

## Supplementary File II: Summaries of studies included in review.

Article (OCEBM Level & Design)	Subjects	Exercises Investigated (*KC exercises are emboldened)	Random Sequence	KC Segment Variable	EMG Type	Muscle(s) Evaluated	KC versus nKC Results* (expressed as % MVC)  *only statistically significant differences reported
<b>De May et al<sup>53</sup></b> Belgium (level 2; descriptive study)	17 males 13 females	High scapular retraction in: • 1) sitting; • 2) standing; • 3) <b>static bipedal squat</b> ; • 4) <b>static lunge</b> ; • 5) <b>static unipedal squat</b> ; • 6) <b>dynamic squat</b> ; • 7) <b>dynamic lung</b> ; • 8) <b>dynamic unipedal squat</b>	Yes	Lower Limb	Surface	UT, LT, WT	<u>UT/LT:</u> • No significant difference between KC and nKC exercises <u>WT:</u> • Exercise 5 resulted in higher whole trapezius muscle activation compared to exercise 1
<b>Hardwick et al<sup>54</sup></b> USA (level 2; single group repeated measures/ descriptive study)	10 males 10 females	• 1) Scapula plane elevation in standing; • 2) <b>wall slides plus step</b> ; • 3) push up 'plus' against wall	Not stated	Lower Limb	Surface	SA, LD, UT, LT	<u>SA:</u> • No difference between each exercise at 90 degrees elevation • No difference between exercise 1 and 2 at any degree of elevation <u>LD:</u> • No difference between exercises 1 and 2 or any exercise at 90 degrees of elevation (no absolute % values given) <u>UT:</u> • Exercise 1 and 2 greater than exercise 3 at 90 degrees elevation (no absolute % values given) <u>LT:</u> • No different between any exercise.
<b>Kaur et al<sup>55</sup></b> USA (level 2; experimental, within-subject repeated measures study)	21 males	• 1) Forward Push Plus (FPP); • 2) <b>FFP with Contralateral Closed chain Leg Extension (CCLE)</b> ; • 3) <b>FPP with Contralateral Open chain Leg Extension (COLE)</b> ; • 4) <b>FPP with Ipsilateral Closed chain Leg Extension (ICLE)</b> ; • 5) <b>FPP with Ipsilateral Open chain Leg</b>	Yes	Lower limb & trunk	Surface	SA, LD, ExOb, cGMax, iGMax, fAd	<u>SA:</u> • CCLE (63%), ICLE (59%), CS (71%) and OS (70%) were significantly higher than the FPP (44%) <u>ExOb:</u> • IOLE (44%), CS (75%) and OS (109%) were significantly higher than the FPP (27%) <u>FAd:</u> • CCLE (38%), ICLE (34%), IOLE (26%), CS (56%) and OS (61%) were significantly higher than the FPP

		<b>Extension (IOLE); • 6) FPP with Closed chain Serape effect (CS); • 7) FPP with Open chain Serape effect (OS)</b>						(11%) <u>cGMax:</u> <ul style="list-style-type: none"> <li>• COLE (54%), ICLE (39%), IOLE (27%), CS (28%) and OS (27%) were significantly higher than the FPP (13%)</li> </ul> <u>iGMax:</u> <ul style="list-style-type: none"> <li>• CCLE (45%), COLE (27%), ICLE (36%), IOLE (83%), CS (28%) and OS (46%) were significantly higher than the FPP (9%)</li> </ul> <u>LD:</u> <ul style="list-style-type: none"> <li>• No significant difference between any exercise</li> </ul>
<b>Kibler et al<sup>56</sup></b> USA (level 2; controlled laboratory study)	9 males 9 females	• 1) Inferior Glide; • 2) Low Row; • 3) <b>Lawn Mower</b> ; • 4) <b>Robbery</b>	Not stated	Lower limb & trunk	Surface	UT, LT, SA, AD, PD		<u>UT:</u> <ul style="list-style-type: none"> <li>• Exercise 4 (31%) and 3 (21%) greater than exercise 1 (8%) and 2 (10%)</li> </ul> <u>LT:</u> <ul style="list-style-type: none"> <li>• Exercise 3 (30%) and 4 (27%) greater than exercise 2 (15%)</li> </ul> <u>SA:</u> <ul style="list-style-type: none"> <li>• No difference between any of the exercises</li> </ul> <u>PD:</u> <ul style="list-style-type: none"> <li>• Exercise 2 (42%) greater than all the other exercises (exercise 1 = 8%; 3 = 16%; 4 = 14%)</li> </ul> <u>AD:</u> <ul style="list-style-type: none"> <li>• Exercise 2 (16%) greater than all the other exercises (exercise 1=4%; 3 = 5%; 4=7%)</li> </ul>
<b>Maenhout et al<sup>57</sup></b> Belgium (level 3; single group repeated measures study)	16 males 16 females	• (1) Kneeling Push-up Plus (KPP); • (2) <b>KPP with heterolateral leg extension</b> ; • (3) <b>KPP with homolateral leg extension</b> ; • (4) KPP with a wobble board; • (5) <b>KPP with heterolateral leg extension and a wobble board</b> ; • (6) <b>KPP with homolateral leg extension and a wobble board</b> ; • (7) one handed KPP	Yes	Lower limb	Surface	UT, LT, SA, AD, PD  UT/SA ratio		<u>SA:</u> <ul style="list-style-type: none"> <li>• Exercise 3 (44%) greater than all other nKC exercises (1=31%; 4=25%; 7=36%)</li> <li>• Exercise 2 (23%) lower than exercise 1 (31%) and 7 (36%)</li> </ul> <u>LT:</u> <ul style="list-style-type: none"> <li>• Exercise 2 (20%) and 5 (16%) greater than all other nKC exercises (1=11%; 4=10%; 7=10%)</li> <li>• Exercise 5 (16%) greater than exercise 4 (10%)</li> </ul> <u>UT/MT:</u> <ul style="list-style-type: none"> <li>• Absolute values reported for each exercise, but no indication regarding statistical differences given</li> </ul>

							<p><u>UT/SA ratios:</u></p> <ul style="list-style-type: none"> <li>• Exercise 3 (0.40) less than exercise 2 (1.00), 5 (1.56) and 6 (0.54)</li> <li>• Exercise 6 (0.54) less than exercise 5 (1.56)</li> <li>• Exercise 2 (1.00) and exercise 5 (1.56) higher than exercise 1 (0.52)</li> <li>• Exercise 2 (1.00) lower than exercise 5 (1.56)</li> <li>• Exercise 3 (0.40) lower than exercise 6 (0.54)</li> <li>• No difference between exercise 1 (0.52) and 7 (0.50)</li> </ul>
<p><b>Maenhout et al<sup>58</sup></b> Belgium (level 2; single group repeated measures)</p>	<p>14 males 18 females</p>	<ul style="list-style-type: none"> <li>• (1) Prone external rotation + soft weight;</li> <li>• (2) Prone forward flexion + soft weight;</li> <li>• (3) Side lying external rotation + soft weight;</li> <li>• (4) Side lying horizontal abduction + soft weight;</li> <li>• (5) Standing external rotation with Xco;</li> <li>• (6) <b>Standing split stance flexion with Xco;</b></li> <li>• (7) Plyometric push up on BOSU;</li> <li>• (8) Bipedal plyometric wall push-up;</li> <li>• (9) <b>Plyometric wall push-up on ipsilateral leg;</b></li> <li>• (10) <b>Plyometric wall push-up on contralateral leg</b></li> </ul>	<p>Yes</p>	<p>Lower Limb</p>	<p>Surface</p>	<p>UT, MT, LT, SA</p>	<p><u>UT:</u></p> <ul style="list-style-type: none"> <li>• Exercise 2 was 17% greater than exercise 6 (no absolute values given)</li> <li>• Exercise 8 was not significantly different to exercise 9</li> <li>• Exercise 8 was not significantly different compared to exercise 10</li> <li>• nKC exercises 1, 2, 3, 4, 5 and 7 were not directly compared to KC-exercises 6, 9 and 10</li> </ul> <p><u>MT:</u></p> <ul style="list-style-type: none"> <li>• Exercise 2 was 54% greater than exercise 6 (no absolute values given)</li> <li>• Exercise 8 was not significantly different compared to exercise 9</li> <li>• Exercise 8 was not significantly different compared to exercise 10</li> <li>• nKC exercises 1, 2, 3, 4, 5 and 7 were not directly compared to KC-exercises 6, 9 and 10</li> </ul> <p><u>LT:</u></p> <ul style="list-style-type: none"> <li>• Exercise 9 was 2% greater than in exercise 8</li> </ul> <p><u>SA:</u></p> <ul style="list-style-type: none"> <li>• Exercise 6 was 42% greater than in exercise 2</li> <li>• Exercise 10 was 15% greater than in exercise 8</li> <li>• Exercise 9 was 11% greater than in exercise 8</li> <li>• nKC exercises 1, 2, 3, 4, 5 and 7 were not directly compared to KC-exercises 6, 9 and 10</li> </ul>

								(no absolute % values given)
<b>Nagai et al</b> <sup>59</sup> Japan (level 3; single group repeated measures/ descriptive study)	12 males	<ul style="list-style-type: none"> <li>• 1) bilateral humeral flexion in sitting (spinal neutral);</li> <li>• 2) <b>bilateral humeral flexion with 30° ipsilateral spinal rotation;</b></li> <li>• 3) <b>bilateral humeral flexion with 30° contralateral spinal rotation</b></li> </ul> <p>NB. EMG Measurements were recorded on the arm ipsilateral to the direction of trunk rotation movement.</p>	Yes	Trunk	Surface	AD, LT, PM	UT, SA,	<p><i>N.B. No exact absolute figures detailed. Only line graphs with 5% %MVC intervals documented therefore data obtained is an approximate only</i></p> <p><u>AD:</u></p> <ul style="list-style-type: none"> <li>• Exercise 3 (26-29%) greater than exercise 1 (22-26%) and 2 (20-22%) at humeral elevation angles greater than 100°</li> </ul> <p><u>UT:</u></p> <ul style="list-style-type: none"> <li>• Exercise 3 (9-25%) greater than exercise 1 (11-22%) and 2 (13-20%)</li> </ul> <p><u>LT:</u></p> <ul style="list-style-type: none"> <li>• Exercise 2 (6-16%) greater than exercise 3 (2-11%) but not exercise 1 (4-14%)</li> </ul> <p><u>SA:</u></p> <ul style="list-style-type: none"> <li>• Exercise 3 (13-35%) greater than exercise 2 (13-26%) but not exercise 1 (12-34%)</li> <li>• EMG activity in exercise 3 significantly increased as humeral elevation angle increased</li> </ul> <p><u>PM:</u></p> <ul style="list-style-type: none"> <li>• EMG activity was not significantly affected by trunk position</li> <li>• EMG values across all the exercises ranged between approx. 7% and 15%</li> </ul>
<b>Nakamura et al</b> <sup>52</sup> USA (level 3; descriptive laboratory study)	15 males	<ul style="list-style-type: none"> <li>• 1) Robbery seated in “W” position;</li> <li>• 2) Robbery seated in 90/90 position;</li> <li>• 3) <b>Robbery standing in “W” position;</b></li> <li>• 4) <b>Robbery standing in 90/90 position</b></li> </ul>	Yes	Lower Limb	Surface	UT, SA, AD	LT, Inf,	<p><u>UT:</u></p> <ul style="list-style-type: none"> <li>• No significant difference between KC and nKC exercises</li> </ul> <p><u>LT:</u></p> <ul style="list-style-type: none"> <li>• No significant difference between KC and nKC exercises</li> </ul> <p><u>SA:</u></p> <ul style="list-style-type: none"> <li>• BW did not significantly influence SA EMG activation levels</li> <li>• Exercise 2 (60%) showed greater EMG activity compared to exercise 4 (56%)</li> </ul>

							<p><u>AD:</u></p> <ul style="list-style-type: none"> <li>Exercise 2 showed greater activity at 0% (32%), 3% (39%) and 7% BW (55%) compared to exercise 4 at 0% (29%), 3% (36%) and 7% BW (44%)</li> </ul> <p><u>Inf:</u></p> <ul style="list-style-type: none"> <li>A two-way interaction was described showing greater EMG activity when the Robbery was performed in seated (76%) compared with standing (68%) position at 7% BW</li> </ul>
<p><b>Smith et al<sup>60</sup></b> USA (level 3; descriptive Study)</p>	5 males	<ul style="list-style-type: none"> <li>1) High cross body rotation, split stance; • 2) Mid cross body rotation, split stance; • 3) Low cross body rotation, split stance; • 4) <b>High cross body rotation with left step through;</b> • 5) <b>Mid cross body rotation with left step through;</b> • 6) <b>Low cross body rotation with left step through;</b> • 7) Attempted overhead reach, static stance; • 8) <b>Attempted overhear reach with step to the left;</b> • 9) Attempted ipsilateral floor touch in static split stance; • 10) <b>Attempted ipsilateral floor touch with simultaneous left step through</b></li> </ul> <p>NB. The glenohumeral joint was immobilised in a sling for all exercises.</p>	Yes	Lower extremity & Trunk	Indwelling & Surface	Sup, Inf, USSC, AD, MD, PD, UT, LT, MT, SA, BB	<p>NB. Statistical significance not reported during these comparisons, but clinical significance was inferred if EMG values differed by 10% of MVIC or more</p> <p><u>SA:</u></p> <ul style="list-style-type: none"> <li>Exercise 6 (199%) higher than exercise 3 (136%)</li> <li>Exercise 8 (24%) higher than exercise 7 (14%)</li> </ul> <p><u>USSC/Sup/Inf/AD/MD/PD/UT/LT/MT/BB:</u></p> <ul style="list-style-type: none"> <li>Differences in EMG activity were not deemed clinically significant across the exercises investigated in this study</li> </ul>
<p><b>Tsuruke &amp; Ellenbecker<sup>61</sup></b> USA (level 3; cross sectional study)</p>	16 males	<ul style="list-style-type: none"> <li>1) Standing isometric neutral external rotation (20%, 30% and 40% MVIC); • 2) Seated isometric abduction at 90 degrees (20%, 30% &amp; 40% MVIC); • 3) Quadruped shoulder flexion at 180 degrees (3%, 5% &amp; 7% BW); • 4) <b>Lawnmover with dumbbells</b></li> </ul>	No	Lower limb & trunk	Surface	SA, LT, PD, Inf	<p><u>SA:</u></p> <ul style="list-style-type: none"> <li>Exercise 3 greater at 3%, 5% and 7% BW (56%; 78%; 88%) than exercise 4 (12%; 15%; 21%)</li> <li>Exercise 3 greater at 5% and 7% BW (78%; 88%) than exercise 5 (60%; 67%)</li> <li>Exercise 2 showed greater EMG activity at 20%, 30% and 40% MVIC (27%; 33%; 41%) compared with Exercise 4 at 3%, 5% and 7% BW (12%; 15%; 21%)</li> </ul>

		of 3%, 5% & 7% BW; • 5) <b>Modified Robbery with dumbbells of 3%, 5% &amp; 7% BW</b>					<ul style="list-style-type: none"> <li>Exercise 4 greater at 5% BW (15%) than exercise 1 at 30% MVIC (8%)</li> <li>Exercise 5 greater at 3%, 5% and 7% BW (48%; 60%; 67%) than exercise 1 at 20%, 30% and 40% MVIC (6%; 8%; 12%) and exercise 2 at 20% 30% and 40% (27%; 33%; 41%)</li> </ul> <p><u>LT:</u></p> <ul style="list-style-type: none"> <li>Exercise 3 greater at 3%, 5% and 7% (69%; 79%; 86%) BW than exercise 4 (29%; 28%; 28%) and exercise 5 (36%; 43%; 46%)</li> </ul> <p><u>Inf:</u></p> <ul style="list-style-type: none"> <li>Exercise 3 greater at 3%, 5% and 7% (19%; 29%; 41%) BW than exercise 4 (9%; 9%; 11%)</li> </ul> <p><u>PD:</u></p> <ul style="list-style-type: none"> <li>Exercise 3 greater at 5% and 7% BW (70%; 83%) than exercise 4 (36%; 32%)</li> <li>Exercise 3 greater at 3%, 5% and 7% BW (48%; 70%; 83%) than exercise 5 (31%; 37%; 37%)</li> <li>Exercise 4 greater at 3% and 5% BW (38%; 36%) than exercise 1 at 20% and 30% MVIC (9%; 14%)</li> <li>Exercise 5 greater at 3% and 5% BW (31%; 37%) than exercise 1 at 20% and 30% MVIC (9%; 14%)</li> </ul>
<b>Uhl et al<sup>62</sup></b> USA (level 2; descriptive study)	3 males 7 females	<ul style="list-style-type: none"> <li>(1) Supine passive flexion;</li> <li>(2) <b>forward bow + weight transfer;</b></li> <li>(3) wash-cloth press, hands close;</li> <li>(4) <b>towel wall slides + weight transfer;</b></li> <li>(5) <b>scapular protraction on a ball + weight transfer;</b></li> <li>(6) wash-cloth press, hands apart (supine);</li> <li>(7) supine press;</li> <li>(8) wedge press-up;</li> <li>(9) <b>ipsilateral step up with a ball;</b></li> <li>(10) <b>ipsilateral step up without a ball;</b></li> <li>(11) <b>standing shoulder flexion with weight transfer;</b></li> <li>(12) standing overhead press</li> </ul>	Yes	Lower Limb	Indwelling & Surface	Inf, Sup, AD, UT, LT, SA	<p><u>Sup:</u></p> <ul style="list-style-type: none"> <li>Exercise 11 (18%) greater than exercise 7 (4%)</li> <li>Exercise 12 (29%) greater than exercise 2 (5%) and 5 (5%)</li> </ul> <p><u>Inf:</u></p> <ul style="list-style-type: none"> <li>Exercise 12 (14%) greater than exercise 2 (2%) and 5 (4%)</li> </ul> <p><u>AD:</u></p> <ul style="list-style-type: none"> <li>Exercise 7 (11%) greater than exercise 2 (2%)</li> <li>Exercise 8 (20%) greater than exercise 2 (2%) and 5 (7%)</li> <li>Exercise 9 (25%) greater than exercise 1 (3%), 3 (7%), 6 (7%) and 7(11%)</li> <li>Exercise 10 (22%) greater than exercise 1 (3%), 3 (7%), 6 (7%) and 7 (11%)</li> </ul>

							<ul style="list-style-type: none"> <li>Exercise 11 (24%) greater than exercise 1 (3%), 3 (7%) and 6 (7%)</li> </ul> <p><u>UT:</u></p> <ul style="list-style-type: none"> <li>Exercise 9 (24%) greater than exercise 1 (0%), 3 (1%), 6 (1%) and 7 (1%)</li> <li>Exercise 10 (21%) greater than exercise 1 (0%), 3 (1%), 6 (1%) and 7 (1%)</li> <li>Exercise 11 (20%) greater than exercise 1 (0%), 3 (1%), 6 (1%) and 7 (1%)</li> <li>Exercise 12 (24%) greater than exercise 1 (0%), 3 (1%), 6 (1%), 7 (1%) and 8 (11%)</li> </ul> <p><u>LT:</u></p> <ul style="list-style-type: none"> <li>Exercise 9 (13%) greater than exercise 3 (1%), 6 (1%), 7 (1%) and 8 (2%)</li> <li>Exercise 10 (14%) greater than exercise 1 (2%), 3 (1%), 6 (1%), 7 (1%) and 8 (2%)</li> <li>Exercise 11 (14%) greater than exercise 1 (2%), 3 (1%), 6 (1%), 7 (1%) and 8 (2%)</li> <li>Exercise 12 (9%) greater than exercise 4 (3%)</li> </ul> <p><u>SA:</u></p> <ul style="list-style-type: none"> <li>Exercise 7 (17%) greater than exercise 2 (5%)</li> <li>Exercise 8 (17%) greater than exercise 2 (5%)</li> <li>Exercise 9 (18%) greater than exercise 1 (2%)</li> <li>Exercise 10 (15%) greater than exercise 1 (2%)</li> <li>Exercise 11 (16%) greater than exercise 1 (2%)</li> <li>Exercise 12 (29%) greater than exercise 2 (5%) and 4 (6%)</li> </ul>
<p><b>Yamauchi et al<sup>63</sup></b> Japan (level 3; descriptive cross-sectional study)</p>	13 males	<p><i>Scaption:</i></p> <ul style="list-style-type: none"> <li>(1) Standing no rotation • <b>(1.1) Standing with trunk &amp; hip rotation</b></li> </ul> <p><i>1st ER:</i></p> <ul style="list-style-type: none"> <li>(2) Standing external rotation no rotation • <b>(2.1) Standing external rotation with trunk &amp; hip rotation</b></li> </ul> <p><i>2<sup>nd</sup> ER:</i></p>	Yes	Trunk & Hips	Surface	<p>UT, MT, LT, SA</p> <p>UT/LT ratio</p> <p>UT/SA ratio</p> <p>UT/MT ratio</p>	<p><u>UT:</u></p> <ul style="list-style-type: none"> <li>Exercise 3.1 (11%) greater than exercise 3 (8%)</li> <li>Exercise 5 (24%) greater than exercise 5.1 (18%)</li> <li>Exercise 6 (30%) greater than exercise 6.1 (20%)</li> </ul> <p><u>MT:</u></p> <ul style="list-style-type: none"> <li>Exercise 1.1 (8%) greater than exercise 1 (6%)</li> <li>Exercise 3.1 (14%) greater than exercise 3 (8%)</li> </ul> <p><u>LT:</u></p> <ul style="list-style-type: none"> <li>Exercise 1.1 (25%) greater than exercise 1 (15%)</li> <li>Exercise 2.1 (12%) greater than exercise 2 (8%)</li> </ul>

	<ul style="list-style-type: none"> <li>• (3) Standing external rotation at 90 degrees abduction no rotation • (3.1) <b>external rotation at 90 degrees abduction with trunk &amp; hip rotation</b></li> </ul> <p><i>Retraction 45:</i></p> <ul style="list-style-type: none"> <li>• (4) Prone retraction at 45 degrees abduction, no rotation • (4.1) <b>Prone Retraction at 45 degrees abduction with trunk rotation</b></li> </ul> <p><i>Retraction 90:</i></p> <ul style="list-style-type: none"> <li>• (5) Prone Retraction at 90 degrees abduction, no rotation • (5.1) <b>Prone Retraction at 90 degrees abduction with trunk rotation</b></li> </ul> <p><i>Retraction 145:</i></p> <ul style="list-style-type: none"> <li>• (6) Prone Retraction at 145 degrees abduction, no rotation • (6.1) <b>Prone Retraction at 145 degrees abduction with trunk rotation</b></li> </ul>					<ul style="list-style-type: none"> <li>• Exercise 3.1 (29%) greater than exercise 3 (19%)</li> </ul> <p><u>SA:</u></p> <ul style="list-style-type: none"> <li>• Exercise 2.1 (1%) greater than exercise 2 (0.9%)</li> <li>• Exercise 3 (23%) greater than exercise 3.1 (16%)</li> <li>• Exercise 6 (16%) greater than exercise 6.1 (8%)</li> </ul> <p><u>UT/MT Ratios:</u></p> <ul style="list-style-type: none"> <li>• Exercise 1.1 (2.4) lower than exercise 1 (3.6)</li> <li>• Exercise 3.1 (1.0) lower than exercise 3 (1.1)</li> <li>• Exercise 5.1 (0.6) lower than exercise 5 (0.9)</li> <li>• Exercise 6.1 (1.0) lower than exercise 6 (1.5)</li> </ul> <p><u>UT/LT Ratios:</u></p> <ul style="list-style-type: none"> <li>• Exercise 1.1 (0.8) lower than exercise 1 (1.3)</li> <li>• Exercise 2.1 (0.2) lower than exercise 2 (0.3)</li> <li>• Exercise 5.1 (0.4) lower than exercise 5 (0.5)</li> <li>• Exercise 6.1 (0.4) lower than exercise 6 (0.7)</li> </ul> <p><u>UT/SA Ratios:</u></p> <ul style="list-style-type: none"> <li>• Exercise 2.1 (1.4) lower than exercise 2 (3.1)</li> <li>• Exercise 3 (0.5) lower than exercise 3.1 (1.5)</li> <li>• Exercise 4.1 (4.9) lower than exercise 4 (10.2)</li> <li>• Exercise 5.1 (9.3) lower than exercise 5 (18.7)</li> <li>• Exercise 6 (2.5) lower than exercise 6.1 (4.2)</li> </ul>
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**BW = Body Weight; MVC = Maximum Voluntary Contraction; UT= Upper Trapezius; MT= Middle Trapezius; LT = Lower Trapezius; WT = Whole Trapezius; SA= Serratus Anterior; LD= Latissimus Dorsi ; ExOb= External Oblique; cGMax= contralateral Gluteus Maximus; iGMax= ipsilateral Gluteus Maximus; fAd = Femoral Adductor; Inf= Infraspinatus; Sup= Supraspinatus; AD = Anterior Deltoid; MD= Middle Deltoid; PD = Posterior Deltoid; USSC= Upper portion Subscapularis; BB = Biceps Brachii; PM = Pectoralis Major.**