

Appendix A. Search strategy

1) Web of Science

#	<a href="#">290</a>	#4 AND #3 AND #2 AND #1 Timespan=All years Search language=Auto
#	<a href="#">Approximately 1,258,533</a>	<b>TOPIC:</b> ("ankle") <i>OR</i> <b>TOPIC:</b> ("knee") <i>OR</i> <b>TOPIC:</b> ("hip") <i>OR</i> <b>TOPIC:</b> ("leg") <i>OR</i> <b>TOPIC:</b> ("trunk") <i>OR</i> <b>TOPIC:</b> ("lower extremity") Timespan=All years Search language=Auto
#	<a href="#">Approximately 3,921,893</a>	<b>TOPIC:</b> ("intervention") <i>OR</i> <b>TOPIC:</b> ("training") <i>OR</i> <b>TOPIC:</b> ("program") <i>OR</i> <b>TOPIC:</b> ("injury prevention program") <i>OR</i> <b>TOPIC:</b> ("ipp") Timespan=All years Search language=Auto
#	<a href="#">Approximately 41,668</a>	<b>TOPIC:</b> ("landing") <i>OR</i> <b>TOPIC:</b> ("landing tasks") <i>OR</i> <b>TOPIC:</b> ("jumping test") <i>OR</i> <b>TOPIC:</b> ("drop vertical jump") Timespan=All years Search language=Auto
#	<a href="#">Approximately 383,471</a>	<b>TOPIC:</b> ("electromyography" OR "biomechanics" OR "neuromuscular") Timespan=All years Search language=Auto

## 2) Medline

02/06/2015
1. "electromyography".mp.
2. "biomechanic*".mp.
3. "neuromuscular".mp.
4. 1 or 2 or 3
5. "landing".mp.
6. "landing task*".mp.
7. "jumping test*".mp.
8. "drop vertical jump*".mp.
9. 5 or 6 or 7 or 8
10. "intervention*".mp.
11. "training*".mp.
12. "program*".mp.
13. "injury prevention program*".mp.
14. "IPP".mp.
15. 10 or 11 or 12 or 13 or 14
16. "ankle*".mp.
17. "knee".mp.
18. "hip".mp.
19. "leg".mp.
20. "trunk".mp.
21. "lower extremity*".mp.
22. 16 or 17 or 18 or 19 or 20 or 21
23. 4 and 9 and 15 and 22
24. limit 23 to english language

### 3) SCOPUS

<p>5 <a href="#">TITLE-ABS-KEY ( "electromyography" OR "biomechanics" OR "Neuromuscular" )</a> 02 Jun 2015 323,232</p>
<p>result 4 <a href="#">TITLE-ABS-KEY ( "landing" OR "landing tasks" OR "jumping test" OR "drop vertical jump" )</a> 02 Jun 2015 34,316</p>
<p>3 <a href="#">TITLE-ABS-KEY ( "intervention" OR "training" OR "program" OR "injury prevention program" OR "IPP" )</a> 02 Jun 2015 last run on <a href="#">View new results</a> 2,878,626 documents</p>
<p>2 <a href="#">TITLE-ABS-KEY ( "ankle" OR "knee" OR "hip" OR "leg" OR "trunk" OR "lower extremity" )</a> 02 Jun 2015 657,978</p>
<p>1 ( <a href="#">TITLE-ABS-KEY ( "electromyography" OR "biomechanics" OR "Neuromuscular" )</a> ) AND ( <a href="#">TITLE-ABS-KEY ( "landing" OR "landing tasks" OR "jumping test" OR "drop vertical jump" )</a> ) AND ( <a href="#">TITLE-ABS-KEY ( "intervention" OR "training" OR "program" OR "injury prevention program" OR "IPP" )</a> ) AND ( <a href="#">TITLE-ABS-KEY ( "ankle" OR "knee" OR "hip" OR "leg" OR "trunk" OR "lower extremity" )</a> ) 02 Jun 2015 362</p>

#### 4) CINAHL

Search Terms	Search Options	Actions
S24	S4 AND S9 AND S15 AND S22	Limiters - English Language Search modes - Boolean/Phrase
S23	S4 AND S9 AND S15 AND S22	Search modes - Boolean/Phrase
S22	S16 OR S17 OR S18 OR S19 OR S20 OR S21	Search modes - Boolean/Phrase
S21	"lower extremity"	Search modes - Boolean/Phrase
S20	"trunk"	Search modes - Boolean/Phrase
S19	"leg"	Search modes - Boolean/Phrase
S18	"hip"	Search modes - Boolean/Phrase
S17	"knee"	Search modes - Boolean/Phrase
S16	(MH "Lateral Ligament, Ankle") OR (MH "Ankle Injuries+") OR (MH "Ankle Joint") OR (MH "Ankle") OR "ankle"	Search modes - Boolean/Phrase
S15	S10 OR S11 OR S12 OR S13 OR S14	Search modes - Boolean/Phrase
S14	"IPP"	Search modes - Boolean/Phrase
S13	(MH "Athletic Training Programs") OR (MH "Resistance Training") OR "injury prevention program" OR (MH "Posterior Cruciate Ligament Injuries")	Search modes - Boolean/Phrase
S12	(MH "Athletic Training Programs") OR (MH "Substance Use Rehabilitation Programs+") OR (MH	Search modes - Boolean/Phrase

	"Resistance Training") OR ""program""	
S11	(MH "Athletic Training Programs") OR (MH "Students, Athletic Training") OR (MH "Sport Specific Training") OR (MH "Balance Training, Physical") OR (MH "Athletic Training+") OR (MH "Training Effect (Physiology)") OR (MH "Resistance Training") OR (MH "Military Training") OR (MH "Education, Athletic Training") OR (MH "Body-Weight-Supported Treadmill Training") OR ""training""	Search modes - Boolean/Phrase
S10	""intervention""	Search modes - Boolean/Phrase
S9	S5 OR S6 OR S7 OR S8	Search modes - Boolean/Phrase
S8	(MH "Jumping") OR (MH "Patient Dropouts") OR (MH "Extreme Sports") OR ""drop vertical jump""	Search modes - Boolean/Phrase
S7	""jumping test""	Search modes - Boolean/Phrase
S6	(MH "Task Performance and Analysis+") OR (MH "Workload Measurement") OR ""landing task""	Search modes - Boolean/Phrase
S5	(MH "Jumping") OR ""landing""	Search modes - Boolean/Phrase
S4	S1 OR S2 OR S3	Search modes - Boolean/Phrase
S3	""neuromuscular""	Limiters - English Language  Expanders - Apply related words; Also search within the full text of the articles  Search modes - Boolean/Phrase
S2	(MH "Biomechanics+") OR ""biomechanics""	Limiters - English

		Language  Expanders - Apply related words; Also search within the full text of the articles  Search modes - Boolean/Phrase
S1	"electromyography" OR (MH "Electromyography")	Limiters - English Language  Expanders - Apply related words; Also search within the full text of the articles  Search modes - Boolean/Phrase

### 5) SportDiscus

<a href="#">Search ID#</a>	Search Terms	Search Options
S47	S28 AND S33 AND S39 AND S46	Search modes - Boolean/Phrase
S46	S40 OR S41 OR S42 OR S43 OR S44 OR S45	Search modes - Boolean/Phrase
S45	'lower extremity'	Search modes - Boolean/Phrase
S44	'trunk'	Search modes - Boolean/Phrase
S43	'leg'	Search modes - Boolean/Phrase
S42	'hip'	Search modes - Boolean/Phrase
S41	'knee'	Search modes - Boolean/Phrase

S40	'ankle'	Search modes - Boolean/Phrase
S39	S34 OR S35 OR S36 OR S37 OR S38	Search modes - Boolean/Phrase
S38	'IPP'	Search modes - Boolean/Phrase
S37	'injury prevention program'	Search modes - Boolean/Phrase
S36	'program'	Search modes - Boolean/Phrase
S35	'training'	Search modes - Boolean/Phrase
S34	'intervention'	Search modes - Boolean/Phrase
S33	S29 OR S30 OR S31 OR S32	Search modes - Boolean/Phrase
S32	'drop vertical jump'	Search modes - Boolean/Phrase
S31	'jumping test'	Search modes - Boolean/Phrase
S30	'landing tasks'	Search modes - Boolean/Phrase
S29	'landing'	Search modes - Boolean/Phrase
S28	S25 OR S26 OR S27	Search modes - Boolean/Phrase
S27	'neuromuscular'	Expanders - Apply related words  Search modes - Boolean/Phrase
S26	'biomechanics'	Expanders - Apply related words  Search modes - Boolean/Phrase
S25	'electromyography'	Expanders - Apply related words  Search modes - Boolean/Phrase

S24	S4 AND S9 AND S15 AND S22	Limiters - English Language Search modes - Boolean/Phrase
S23	S4 AND S9 AND S15 AND S22	Search modes - Boolean/Phrase
S22	S16 OR S17 OR S18 OR S19 OR S20 OR S21	Search modes - Boolean/Phrase
S21	""lower extremity""	Search modes - Boolean/Phrase
S20	""trunk""	Search modes - Boolean/Phrase
S19	""leg""	Search modes - Boolean/Phrase
S18	""hip""	Search modes - Boolean/Phrase
S17	""knee""	Search modes - Boolean/Phrase
S16	(MH "Lateral Ligament, Ankle") OR (MH "Ankle Injuries+") OR (MH "Ankle Joint") OR (MH "Ankle") OR ""ankle""	Search modes - Boolean/Phrase
S15	S10 OR S11 OR S12 OR S13 OR S14	Search modes - Boolean/Phrase
S14	""IPP""	Search modes - Boolean/Phrase
S13	(MH "Athletic Training Programs") OR (MH "Resistance Training") OR ""injury prevention program"" OR (MH "Posterior Cruciate Ligament Injuries")	Search modes - Boolean/Phrase
S12	(MH "Athletic Training Programs") OR (MH "Substance Use Rehabilitation Programs+") OR (MH "Resistance Training") OR ""program""	Search modes - Boolean/Phrase
S11	(MH "Athletic Training Programs") OR (MH "Students, Athletic Training") OR (MH "Sport Specific Training") OR (MH "Balance Training,	Search modes - Boolean/Phrase



	Physical") OR (MH "Athletic Training+") OR (MH "Training Effect (Physiology)") OR (MH "Resistance Training") OR (MH "Military Training") OR (MH "Education, Athletic Training") OR (MH "Body-Weight-Supported Treadmill Training") OR ""training""	
S10	""intervention""	Search modes - Boolean/Phrase
S9	S5 OR S6 OR S7 OR S8	Search modes - Boolean/Phrase
S8	(MH "Jumping") OR (MH "Patient Dropouts") OR (MH "Extreme Sports") OR ""drop vertical jump""	Search modes - Boolean/Phrase
S7	""jumping test""	Search modes - Boolean/Phrase
S6	(MH "Task Performance and Analysis+") OR (MH "Workload Measurement") OR ""landing task""	Search modes - Boolean/Phrase
S5	(MH "Jumping") OR ""landing""	Search modes - Boolean/Phrase
S4	S1 OR S2 OR S3	Search modes - Boolean/Phrase
S3	""neuromuscular""	Limiters - English Language  Expanders - Apply related words; Also search within the full text of the articles  Search modes - Boolean/Phrase
S2	(MH "Biomechanics+") OR ""biomechanics""	Limiters - English Language  Expanders - Apply related words; Also search within the full text of the articles

		Search modes - Boolean/Phrase
S1	"electromyography" OR (MH "Electromyography")	<p>Limiters - English Language</p> <p>Expanders - Apply related words; Also search within the full text of the articles</p> <p>Search modes - Boolean/Phrase</p>

## 6) EMBASE

<input type="checkbox"/> #22#4 AND #9 AND #14 AND #21Systematic Review IPP vs Landing2015-06-022015-06-02140
<input type="checkbox"/> #21#15 OR #16 OR #17 OR #18 OR #19 OR #20Systematic Review IPP vs Landing2015-06-022015-06-02256125
<input type="checkbox"/> #20'lower extremity'/exp OR 'lower extremities'Systematic Review IPP vs Landing2015-06-022015-06-02194240
<input type="checkbox"/> #19'trunk'/expSystematic Review IPP vs Landing2015-06-022015-06-028450
<input checked="" type="checkbox"/> #18'leg'/exp OR 'legs'Systematic Review IPP vs Landing2015-06-022015-06-02207053
<input type="checkbox"/> #17'hip'/expSystematic Review IPP vs Landing2015-06-022015-06-0239262
<input type="checkbox"/> #16'knee'/expSystematic Review IPP vs Landing2015-06-022015-06-0249202
<input checked="" type="checkbox"/> #15'ankle'/expSystematic Review IPP vs Landing2015-06-022015-06-0222646
<input type="checkbox"/> #14#10 OR #11 OR #12 OR #13Systematic Review IPP vs Landing2015-06-022015-06-021770204
<input type="checkbox"/> #13'injury prevention program' OR 'ipp'Systematic Review IPP vs Landing2015-06-022015-06-023478
• <input type="checkbox"/> #12'program'Systematic Review IPP vs Landing2015-06-022015-06-02989150
• <input type="checkbox"/> #11'training'/expSystematic Review IPP vs Landing2015-06-022015-06-0267636
• <input type="checkbox"/> #10'intervention' OR 'interventions'Systematic Review IPP vs Landing2015-06-022015-06-02828736
• <input type="checkbox"/> #9#5 OR #6 OR #7 OR #8Systematic Review IPP vs Landing2015-06-022015-06-0261425
• <input type="checkbox"/> #8'drop vertical jump'Systematic Review IPP vs Landing2015-06-022015-06-0255
<input type="checkbox"/> #7'jumping test' OR 'jumpig'Systematic Review IPP vs Landing2015-06-022015-06-0294
<input type="checkbox"/> #6'landing task' OR 'landing tasks'Systematic Review IPP vs Landing2015-06-022015-06-02157
<input type="checkbox"/> #5'landing' OR 'land'Systematic Review IPP vs Landing2015-06-022015-06-0261315
<input type="checkbox"/> #4#1 OR #2 OR #3Systematic Review IPP vs Landing2015-06-022015-06-02243800
<input checked="" type="checkbox"/> #3'neuromuscular'Systematic Review IPP vs Landing2015-06-022015-06-0287020
<input type="checkbox"/> #2'biomechanics'/exp OR 'biomechanic'Systematic Review IPP vs Landing2015-06-022015-06-0279813

#1'electromyography'/exp OR 'electromyography' OR 'emg'Systematic Review IPP  
vs Landing2015-06-022015-06-0290516

Appendix B. Methodological quality of selected articles.

(0) Clearly no / (1) Maybe or inadequate information / (2) Clearly yes																	
PAPER	Q.1 Is the hypothesis/aim/objective of the study clearly described?	Q.2 Power analysis was performed and justification of study sample size given.	Q.3 Participant's demographics were clearly defined: gender, age, body height and body mass at the time of the test.	Q.4 Participant's characteristics were clearly defined: sport, experience or activity level and level of play at the time of test.	Q.5 Inclusion and exclusion criteria were clearly stated for participants	Q.6 Are the interventions of interest clearly described?	Q.7 Proper training and practice trials of the test were given to the athletes allowing for adequate familiarisation	Q.8 Methods were described in great detail to allow replication of the test. Testing devices, no. of trials, speed, angle, height and test limb were included when applicable	Q.9 Was an attempt made to blind those measuring the main outcomes of the intervention?	Q.10 Test-retest reliability of measurement device reported	Q.11 Have the characteristics of patients lost to follow-up been described?	Q.12 Was compliance with the interventions monitored?	Q.13 Outcome variables were clearly defined	Q.14 Statistical analyses were appropriate	Q.15 Does the study provide estimates of the random variability in the data for the main outcomes? Ex. Presenting and defining the dispersion measurements (SD or SEM and Confidence Intervals)	TOTAL	
1	Stearns, 2014	2	2	2	2	2	2	2	0	0	2	1	2	2	2	25	
2	Tate, 2013	2	2	2	2	2	2	2	0	0	1	2	2	2	2	25	
3	Celebrini, 2012	2	0	2	2	2	2	2	0	2	2	2	2	2	2	26	
4	Lim, 2009	2	2	2	2	1	2	0	2	2	2	0	2	2	2	23	
5	Pfile, 2013	2	0	2	2	1	2	2	2	0	2	2	2	2	2	25	
6	Brown, 2014	2	2	2	2	2	2	0	2	0	1	2	2	2	2	23	
7	Beaulieu, 2014	2	0	2	2	1	2	2	0	0	0	0	2	2	2	19	
8	Pollard, 2006	2	0	2	2	2	2	2	0	0	2	2	2	2	2	24	
9	Herman, 2008	2	0	2	2	2	2	2	0	0	2	2	2	2	2	24	
10	Letafatkar, 2015	2	2	1	2	2	2	2	0	1	0	1	2	2	2	23	
11	Myer, 2006 (a)	2	2	2	2	0	2	0	2	0	2	2	2	2	2	22	
12	Myer, 2006 (b)	2	2	2	2	0	2	0	2	2	2	2	2	2	1	23	
13	Irmischer, 2004	2	0	2	2	1	2	2	0	0	2	2	2	2	2	23	
14	Greska, 2012	2	0	2	2	1	2	0	2	0	1	2	1	1	2	18	
15	Nagano, 2011	2	0	2	2	2	2	2	0	1	0	0	2	2	2	21	
16	Hewett, 1996	2	0	2	2	0	2	2	0	0	0	0	2	2	2	18	
17	Dempsey, 2014	2	0	2	1	1	2	0	2	0	1	2	2	2	2	19	
18	Iida, 2013	2	2	2	2	0	2	0	2	0	1	0	2	2	2	19	
19	Vescovi, 2008	2	2	2	2	1	2	2	0	0	0	0	2	2	2	21	
20	Chappell, 2008	2	0	2	2	1	2	0	2	0	2	1	2	1	2	19	
21	Louw, 2006	2	0	2	2	0	2	2	0	0	0	0	2	1	2	17	
22	Ortiz, 2010	2	0	2	2	1	2	2	2	0	2	0	1	2	0	20	
23	Makaruk, 2014	2	0	2	2	0	2	0	2	2	0	0	2	2	2	18	
24	Myer, 2007	2	0	2	2	0	0	0	2	0	2	2	2	2	2	18	
25	Myer, 2005	2	0	2	2	0	2	0	2	2	0	2	2	2	1	19	
26	Lephart, 2005	2	0	2	2	1	2	2	0	0	0	0	2	2	2	19	
27	Araujo, 2015	2	1	2	2	0	2	2	0	0	0	0	2	2	2	19	
28	McCurdy, 2012	2	0	2	2	1	2	2	0	0	0	0	2	2	2	19	

## Appendix C. Characteristics of included studies

Study	Participants Features	Sample Size and sex (Intervention group)	Age (years) mean (SD)	Height (m) mean (SD)	Weight (Kg) mean (SD)	Landing task	IPP description	Duration and progression of IPP
1) Letafatkar <i>et al.</i> 2015	Athletes	15 (♀)	24.32 ± 3.47	1.7 ± 0.08	65.4 ± 6.6	Single leg drop-landing	Perturbation drills consisted of three techniques: rocker board, roller board, and roller board with stationary platform.	6 weeks; 18 sessions in total and 1 hour each.
2) Araujo, 2015	Athletes (Capoeira)	16 (♀)	27.3 ± 3.7	1.65 ± 4,0	59.7 ± 6.3	Drop jump landing task	CORE Training: Plank, side plank, supine bridge, single leg supine bridge, Russian twister, spilt legs scissors.	6 weeks; 3 x week <b>Progression:</b> increased number of repetitions and exercise difficulty weekly.
3) Stearns <i>et al.</i> 2014	Recreationally active	18 (♀)	23.7 ± 1.2	1.7 ± 0.1	64.0 ± 10.7	Drop-jump task	The training focused on recruitment of hip extensor muscles through the use of plyometric (Plyo) activities such as jumping and landing, and balance training done in kneeling on a BOSU (BOSU, Canton, Ohio, USA).	4 weeks, 3 x week, 30 min per session. <b>Progression:</b> increased number of repetitions and exercise difficulty weekly.
4) Makaruk <i>et al.</i> 2014	Untrained college students	(a) 12 (b) 12 (♂)	(a) 22.2 ± 1.1 (b) 22.7 ± 1.4	(a) 1.81 ± 0.06 (b) 1.84 ± 0.07	(a) 76.8 ± 5.9 (b) 77.4 ± 6.2	Drop vertical jump (DJ <sub>60</sub> )	Plyometric exercise programme: (a) SJG - Each set involved 3 repetitions, but with a 4-5 second break between each repetition; (b) RJG - Consecutive Jump repetitions	6 weeks, 3 x week, 50-60 min per session. <b>Progression:</b> increased height of jump and exercise difficulty weekly.
5) Dempsey <i>et al.</i> 2014	Athletes	17 (♂)	20.5 ± 1.8	1.80 ± 0.07	78.1 ± 14.2	Single Leg vertical Jump	Landing Training Program: single leg landing with and without feedback, drill with change direction.	6 weeks, 2 x week. <b>Progression:</b> training drills moved from closed (controlled) to open (game-like) tasks.

6) Brown <i>et al.</i> 2014	Athletes	(a) 7 (b) 13 (c) 10 (♀)	(a) 15.0 ± 0.6 (b) 14.8 ± 0.6 (c) 14.1 ± 1.2	(a) 1.66 ± 0.07 (b) 1.64 ± 0.02 (c) 1.63 ± 0.08	(a) 59.5 ± 8.9 (b) 53.9 ± 10.1 (c) 50.6 ± 8.5	Drop vertical jump (Bilateral)	(a) CORE + balance exercises; (b) Plyometric (c) Neuromuscular (core strength and balance, plyometrics, resistance, and speed Training)	6 weeks; 3 x week, 18 sessions in total. <b>Progression:</b> increased repetitions and exercise difficulty weekly.
7) Beaulieu <i>et al.</i> 2014	Recreationally active	11 (♀)	21.9 ± 1.8	1.65 ± 0.05	60.9 ± 10.8	Drop vertical jump	A double-leg landing training program with real-time visual feedback	2 training sessions; 6 x 5 reps of double-leg maximum vertical jumps were performed.
8) Tate <i>et al.</i> 2013	Recreational athletes	13 (♀)	21.7 ± 1.9	1.66 ± 0.08	62.4 ± 7.0	Countermovement jump	Jump training instructions with mirror feedback. *Analysis made using the Home-based practice retention test 1.	1 supervised session of 3 x 5 reps of a jumping-landing practice and more 2 unsupervised home-based practices consisted of 2 sessions of jump-landing practice using a mirror to monitor technique.
9) Iida <i>et al.</i> 2013	Healthy adult	10 (♂)	25.3 ± 2.5	1.74 ± 5.7	67.9 ± 9.9	Drop vertical jump	Landing training that aims to decrease the landing impact	2 weeks; 3 x week, 6 sessions in total.
10) Pfile <i>et al.</i> 2013	Lacrosse	9 (♀)	14.8 ± 0.8	1.7 ± 0.07	57.7 ± 8.5	Drop vertical jump	Plyometric	4 weeks; 3 x week; 20 each session.
11) Greska <i>et al.</i> 2012	Soccer athletes	12 (♀)	19.2 ± 0.8	1.67 ± 0.1	60.2 ± 6.5	Stop-jump task	Resistance training, Dynamic Warm-up, Speed / Quickness, Plyometric.	10 weeks; 3 x week; 30-60 each session.
12) Celebrini <i>et al.</i> 2012	Soccer players	7 (♀)	15.1 ± 1.3	1.64 ± 0.05	58.3 ± 11.4	Side Hop	The Core-PAC movement strategy includes a proximal to distal movement sequence. Core exercises, jogging, balance with rotation, lateral hops, Diagonal lunges, Diagonal hops.	4 weeks; 2 x week; 20 min

13) McCurdy, 2012	Recreational athletes	13 (♀)	21 ± 1.8	1.63 ± 8.7	63.6 ± 8.25	Bilateral drop Jump	Resistance training (weight-bearing free weight resistance). Bilateral squat, Lunge, Step-up, Romanian deadlift and Unilateral squat.	8 weeks; 2 x week. <b>Progression:</b> increased intensity of the exercises.
14) Nagano <i>et al.</i> 2011	Basketball athletes	8 (♀)	19.4 ± 0.7	1.70 ± 0.05	64.1 ± 7.8	Single leg drop	During training, subjects practiced their fundamental basketball skills and additionally carried out jump and balance training to increase their landing skills. Squat jumps, 180° jumps, Single leg balance, Hop jump (both leg), Broad jump and hold, Crossover hop, hop, hop, stick etc.	5 weeks; 3 x week; 20 min each session. <b>Progression:</b> Phase 1 – Technique and Phase 2 – Performance.
15) Ortiz <i>et al.</i> 2010	Soccer players	14 (♀)	14 to 15 *( SD not presented)	1.61 ± 4.3	55.3 ± 7.1	Single-legged drop jump	Flexibility Training, Functional Strength Training and Jump Training.	6 weeks; 25-30 min each session.
16) Lim <i>et al.</i> 2009	High school Basketball players	11 (♀)	16.2 ± 1.2	1.72 ± 0.05	64.2 ± 6.1	rebound-jump task	Sports Injury Prevention Training Program: Warm-up, Stretching, Strengthening, Plyometric, Agilities, and Alternative exercise–warm down.	8 weeks; 20 min each session of their regular team basketball practice
17) Chappell <i>et al.</i> 2008	College soccer and basketball players	30 (♀)	19 ± 1.2	1.74 ± 0.08	69.8 ± 10.9	Drop vertical jump	Core strengthening exercises, dynamic joint stability and balance training, jump training, and plyometric exercises.	6 weeks, 6 x weeks, 15-20 min each session.
18) Vescovi <i>et al.</i> 2008	Recreationally basketball players	10 (♀)	20.3 ± 1.2	1.68 ± 14.4	66.9 ± 9.2	countermovement jump	Plyometric training	6 weeks, 3 x week
19) Herman, 2008	Recreational athletes	33 (♀)	22.4 ± 2.2	1.67 ± 0.07	63.5 ± 9.2	Stop-jump task	Strength-training program consisted of resistance bands and exercise balls.	9 weeks, 3 x week <b>Progression:</b> increased intensity of the exercises.
20) Myer <i>et al.</i> 2007	High school athletes	12 (♀)	16.0 ± 1.0	1.65 ± 0.06	64.6 ± 10.4	Drop vertical jump	Neuromuscular training	7 weeks; 3 x week

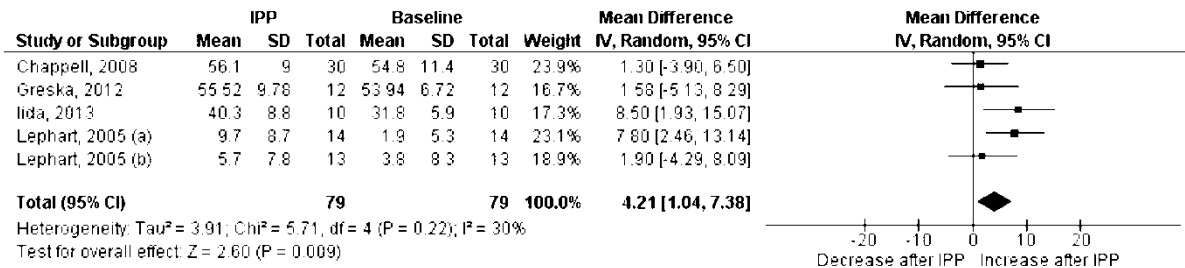


21) Pollard <i>et al.</i> 2006	Soccer players	18 (♀)	14.9* *( SD not presented)	1.63*	58.3*	Drop vertical jump	PEP Program Exercises: Warm-up, Stretching, Strengthening, Plyometric, Agilities.	2-3 x weeks, during soccer season.
22) Myer <i>et al.</i> 2006 (a)	High school athletes	(a.1) 10 (a.2) 8 (♀)	(a.1) 15.6 ± 1.2 (a.2) 15.9 ± 0.8	(a.1) 1.68 ± 0.07 (a.2) 1.69 ± 0.06	(a.1) 66.4 ± 11.8 (a.2) 61.4 ± 7.3	Drop vertical jump	(a.1) BALANCE - BOSU: deep hold, drop squats, jump stick landing-deep hold, both knees deep hold, crunches, swivel crunch (feet planted), single leg pelvic bridges, superman etc.  (a.2) PLYOMETRICS - Wall jumps, Squat jumps, Tuck jump (with thighs parallel), Line jumps (side to side), Line jump lateral max vertical, Lunge jump, 180° Jumps etc.  *Both groups did Strength training	7 weeks; 3 x week  <b>Progression:</b> Plyo - The exercise intensity progressed by adding complexity to the movements, and through the addition of single limb manoeuvres  Balance - As this protocol progressed, it also increased in difficulty by moving from stable ground surfaces, to relatively unstable surfaces
		* Statistical analysis pooled together both groups (n=18)						
23) Myer <i>et al.</i> 2006 (b.1 & b.2)	High school athletes	(b.1) 11 (b.2) 8 (♀)	(b.1) 15.6 ± 1.2 (b.2) 15.9 ± 0.8	(b.1) 1.68 ± 0.07 (b.2) 1.69 ± 0.06	(b.1) 66.4 ± 11.8 (b.2) 61.4 ± 7.3	Single-leg hop	(b.1) BALANCE - BOSU: deep hold, drop squats, jump stick landing-deep hold, both knees deep hold, crunches, swivel crunch (feet planted), single leg pelvic bridges, superman etc.  (b.2) PLYOMETRICS - Wall jumps, Squat jumps, Tuck jump (with thighs parallel), Line jumps (side to side), Line jump lateral max vertical, Lunge jump, 180° Jumps etc.  •Both groups did Strength training and speed training as well.	7 weeks; 3 x week  <b>Progression:</b> Plyo - The exercise intensity progressed by adding complexity to the movements, and through the addition of single limb manoeuvres  Balance - As this protocol progressed, it also increased in difficulty by moving from stable ground surfaces, to relatively unstable surfaces

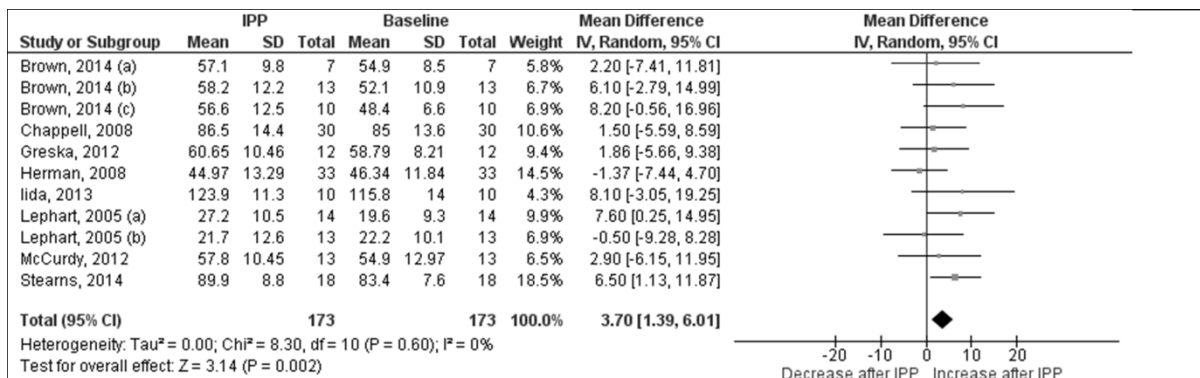
24) Louw <i>et al.</i> 2006	Adolescent basketball players	5 (♂)	15.6 ± 70.8	54.8 ± 9.44	1.64 ± 70.23	Countermovement jump ( jump-shot landing)	Neuromuscular exercise program	6 weeks; 2 x week; 40 min each session.
25) Myer <i>et al.</i> 2005	Athletes	41 (♀)	15.3 ± 0.9	1.71 ± 0.07	64.8 ± 9.96	Drop vertical jump	Neuromuscular Training: CORE, Plyometric, Balance, resistance and speed training.	6 weeks; 3 x week; each session 90 min.
26) Lephart <i>et al.</i> 2005	Soccer or Basketball athletes	(a) 14 (b) 13 (♀)	(a) 14.5 ± 1.3 (b) 14.2 ± 1.3	(a) 1.65 ± 0.06 (b) 1.66 ± 0.08	(a) 55.1 ± 8.0 (b) 58.3 ± 10.8	Drop vertical jump	(a) Plyometric (b) Basic resistance training program: Resistance + Flexibility + balance training	8 weeks; 3 x week; 30 min each session.
27) Irmischer <i>et al.</i> 2004	Physically active	14 (♀)	24.0 ± 4.0 years of age	1.7 ± 0.1	65.3 ± 10.5	Double leg landing	Plyometric training	9 weeks; 2 x week; each session 20 min. <b>Progression:</b> 3 phases lasted 2 weeks and the final phase lasted 3 weeks.
28) Hewett <i>et al.</i> 1996	High school Volleyball Athletes	11 (♀)	15 ± 0.6	1.68 ± 0.05	63.32 ± 6.01	Volley Block Jump	Jumping training program	6 weeks; 3 x week; each session 120 min. <b>Progression:</b> The IPP was divided into three phases: 1) The technique, 2) The fundamentals, 3) The performance.

Appendix D. Forest plots variables related to the Quadriceps and Ligament dominance theory

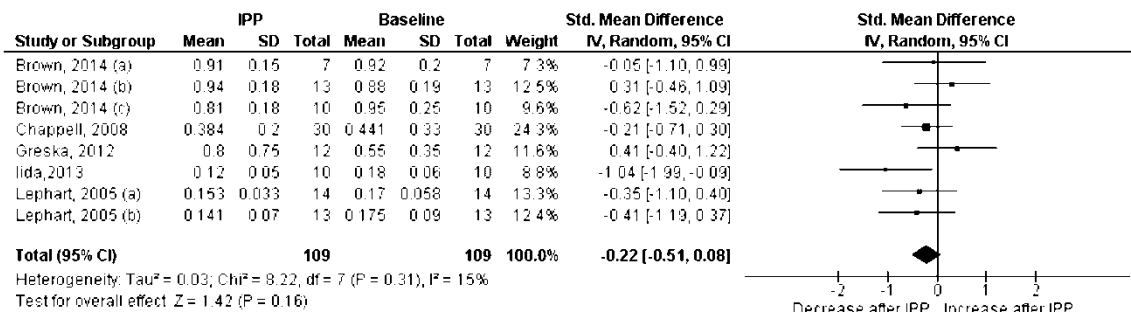
1) Quadriceps dominance theory



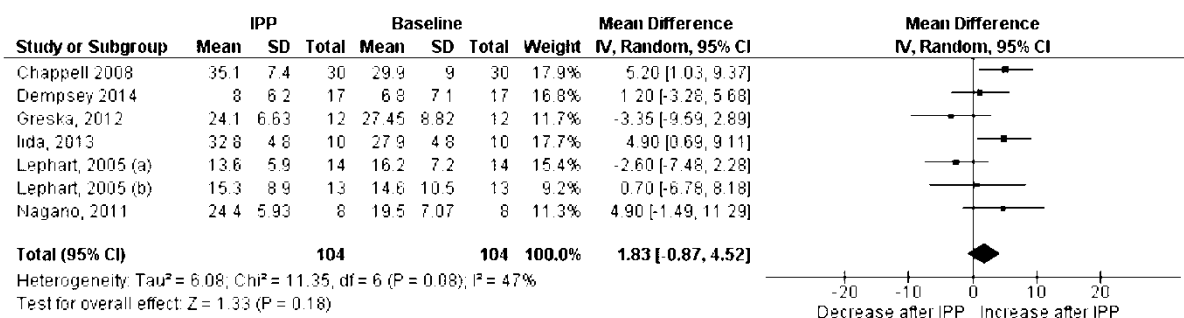
Hip Flexion at initial contact (°).



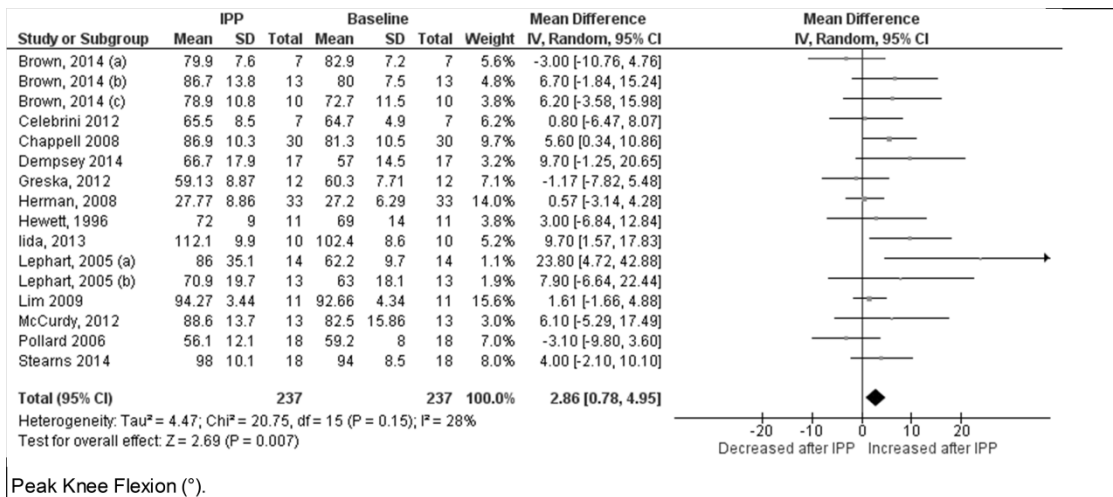
Peak Hip Flexion (°).



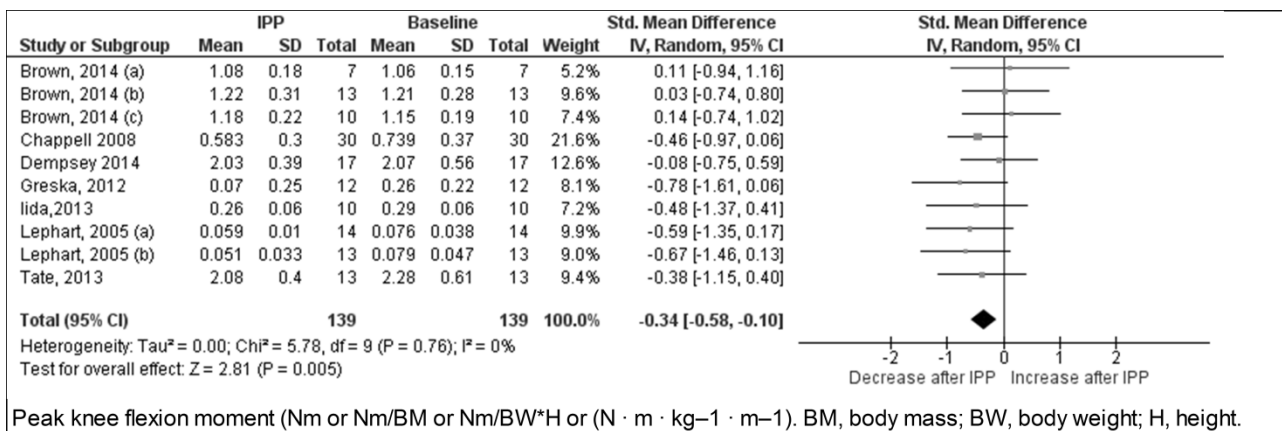
Peak hip flexion moment (Nm or Nm/BM or Nm/BW\*H). BM, body mass; BW, body weight; H, height.



Knee Flexion at initial contact (°).

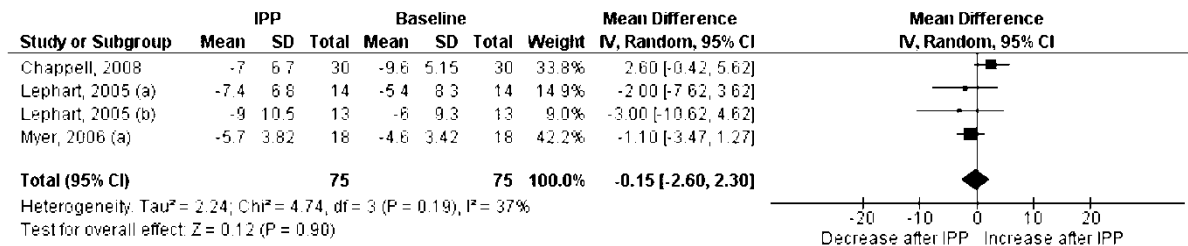


Peak Knee Flexion (°).

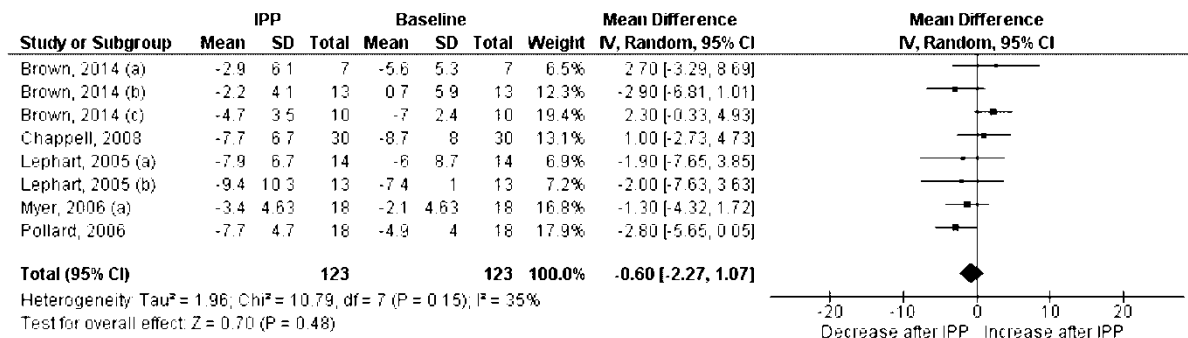


Peak knee flexion moment (Nm or Nm/BM or Nm/BW\*H or (N · m · kg<sup>-1</sup> · m<sup>-1</sup>). BM, body mass; BW, body weight; H, height.

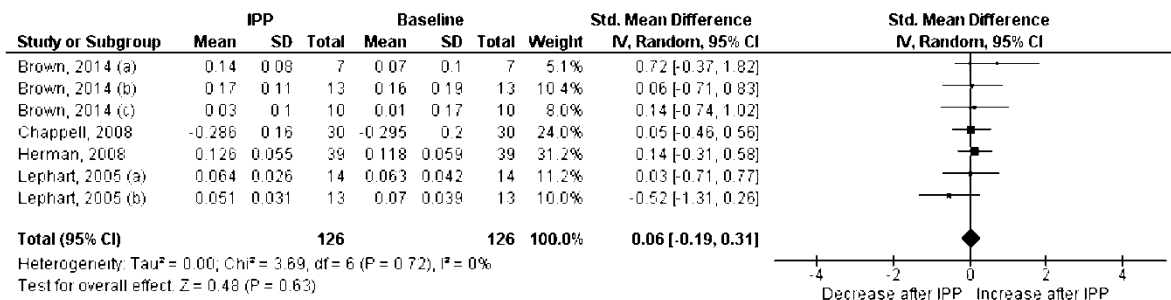
## 2) Ligament dominance theory



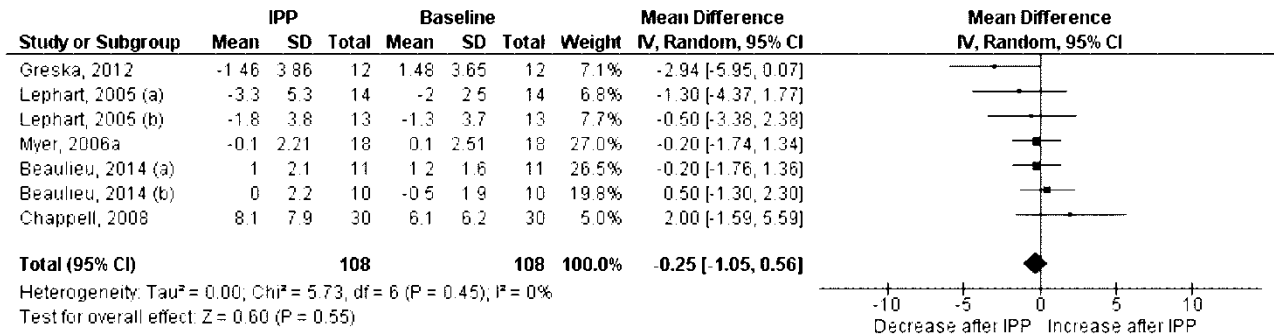
Hip Adduction at initial contact (°)



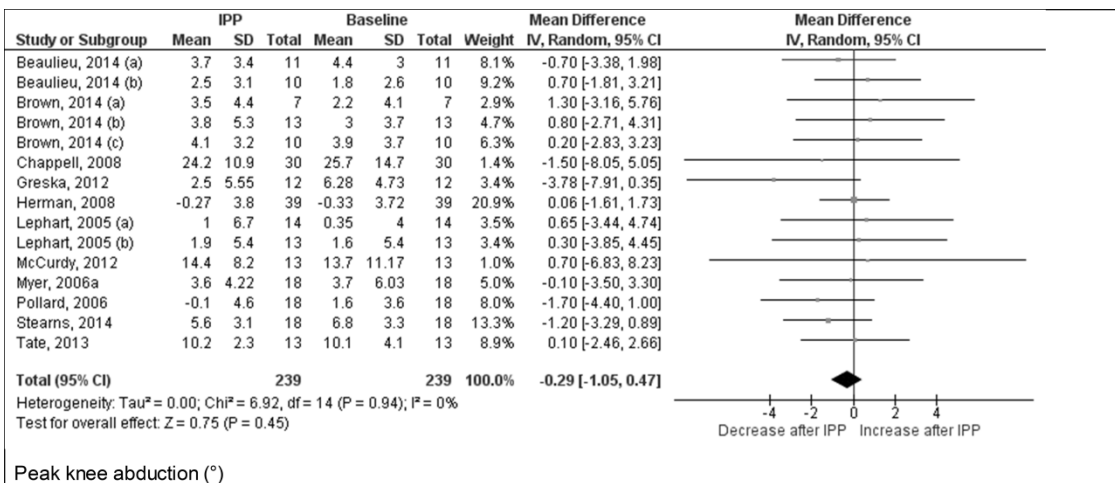
Peak Hip Adduction (°).



Peak Hip Adduction moment (Nm or Nm/BM or Nm/BW\*H or (N · m · kg<sup>-1</sup> · m<sup>-1</sup>). BM, body mass; BW, body weight; H, height.



Knee abduction at initial contact (°).



Peak knee abduction (°)