-of-bias tool for randomized trials (RoB 2.0) scale

Supplemental Material S3 Risk of bias assessment using the Risk of Bias in Non-randomized Studies - of Interventions (ROBINS-I) tool

Supplemental Material S4 Characteristics of the included studies, interventions, and outcomes

Supplemental Material S5 Meta-analyses of all study designs

Supplemental Material S1. Comprehensive search strategy

ALL (("reactive strength index" OR "reactive-strength index" OR "reactive strength-index" OR "reactive-strength-index" OR "re-active strength" OR "reactive-strength" OR "reactive index" OR "reactive-index" OR "strength index" OR "strength-index" OR "RSI")) AND

("player" OR "players" OR "athlete" OR "athletes" OR "sport" OR "sports" OR "sport participant" OR "sports participant" OR "sports participants" OR "sport participants" OR "modality" OR "modalities")

Supplemental Material S2. Risk of bias assessment using the Revised Cochrane risk-of-bias tool for randomized trials (RoB 2.0) scale. Green means low risk of bias. Orange means some concerns. Red means high risk of bias.

Author (year)	Randomisation Process	Deviations From the Intended Interventions	Missing Outcomes	Measurement of The Outcome	Selection of Reported Results	Overall Risk of Bias
Hammami <i>et al</i> 2022 [71]	Low risk	Low risk	Low risk	Low risk	Low risk	Low risk
Murton <i>et al</i> 2021 [65]	Low risk	Low risk	Low risk	Low risk	Low risk	Low risk
Guo <i>et al</i> 2021 [66]	Low risk	Low risk	Low risk	Low risk	Low risk	Low risk
Ramirez-Campillo <i>et al</i> 2020 [61]	Low risk	Low risk	Low risk	Low risk	Low risk	Low risk
Fiorilli <i>et al</i> 2020 [44]	Low risk	Low risk	Low risk	Low risk	High risk	High risk
Bougezzi <i>et al</i> 2020 [47]	Low risk	Low risk	High risk	Low risk	Low risk	High risk
Bougezzi <i>et al</i> 2020 [67]	Low risk	Low risk	Low risk	Low risk	Low risk	Low risk
Orange <i>et al</i> 2019 [58]	Low risk	Low risk	Low risk	Some concerns	Low risk	Some concerns
Jeffreys <i>et al</i> 2019 [60]	Low risk	Low risk	Low risk	Low risk	Low risk	Low risk
Ramirez-Campillo <i>et al</i> 2019 [45]	Low risk	Some concerns	Low risk	Low risk	High risk	High risk
Ramirez-Campillo <i>et al</i> 2019 [46]	Some concerns	Low risk	Low risk	Low risk	High risk	High risk
Sporri <i>et al</i> 2018 [41]	Low risk	Low risk	Low risk	Low risk	Low risk	Low risk
Ramirez-Campillo <i>et al</i> 2018 [38]	Low risk	Low risk	Low risk	Low risk	Low risk	Low risk

Ramirez-Campillo <i>et al</i> 2018 [62]	Low risk	Low risk	Low risk	Low risk	Low risk	Low risk
Makhlouf <i>et al</i> 2018 [68]	Low risk	Low risk	Low risk	Low risk	Some concerns	Some concerns
Douglas <i>et al</i> 2018 [43]	High risk	Low risk	Low risk	High risk	High risk	High risk
Ciacci and Bartolomei 2018 [72]	Low risk	Some concerns	Low risk	Low risk	Low risk	Some concerns
Negra <i>et al</i> 2017 [70]	Low risk	Low risk	Low risk	Low risk	Some concerns	Some concerns
Dello Iacono <i>et al</i> 2017 [37]	Low risk	Low risk	Low risk	Low risk	Low risk	Low risk
Chaouachi <i>et al</i> 2017 [69]	Low risk	Low risk	Low risk	Low risk	Low risk	Low risk
Rosas <i>et al</i> 2016 [34]	Low risk	Low risk	Low risk	Low risk	Low risk	Low risk
Hammami <i>et al</i> 2016 [48]	Low risk	Low risk	Low risk	Low risk	High risk	High risk
Ramirez-Campillo <i>et al</i> 2015 [29]	Low risk	Low risk	Low risk	Low risk	Low risk	Low risk
Ramirez-Campillo <i>et al</i> 2015 [30]	Some concerns	Some concerns	Low risk	Low risk	Low risk	Some concerns
Ramirez-Campillo <i>et al</i> 2015 [31]	Some concerns	Some concerns	Low risk	Low risk	Low risk	Some concerns
Ramirez-Campillo <i>et al</i> 2015 [32]	Low risk	Low risk	Low risk	Low risk	Low risk	Low risk
Ramirez-Campillo <i>et al</i> 2014 [33]	Some concerns	Some concerns	Low risk	Low risk	Low risk	Some concerns
Lockie <i>et al</i> 2012 [49]	High risk	High risk	Low risk	Low risk	Low risk	High risk
Argus <i>et al</i> 2012 [35]	High risk	Low risk	Low risk	Low risk	Some concerns	High risk
Byrne <i>et al</i> 2010 [50]	High risk	High risk	Low risk	Low risk	Low risk	High risk
Salonikidis and Zafeiridis 2008 [51]	High risk	Some concerns	Low risk	Low risk	Low risk	High risk
Spinks <i>et al</i> 2007 [52]	High risk	Some concerns	Low risk	Low risk	Low risk	High risk
Young <i>et al</i> 1999 [53]	Some concerns	Some concerns	High risk	Some concerns	Low risk	High risk

Supplemental Material S3. Risk of bias assessment using the Risk of Bias in Non-randomized Studies - of Interventions (ROBINS-I) tool

Author (year)	Confounding	Selection Bias	Classification Of Interventions	Reporting Bias	Deviations from Interventions	Missing Data	Measuring Outcomes	Overall Risk of Bias
Dobbs <i>et al</i> 2020 [55]	Critical	Moderate	Low	Low	Low	Low	Low	Serious
Chaabene <i>et al</i> 2019 [57]	Serious	Serious	Moderate	Low	Low	Serious	Serious	Serious
Li <i>et al</i> 2019 [56]	Serious	Serious	Serious	Low	Low	Low	Low	Serious
Wee <i>et al</i> 2019 [42]	Critical	Critical	Low	Serious	Low	Low	Critical	Serious
Keiner <i>et al</i> 2018 [36]	Critical	Serious	Moderate	Low	Serious	Moderate	Moderate	Serious
Beattie <i>et al</i> 2017 [54]	Serious	Critical	Low	Low	Critical	Critical	Low	Critical

Supplemental Material S4. Characteristics of the included studies, interventions, and outcomes

Table S1. Randomized studies.

Author, year	N	Age	Sport	Intervention	Control	Measurement Equipment	Methodology	Results
Hammami <i>et al</i> 2022 [71]	27 G1: 14 C: 13	G1: 14.86 ± 0.52 C: 14.74 ± 0.36	Volleyball	Duration: 8 weeks Type: Resistance elastic band training Frequency: 2x/week	Maintained training routines	Ergojump (Globus, Codogne, Italy)	Contact mat (Vertical Hops: jump height/contact time; hands on hips)	G1: 1.35 ± 0.15 ; 1.57 ± 0.16 C: 1.37 ± 0.26 ; 1.39 ± 0.42
Murton <i>et al</i> 2021 [65]	16 G1: 8 G2: 8	ALL: 18.0 ± 1.0	Rugby	Intervention 1 Duration: 4 weeks Type: Flywheel Eccentric Overload Training Frequency: 3x/week Intervention 2 Duration: 4 weeks Type: Resistance Training Frequency: 3x/week	N/A	ForceDecks (Vald Performance Pty Ltd., Brisbane, Australia)	Force Plate (DJ40: jump height / contact time; hands on hips)	G1: 1.94 ± 0.40 ; 2.07 ± 0.42 G2: 1.97 ± 0.35 ; 2.22 ± 0.47
Guo <i>et al</i> 2021 [66]	16 G1: 8 G2: 8	G1: 20.5 ± 1.1 G2: 19.1 ± 2.2	Badminton	Intervention 1 Duration: 6 weeks Type: Balance plyometric training Frequency: 3x/week Intervention 2 Duration: 6 weeks Type: Plyometric training Frequency: 3x/week	N/A	Kistler (Quattro Jump, Winterthur, Switzerland)	Force Plate (DJ30: jump height / contact time; hands on hips)	G1: 1.27 ± 0.14 ; 1.50 ± 0.12 G2: 1.22 ± 0.12 ; 1.35 ± 0.15
Ramirez-Campillo <i>et al</i> 2020 [61]	38 G1: 12 G2: 14 C: 12	G1: 16.9 ± 0.7 G2: 17.1 ± 0.3 C: 17.1 ± 0.5	Soccer	Intervention 1 Duration: 7 weeks Type: Plyometric training before regular soccer practice Frequency: 2x/week Intervention 2 Duration: 7 weeks Type: Plyometric training after regular soccer practice Frequency: 2x/week	Maintained training routines	Ergojump (Globus, Codogne, Italy)	Contact mat (DJ20: jump height / contact time; hands on hips)	G1: 1.77 ± 0.20 ; 2.11 ± 0.22 G2: 1.76 ± 0.32 ; 1.85 ± 0.31 C: 1.74 ± 0.28 ; 1.76 ± 0.31

Fiorilli <i>et al</i> 2020 [44]	34 G1: 16 G2: 18	G1: 13.36 ± 0.80 G2: 13.21 ± 1.21	Soccer	Intervention 1 Duration: 6 weeks Type: Plyometric training Frequency: 2x/week Intervention 2 Duration: 6 weeks Type: Flywheel Eccentric Overload Training Frequency: 2x/week	N/A	Optojump (Microgate, Bolzano, Italy)	Photoelectric system (7 Hop Test: average jump height / average ground contact time; free arms)	G1: 0.70 ± 0.30 ; 0.76 ± 0.19 G2: 0.84 ± 0.18 ; 0.83 ± 0.18
Bouguazzi <i>et al</i> 2020 [47]	30 G1: 15 G2: 15	G1: 11.32 ± 0.27 G2: 12.27 ± 0.33	Soccer	Intervention 1 Duration: 8 weeks Type: Plyometric training Frequency: 1x/week Intervention 2 Duration: 8 weeks Type: Plyometric training Frequency: 2x/week	N/A	Optojump (Microgate, Bolzano, Italy)	Photoelectric system (5 Hop Test: average jump height / average ground contact time; free arms)	G1: 0.72 ± 0.29 ; 1.15 ± 0.33 G2: 0.79 ± 0.21 ; 1.10 ± 0.27
Bouguazzi <i>et al</i> 2020 [67]	26 G1: 13 G2: 13	G1: 11.2 ± 0.5 G2: 11.3 ± 0.6	Soccer	Intervention 1 Duration: 8 weeks Type: SSC-based using countermovement jump Frequency: 2x week Intervention 2 Duration: 8 weeks Type: Non-SSC-based using squat jump Frequency: 2x week	N/A	Optojump (Microgate, Bolzano, Italy)	Photoelectric system (Vertical Hops: jump height / contact time; hands on hips)	G1: 0.69 ± 0.22 ; 0.97 ± 0.26 G2: 0.68 ± 0.25 ; 0.67 ± 0.26
Orange <i>et al</i> 2019 [58]	27 G1: 12 G2: 15	ALL: 17.0 ± 1.0	Rugby	Intervention 1 Duration: 7 weeks Type: Velocity-based training Frequency: 2x week Intervention 2 Duration: 7 weeks Type: Percentage-based training Frequency: 2x week	N/A	Optojump (Microgate, Bolzano, Italy)	Photoelectric system (DJ30: jump height / contact time; hands on hips)	G1: 1.34 ± 0.36 ; 1.35 ± 0.31 G2: 1.16 ± 0.18 ; 1.28 ± 0.20
Ramirez-Campillo <i>et al</i> 2019 [45]	39 G1: 19 C: 20	G1: 13.2 ± 1.8 C: 13.5 ± 1.9	Soccer	Duration: 7 weeks Type: DJ training Frequency: 2x week	Maintained training routines	Ergojump (Globus, Codogne, Italy)	Contact mat (DJ20: jump height /	G1: 1.07 ± 0.43 ; 1.24 ± 0.38 C: 1.09 ± 0.41 ; 1.03 ± 0.38

								contact time; hands on hips)
Ramirez- Campillo <i>et al</i> 2019 [46]	26 G1: 7 G2: 7 G3: 6 G4: 6	G1: 10.9 ± 0.8 G2: 11.2 ± 1.4 G3: 15.0 ± 0.9 G4: 15.6 ± 1.3	Soccer	Intervention 1 Duration: 24 weeks Type: Plyometric training with 30 s inter-set intervals (pre- PHV) Frequency: 2x week	N/A	Ergojump (Globus, Codogne, Italy)	Contact mat (DJ20: jump height / contact time; hands on hips)	G1: 0.87 ± 0.5 ; 1.13 ± 0.4 G2: 0.98 ± 0.2 ; 1.32 ± 0.2 G3: 1.28 ± 0.7 ; 1.80 ± 0.7 G4: 1.22 ± 0.5 ; 1.65 ± 0.4
				Intervention 2 Duration: 24 weeks Type: Plyometric training with 120 s inter-set intervals (pre- PHV) Frequency: 2x week				
				Intervention 3 Duration: 24 weeks Type: Plyometric training with 30 s inter-set intervals (post- PHV) Frequency: 2x week				
				Intervention 4 Duration: 24 weeks Type: Plyometric training with 120 s inter-set intervals (post- PHV) Frequency: 2x week				
Jeffreys <i>et al</i> 2019 [60]	29 G1: 10 G2: 9 C: 10	ALL: 20.3 ± 1.6	Rugby	Intervention 1 Duration: 6 weeks Type: Low Volume Plyometric Training Frequency: 2x/week	Maintained training routines	Kistler (Quattro Jump, Winterhur, Switzerland)	Force Plate (DJ45: jump height / contact time; hands on hips)	G1: 1.33 ± 0.40 ; 1.45 ± 0.38 G2: 1.26 ± 0.36 ; 1.36 ± 0.38 C: 0.91 ± 0.24 ; 0.85 ± 0.22
				Intervention 2 Duration: 6 weeks Type: High Volume Plyometric Training Frequency: 2x/week				
Sporri <i>et al</i> 2018 [41]	21 G1: 11 C: 9	ALL: 22.2 ± 2.5	Team Sports	Duration: 8 weeks Type: Aqua-based plyometric	Maintained training routines	Onspot (Wollongong, Australia)	Force plate (DJ50: jump height /	G1: 9.90 ± 4.00 ; 11.4 ± 4.30 C: 13.3 ± 4.00 ; 12.2 ± 4.50

			training Frequency: 3x week				contact time; hands on hips)
Ciacchi and Bartolomei 2018 [72]	58 G1: 10 G2: 10 G3: 9 G4: 12 G5: 8 G6: 9	G1: 24.3 ± 7.0 G2: 17.5 ± 0.5 G3: 15.7 ± 0.5 G4: 20.1 ± 1.6 G5: 17.4 ± 0.5 G6: 14.8 ± 0.4	Basketball	Interventions 1, 2 and 3 Duration: 12 weeks Type: Hang Clean Training Frequency: 2x week Interventions 4, 5 and 6 Duration: 12 weeks Type: Half Squat Training Frequency: 2x week	N/A	Ergotester PRO (Globus, Treviso, Italy)	Contact mat (CMJ: contact time / time to takeoff; hands on hips) G1: 2.58 ± 0.44 ; 2.67 ± 0.56 G2: 2.40 ± 0.37 ; 2.60 ± 0.47 G3: 2.62 ± 0.43 ; 2.86 ± 0.36 G4: 2.70 ± 0.30 ; 2.72 ± 0.36 G5: 2.52 ± 0.32 ; 2.69 ± 0.46 G6: 2.01 ± 0.39 ; 2.21 ± 0.25
Ramirez- Campillo <i>et al</i> 2018 [38]	73 G1: 25 G2: 24 C: 24	G1: 13.9 ± 1.9 G2: 13.1 ± 1.7 C: 13.7 ± 1.6	Soccer	Intervention 1 Duration: 7 weeks Type: Plyometric training from a fixed box height of 30 cm Frequency: 2x/week Intervention 2 Duration: 7 weeks Type: Plyometric training from an individualized box height Frequency: 2x/week	Maintained training routines	Ergojump (Globus, Codogne, Italy)	Contact mat (DJ20: flight time / contact time; hands on hips) G1: 1.1 ± 0.5 ; 1.3 ± 0.5 G2: 1.1 ± 0.5 ; 1.5 ± 0.5 C: 1.1 ± 0.5 ; 1.2 ± 0.4
Douglas <i>et al</i> 2018 [43]	14 G1: 7 C: 7	ALL: 19.4 ± 0.8	Rugby	Duration: 12 weeks Type: Accentuated eccentric resistance training Frequency: 2x/week strength + 1x/week power	Duration: 12 weeks Type: Traditional resistance training Frequency: 2x/week strength + 1x/week power	AMTI (Watertown, MA, USA)	Force plate (DJ50: flight time / contact time; hands on hips) G1: 2.29 ± 0.32 ; 2.41 ± 0.45 C: 1.94 ± 0.31 ; 1.97 ± 0.56
Ramirez- Campillo <i>et al</i> 2018 [62]	76 G1: 38 C: 38	10-16	Soccer	Duration: 7 weeks Type: Plyometric training Frequency: 2x/week	Maintained training routines	Ergojump (Globus, Codogne, Italy)	Contact mat (DJ20: jump height / contact time; hands on hips) G1: 23.3% ± 17.3% C: -1.7% ± 13.2%
Makhlouf <i>et al</i> 2018 [68]	57 G1: 21 G2: 20 C: 16	G1: 11.1 ± 0.8 G2: 11.3 ± 0.9 C: 11.0 ± 0.8	Soccer	Intervention 1 Duration: 8 weeks Type: Balance-Plyometric Training Frequency: 2x/week	Maintained training routines	Ergojump (Globus, Codogne, Italy)	Contact mat (Vertical Hops: flight time / contact time) G1: 0.8 ± 0.3 ; 1.1 ± 0.2 G2: 0.8 ± 0.2 ; 1.1 ± 0.3 C: 0.8 ± 0.3 ; 0.9 ± 0.3

				Intervention 2 Duration: 8 weeks Type: Agility-Plyometric Training Frequency: 2x/week			time; hands on hips)	
Chaouachi <i>et al</i> 2017 [69]	26 G1: 13 G2: 13	G1: 13.9 ± 0.27 G2: 13.8 ± 0.32	Soccer	Intervention 1 Duration: 8 weeks Type: Alternated a series of paired individual balance and plyometric exercises Frequency: 2x week Intervention 2 Duration: 8 weeks Type: A block of balance exercises prior to a block of plyometric exercises Frequency: 2x week	N/A	Ergojump (Globus, Codogne, Italy)	Contact mat (Triple Hop Test: jump height / contact time; hands on hips)	G1: 0.8 ± 0.3 ; 1.21 ± 0.19 G2: 0.79 ± 0.25 ; 1.31 ± 0.27
Dello Iacono <i>et al</i> 2017 [37]	18 G1: 9 G2: 9	ALL: 23.4 ± 4.6	Team handball	Intervention 1 Duration: 10 weeks Type: Vertical-oriented drop jump training Frequency: 2x week Intervention 2 Duration: 10 weeks Type: Horizontal-oriented drop jump training Frequency: 2x week	N/A	Kistler (Quattro Jump, Winterhur, Switzerland)	Force Plate (CMJ: jump height / contact time; hands on hips)	G1: 0.60 ± 0.05 ; 7.2 % G2: 0.59 ± 0.06 ; 2.1 %
Negra <i>et al</i> 2017 [70]	33 G1: 17 G2: 16	G1: 12.1 ± 0.5 G2: 12.2 ± 0.6	Soccer	Intervention 1 Duration: 8 weeks Type: Plyometric training on stable surfaces Frequency: 2x/week Intervention 2 Duration: 8 weeks Type: Plyometric training on stable and unstable surfaces Frequency: 2x/week	N/A	Optojump (Microgate, Bolzano, Italy)	Photoelectric system (Vertical Hops: jump height / contact time; hands on hips)	G1: 1.1 ± 0.3 ; 1.3 ± 0.1 G2: 1.5 ± 0.3 ; 1.1 ± 0.1
Hammami <i>et al</i> 2016 [48]	24 G1: 12 G2: 12	G1: 12.7 ± 0.3 G2: 12.5 ± 0.3	Soccer	Intervention 1 Duration: 8 weeks Type: 4 weeks of balance	N/A	Ergojump (Globus, Codogne, Italy)	Force Plate (Vertical Hops: jump	G1: 1.1 ± 0.1 ; 1.4 ± 0.3 G2: 0.89 ± 0.15 ; 0.94 ± 0.07

				training first followed by 4 weeks of plyometric training Frequency: 2x week Intervention 2 Duration: 8 weeks Type: 4 weeks of plyometric training first followed by 4 weeks of balance training Frequency: 2x week			height / contact time; hands on hips)	
Rosas <i>et al</i> 2016 [34]	63 G1: 21 G2: 21 C: 21	G1: 12.3 ± 2.3 G2: 12.1 ± 2.1 C: 12.0 ± 2.2	Soccer	Intervention 1 Duration: 6 weeks Type: Plyometric training Frequency: 2x week Intervention 2 Duration: 6 weeks Type: Hand-held loaded plyometric training Frequency: 2x week	Maintained training routines	Ergojump (Globus, Codogne, Italy)	Contact mat (DJ20: jump height / contact time; hands on hips)	G1: 1.05 ± 0.4 ; 1.14 ± 0.4* G2: 0.95 ± 0.5 ; 1.10 ± 0.5* C: 1.19 ± 0.4 ; 1.21 ± 0.4*
Ramirez-Campillo <i>et al</i> 2015 [29]	166 G1: 54 G2: 57 C: 55	G1: 14.2 ± 2.2 G2: 14.1 ± 2.2 C: 14.0 ± 2.3	Soccer	Intervention 1 Duration: 6 weeks Type: Plyometric training with 24h of rest between sessions Frequency: 2x week Intervention 2 Duration: 6 weeks Type: Plyometric training with 48h of rest between sessions Frequency: 2x week	Maintained training routines	Ergojump (Globus, Codogne, Italy)	Contact mat (DJ20: jump height / contact time; hands on hips)	G1: 1.32 ± 0.40 ; 1.46 ± 0.40* G2: 1.37 ± 0.39 ; 1.51 ± 0.37* C: 1.31 ± 0.42 ; 1.32 ± 0.41*
Ramirez-Campillo <i>et al</i> 2015 [30]	40 G1: 10 G2: 10 G3: 10 C: 10	G1: 11.6 ± 1.4 G2: 11.4 ± 1.9 G3: 11.2 ± 2.3 C: 11.4 ± 2.4	Soccer	Intervention 1 Duration: 6 weeks Type: Vertical plyometric Frequency: 2x week Intervention 2 Duration: 6 weeks Type: Horizontal plyometric Frequency: 2x week Intervention 3 Duration: 6 weeks Type: Combined plyometric Frequency: 2x week	Maintained training routines	Ergojump (Globus, Codogne, Italy)	Contact mat (DJ20: jump height / contact time; hands on hips)	G1: 1.26 ± 0.20 ; 1.45 ± 0.20* G2: 1.32 ± 0.36 ; 1.47 ± 0.32* G3: 1.17 ± 0.41 ; 1.38 ± 0.49* C: 1.42 ± 0.41 ; 1.46 ± 0.39*

Ramirez-Campillo <i>et al</i> 2015 [31]	54 G1: 12 G2: 16 G3: 12 C: 14	G1: 11.0 ± 2.0 G2: 11.6 ± 1.7 G3: 11.6 ± 2.7 C: 11.2 ± 2.4	Soccer	Intervention 1 Duration: 6 weeks Type: Bilateral plyometric training Frequency: 2x week Intervention 2 Duration: 6 weeks Type: Unilateral plyometric training Frequency: 2x week Intervention 3 Duration: 6 weeks Type: Bilateral + unilateral plyometric training Frequency: 2x week	Maintained training routines	Ergojump (Globus, Codogne, Italy)	Contact mat (DJ20: jump height / contact time; hands on hips)	G1: 1.3 ± 0.5 ; $1.6 \pm 0.4^*$ G2: 1.2 ± 0.3 ; $1.3 \pm 0.3^*$ G3: 1.2 ± 0.5 ; $1.4 \pm 0.5^*$ C: 1.4 ± 0.4 ; $1.4 \pm 0.4^*$
Ramirez-Campillo <i>et al</i> 2015 [32]	24 G1: 8 G2: 8 C: 8	G1: 12.8 ± 2.8 G2: 13.0 ± 2.1 C: 13.0 ± 1.9	Soccer	Intervention 1 Duration: 6 weeks Type: Plyometric with progressive increase in volume Frequency: 2x week Intervention 2 Duration: 6 weeks Type: Plyometric without progressive increase in volume Frequency: 2x week	Maintained training routines	Ergojump (Globus, Codogne, Italy)	Contact mat (DJ20: jump height / contact time; hands on hips)	G1: 0.072 ± 0.034 ; $0.092 \pm 0.022^*$ G2: 0.062 ± 0.022 ; $0.076 \pm 0.038^*$ C: 0.080 ± 0.029 ; $0.084 \pm 0.048^*$
Ramirez-Campillo <i>et al</i> 2014 [33]	76 G1: 38 C: 38	G1: 13.2 ± 1.8 C: 13.2 ± 1.8	Soccer	Duration: 7 weeks Type: Plyometric training Frequency: 2x week	Maintained training routines	Ergojump (Globus, Codogne, Italy)	Contact mat (DJ20: jump height / contact time; hands on hips)	G1: 1.04 ± 0.40 ; $1.23 \pm 0.35^*$ C: 1.01 ± 0.38 ; $0.98 \pm 0.35^*$
Lockie <i>et al</i> 2012 [49]	35 G1: 9 G2: 8 G3: 9 G4: 9	ALL: 23.1 ± 4.2	Field sports	Intervention 1 Duration: 6 weeks Type: Free sprint training Frequency: 2x week Intervention 2 Duration: 6 weeks Type: Weight training Frequency: 2x week Intervention 3	N/A	Onspot (Wollongong, Australia)	Contact mat (DJ40: jump height / contact time; hands on hips)	G1: 1.07 ± 0.38 ; 1.27 ± 0.35 G2: 1.24 ± 0.21 ; 1.39 ± 0.31 G3: 1.31 ± 0.28 ; 1.44 ± 0.22 G4: 1.16 ± 0.21 ; 1.31 ± 0.26

				Duration: 6 weeks Type: Plyometric training Frequency: 2x week Intervention 4 Duration: 6 weeks Type: Resisted sprint training Frequency: 2x week					
Argus <i>et al</i> 2012 [35]				Intervention 1 Duration: 4 weeks Type: High volume-load (strength-power) resistance training Frequency: 2x week Intervention 2 Duration: 4 weeks Type: Low volume-load (speed-power) resistance training Frequency: 2x week		N/A	400 Series Performance (Fitness Technology, Australia)	Force plate (DJ30: jump height / contact time; hands on hips)	G1: 1.83 ± 0.27 ; 0.8 % G2: 1.86 ± 0.30 ; 3.4 %
Byrne <i>et al</i> 2010 [50]		19 G1: 6 G2: 6 C: 7	G1: 23.8 ± 7.6 G2: 20.8 ± 1.9 C: 18.7 ± 7.6	Basketball, rugby, hurling, Gaelic football and soccer	Intervention 1 Duration: 8 weeks Type: Maximum jump height training method Frequency: 2x week Intervention 2 Duration: 8 weeks Type: Reactive strength index training method Frequency: 2x week		Maintained training routines	Power timer clock (Newtest, Oulu, Finland)	Force plate (3 Bounce DJ30: jump height / contact time; hands on hips) G1: 1.35 ± 0.22 ; 1.67 ± 0.34 G2: 1.51 ± 0.49 ; 1.68 ± 0.58 C: 1.26 ± 0.14 ; 1.31 ± 0.13
Salonikidis and Zafeiridis 2008 [51]		64 G1: 16 G2: 16 G3: 16 C: 16	ALL: 21.1 ± 1.3	Tennis	Intervention 1 Duration: 9 weeks Type: Plyometric training Frequency: 3x week Intervention 2 Duration: 9 weeks Type: Tennis-drills training Frequency: 3x week Intervention 3		Maintained training routines	AMD Co. Ltd., LC 4204-K600 (1-D, Saitawa, Japan)	Load cell (DJ20: jump height / contact time; hands on hips) G1: 125.3 ± 45.2 ; 150.0 ± 46.9 G2: 122.0 ± 25.0 ; 133.4 ± 27.1 G3: 128.8 ± 42.5 ; 153.7 ± 44.1 C: 130.8 ± 18.2 ; 124.2 ± 29.0

			Duration: 9 weeks Type: Combined training Frequency: 3x week						
Spinks <i>et al</i> 2007 [52]			Intervention 1 Duration: 8 weeks Type: Sprint training + resisted sprint training Frequency: 2x week			Maintained training routines	Onspot (Wollongong, Australia)	Force plate (DJ50: jump height / contact time; hands on hips)	G1: 117.2 ± 27.1 ; 137.3 ± 27.7 G2: 112.2 ± 18.9 ; 121.8 ± 21.3 C: 127.2 ± 36.2 ; 128.7 ± 25.1
30 G1: 10 G2: 10 C: 10	ALL: 21.8 ± 4.2	Soccer, rugby union and Australian football	Intervention 2 Duration: 8 weeks Type: Nonresisted sprint training Frequency: 2x week						
Young <i>et al</i> 1999 [53]			Intervention 1 Duration: 6 weeks Type: DJ for height Frequency: 3x week			Maintained training routines	?	Contact mat (DJ30: jump height / contact time; hands on hips)	G1: 180 ± 26 ; 182 ± 37 G2: 203 ± 50 ; 234 ± 32 C: 210 ± 45 ; 201 ± 65
25 G1: 11 G2: 5 C: 9	ALL: 19-34	Track and field, basketball and soccer	Intervention 2 Duration: 6 weeks Type: DJ for height and minimum contact time Frequency: 3x week						

C = control, CMJ = countermovement jump, DJ = drop jump, G = group, N = number, ? = unknown, * = obtained from authors.

Table S2. Non-randomized studies.

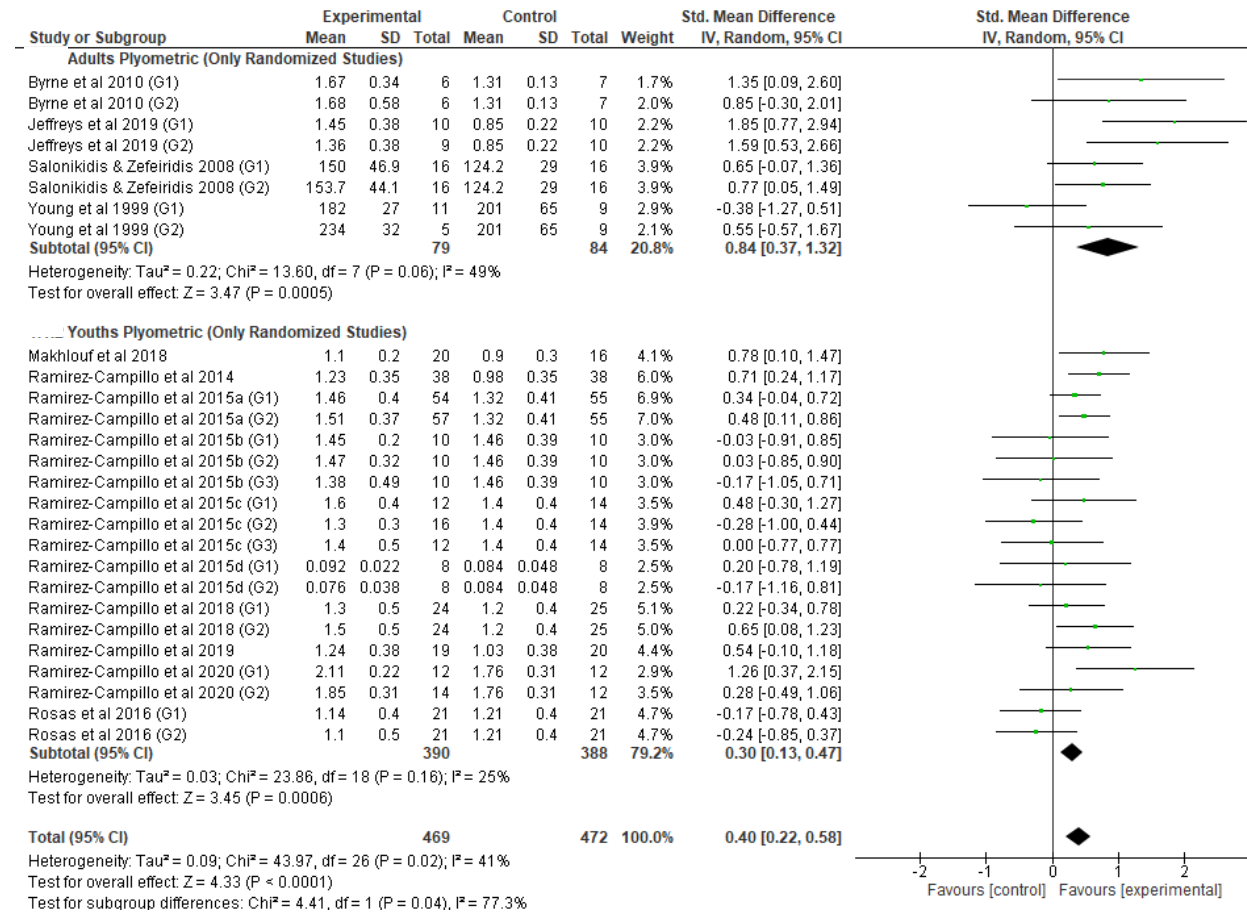
Author, year	N	Age	Sport	Intervention	Control	Measurement Equipment	Methodology	Results
Dobbs <i>et al</i> 2020 [55]	39	ALL: 9-17	?	Duration: 12 weeks Type: Neuromuscular training Frequency: 2x/week strength training	Maintained training routines	AMTI OR6-5 (Watertown, MA, USA)	Force plate (CMJ: jump height / time to takeoff; hands on hips)	G1: 0.23 ± 0.09 ; 0.27 ± 0.09 G2: 0.32 ± 0.08 ; 0.41 ± 0.07 C1: 0.24 ± 0.04 ; 0.21 ± 0.05 C2: 0.35 ± 0.15 ; 0.34 ± 0.12
Pre-PHV G1: 14 Post-PHV G2: 7 Pre-PHV C1: 10 Post-PHV C2: 7								
Chaabene <i>et al</i> 2019 [57]	15	13.2 ± 1.3	Weightlifting	Duration: 5 months Type: Weightlifting season Frequency: ?	N/A	Optojump (Microgate, Bolzano, Italy)	Photoelectric system (DJ: jump height / contact time; hands on hips)	1.0 ± 0.2 ; 1.0 ± 0.2

Li <i>et al</i> 2019 [56]	28 G1: 10 G2: 19 C: 9	G1: 20.2 ± 1.0 G2: 21.2 ± 1.5 C: 20.8 ± 1.2	Distance running	Intervention 1 Duration: 8 weeks Type: Complex training (afternoon) + endurance training (morning) Frequency: 3x/week + 6x/week Intervention 2 Duration: 8 weeks Type: Heavy strength training (afternoon) + endurance training (morning) Frequency: 3x/week + 6x/week	Duration: 8 weeks Type: Strength endurance training (afternoon) + endurance training (morning) Frequency: 3x/week + 6x/week	Kistler Quattro Jump, Winterhur, Switzerland	Force Plate (DJ50: jump height / contact time; hands on hips)	G1: 59.05 ± 11.63 ; 70.80 ± 15.69 G2: 61.57 ± 12.95 ; 66.71 ± 8.53 C: 62.11 ± 12.04 ; 62.91 ± 12.07
Wee <i>et al</i> 2019 [42]	18 G1: 9 C: 9	ALL: 20.0 ± 1.0	Badminton	Duration: 4 weeks Type: Badminton specific training Frequency: 2x/week	Maintained training routines	Bertec FP4060-10-4000	Force plate (DJ30: jump height / contact time; hands on hips)	G1: 1.16 ± 0.39 ; 1.32 ± 0.42 C: 1.06 ± 0.14 ; 1.11 ± 0.40
Keiner <i>et al</i> 2018 [36]	114 G1: 62 C: 52	ALL: 13-19	Soccer	Duration: 2 years Type: Strength training Frequency: 2x/week	Maintained training routines	Refitronic, Schmitten, Germany	Contact mat (DJ24: jump height / contact time; hands on hips)	?
Beattie <i>et al</i> 2017 [54]	20 G1: 11 C: 9	G1: 27.4 ± 7.2 C: 29.5 ± 10.0	Distance running	Duration: 40 weeks Type: Endurance training and strength training Frequency: 2x/week	Maintained training routines	AMTI OR6-5 (Watertown, MA, USA)	Force plate (DJ30: jump height / contact time; hands on hips)	G1: 1.10 ± 0.28 ; 1.26 ± 0.33 C: 1.28 ± 0.31 ; 1.16 ± 0.12

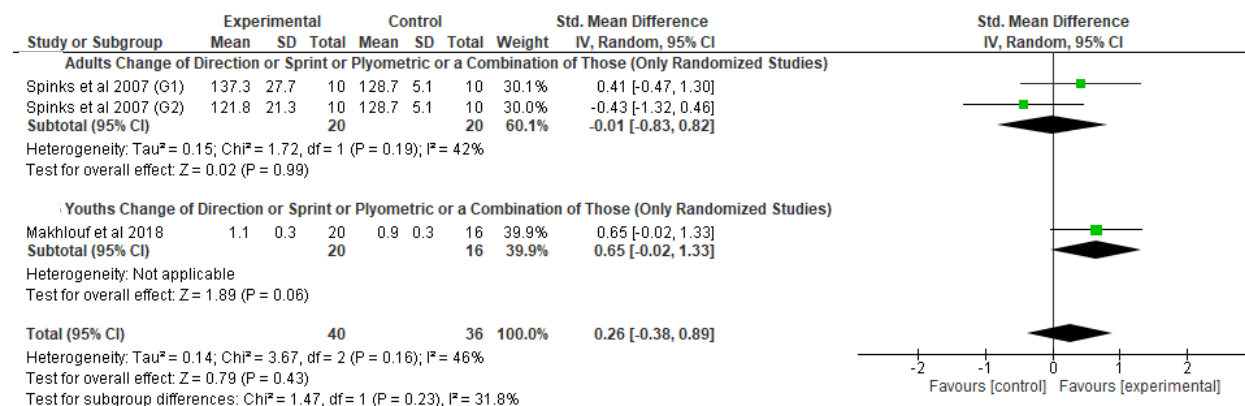
C = control, CMJ = countermovement jump, DJ = drop jump, G = group, N = number, ? = unknown.

Supplemental Material S5. Meta-analyses of all study designs.

a)



b)



c)

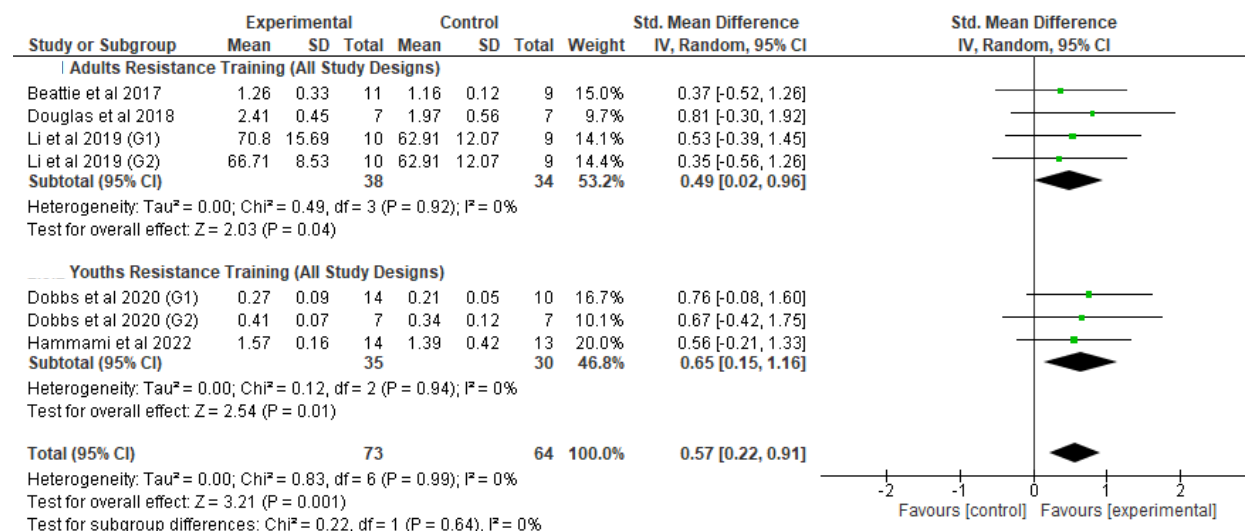
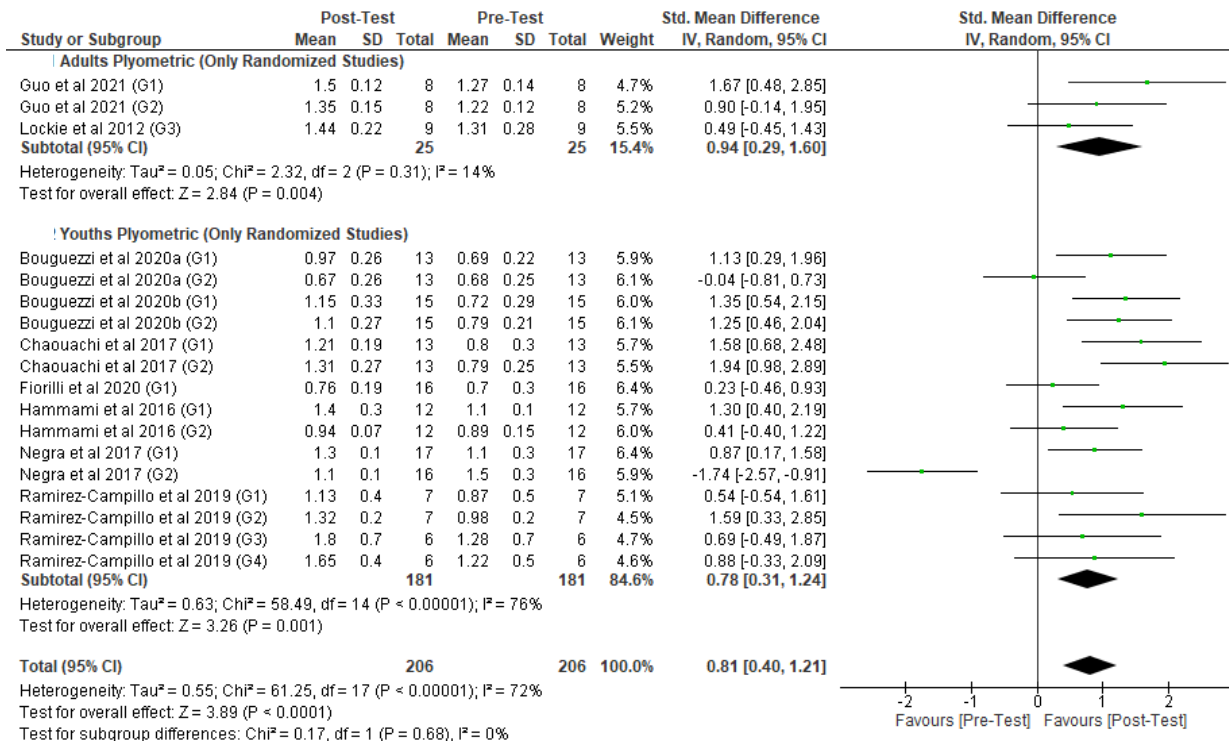
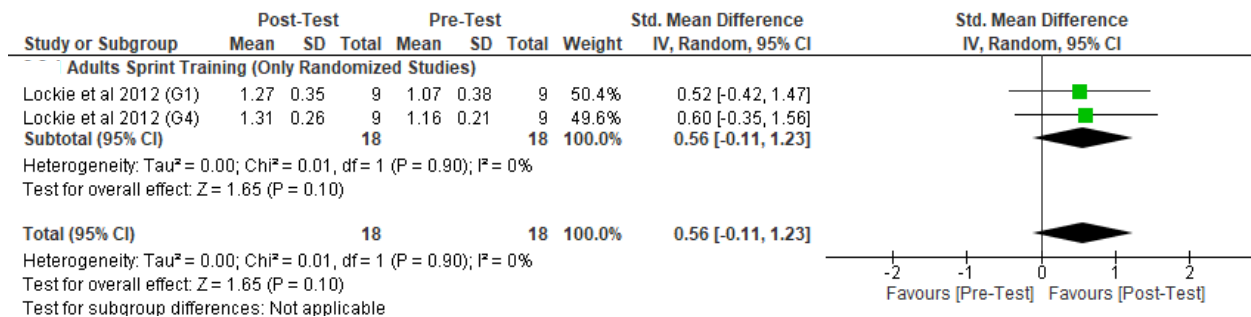


Figure S1. Forest plot of the overall standardized mean difference [95% CI] for each study (randomized and non-randomized) with control group (the size of the green dot corresponds to the weight of the study within the meta-analysis) with (a) a plyometric training intervention, (b) a combination of change of direction, sprint, or plyometric training intervention and (c) a resistance training intervention included in the meta-analysis.

a)



b)



c)

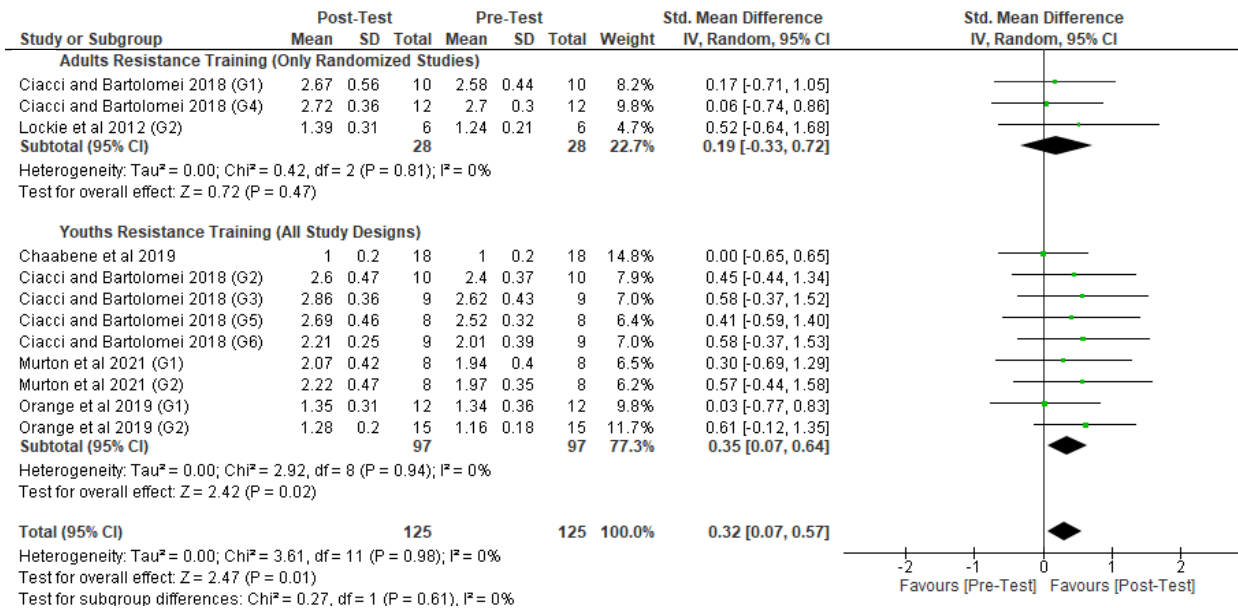


Figure S2. Forest plot of the overall standardized mean difference [95% CI] for each study (randomized and non-randomized) without control group (the size of the green dot corresponds to the weight of the study within the meta-analysis) with (a) a plyometric training intervention, (b) a sprint training intervention and (c) a resistance training intervention.