

Supplementary File 3 – Proximal rehabilitation compared to quadriceps rehabilitation group study characteristics

<i>Author</i>	<i>Intervention</i>	<i>Control</i>	<i>Variables measured</i>	<i>Follow up</i>
<i>Proximal rehabilitation v Quadriceps rehabilitation</i>				
Ferber et al. ⁴²	<p>Proximal and core focused exercises (n= 111)</p> <ul style="list-style-type: none"> • Performed 6xper week (3x per with trainer) • 6 week intervention period <p>Week 1</p> <ul style="list-style-type: none"> • Proximal abduction – standing; Proximal external rotator – standing; Proximal external rotator – sitting; All 3x10repetitionss (resistance band) <p>Week 2</p> <ul style="list-style-type: none"> • Proximal abduction – standing; Proximal external rotator – standing; Proximal internal rotator – standing; All 3x10reps (resistance band) <p>Week 3</p> <ul style="list-style-type: none"> • Proximal abduction – standing; Proximal external rotator – standing; Proximal external rotator – sitting; All 3x10reps (stronger resistance band) • Balancing 2 feet on Airex® pad 3x30-45seconds 	<p>Quadriceps exercise (n= 88)</p> <ul style="list-style-type: none"> • Performed 6xper week (3x per with trainer) • 6 week intervention period <p>Week 1</p> <ul style="list-style-type: none"> • Isometric quadriceps setting Knee extensions—standing Double-legged, one-quarter squats; 3x10 repetitions <p>Week 2</p> <ul style="list-style-type: none"> • Isometric quadriceps setting; Double-legged, one-half squats; Terminal knee extension w/ resistance band; 3x15 repetitions; Double-legged, one-quarter squats ; 3x30seconds <p>Week 3</p> <ul style="list-style-type: none"> • Double-legged, one-half squats ; Single-legged, one-quarter squat; Double-legged, one-quarter wall squats; 3x10 repetitions; • Terminal-knee extension w/ resistance band 3x10 repetitions with stronger band <p>Week 4</p> <ul style="list-style-type: none"> • Single-legged, one-half squats ; Forward, one-quarter lunge; Lateral step-down (4-inch [3.6 cm] step), No.; Forward step-down (4-inch [3.6 cm] step), No. ; 3x10 repetitions; • Double-legged, one-half wall squats; 	<ul style="list-style-type: none"> • Pain • VAS • Function <ul style="list-style-type: none"> • Anterior knee pain score • Strength <ul style="list-style-type: none"> • Proximal abduction • Proximal extension • Proximal internal rotation • Proximal external rotation • Knee extension 	6 weeks

	<p>Week 4-6</p> <ul style="list-style-type: none"> • Proximal extension 45° – standing; Proximal external rotator – standing; Proximal external rotator – sitting; All 3x10-15reps (resistance band) • Balancing 1 foot on Airex® pad 3x45-60seconds 	<p>3x30seconds</p> <p>Week 5-6</p> <ul style="list-style-type: none"> • Double-legged wall squat (to max 90° knee flexion); 3x45-60seconds; • Lateral step-down (6–10 in [5.6–9.6 cm] step); Forward step-down (6–10 in [5.6–9.6 cm] step) ; Forward one-half full lunge (to maximum 90° of knee flexion); Single-legged one-half full squat (to maximum 90° of knee flexion); 3x15 repetitions 		
Dolak et al. ²⁴	<p>4 weeks initial proximal abduction and external rotation rehabilitation followed by 4 weeks weight bearing exercises (n=17)</p> <ul style="list-style-type: none"> • Exercise completed 3xper week (1 supervised, 2 at home) • Seated hamstring stretch, standing quadriceps stretch and standing wall stretch for triceps surae for 3x30sec prior to rehabilitation • Progression made on an individual basis by the treating clinician within protocol limits • Side-lying proximal abduction/external rotation +/- 3-7% of body weight 3x10repetitions • Standing proximal abduction +/- 3-7% body weight 3x10repetitions • Seated proximal external 	<p>4 weeks initial quadriceps rehabilitation followed by 4 weeks weight bearing exercises (n=16)</p> <ul style="list-style-type: none"> • Exercise completed 3xper week (1 supervised, 2 at home) • Seated hamstring stretch, standing quadriceps stretch and standing wall stretch for triceps surae for 3x30sec prior to rehabilitation • Progression made on an individual basis by the treating clinician within protocol limits • Quad sets • Short arc quads +/- 3-7% body weight • Straight leg raises +/- 3-7% body weight • Terminal knee extension with 3-7% body weight 	<ul style="list-style-type: none"> • Pain • VAS • Function • LEFS • Strength • Isometric proximal abduction strength • Isometric proximal external rotation strength • Isometric knee extension strength 	4 Weeks

	<p>rotation +/- 3-7% body weight 3x10repetitions</p> <ul style="list-style-type: none"> • Quadruped hydrant +/-3% body weight 3x10repetitions 			
Khayambashi et al. 43	<p>8 weeks posterolateral proximal rehabilitation exercises</p> <ul style="list-style-type: none"> • Exercise completed 3 times per week, supervised by a therapist • 5 min walking warm up • 20 mins resistance banding exercises for proximal abduction and external rotation – 3 sets of 20-25 reps using progressively increasing resistance banding • 5 min walking cool down 	<p>8 weeks quadriceps rehabilitation exercises</p> <ul style="list-style-type: none"> • Exercise completed 3 times per week, supervised by a therapist • 5 min walking warm up • 20 mins resistance banding exercises – seated knee extension against resistance banding, and squatting - 3 sets of 20-25 reps using progressively increasing resistance banding • 5 in walking cool down 	<ul style="list-style-type: none"> • Pain <ul style="list-style-type: none"> • VAS • Function <ul style="list-style-type: none"> • WOMAC 	8 weeks and 6 months
Baldon et al. 44	<p>8 weeks functional stabilisation exercises directed at the proximal and trunk</p> <ul style="list-style-type: none"> • Exercises performed 3 times per week supervised • First 2 weeks – exercises focused at enhancing motor control at trunk and proximal – 20% of 1 repetition maximum – 2x20repetitions • Next 3 weeks – exercises to increase proximal strength and maintain motor control – 75% of 1 repetition maximum – 3x12 repetitions • Final 3 weeks – intensity increased whilst maintaining 	<p>8 week standard training programme focused on quadriceps rehabilitation</p> <ul style="list-style-type: none"> • Exercises performed 3 times per week supervised • Comprised of combination of stretches, open and closed kinetic chain exercises • Included straight leg raise, knee extension, leg press, wall squats, step ups, single leg standing on unstable platform • First 2 weeks – exercises focused at enhancing motor – 20% of 1 repetition maximum – 2x20repetitions • Next 3 weeks – exercises to increase quadriceps strength and maintain motor control – 75% of 1 repetition maximum – 3x12 repetitions • Final 3 weeks – intensity increased whilst 	<ul style="list-style-type: none"> • Pain <ul style="list-style-type: none"> • VAS • Function <ul style="list-style-type: none"> • LEFS • Single leg triple hop • Single leg squat kinematics <ul style="list-style-type: none"> • Trunk, pelvis, proximal and knee • Trunk endurance and eccentric torque 	8 weeks and 3 months

	<p>good lower limb alignment - 75% of 1 repetition maximum</p> <ul style="list-style-type: none"> • 1 repetition maximum assessed at 3 and 6 weeks • All exercises performed within 3/10 pain limits 	<p>maintaining good lower limb alignment - 75% of 1 repetition maximum</p> <ul style="list-style-type: none"> • 1 repetition maximum assessed at 3 and 6 weeks • All exercises performed within 3/10 pain limits 		
WOMAC = Western Ontario and McMaster osteoarthritis index				