

RJAH Proximal Hamstring Repair Rehab Guide

Patient Details:

Co-morbidity:

Note to Therapist:

- *This is a guide to progression, not an exhaustive list of rehabilitation and does not replace clinical reasoning.*
- *Treat any other soft tissue symptoms on their merit.*
- *Objective Tests can be used as an indication for progression.*
- *Special Instruction(s) includes specific post-operative advice for the individual patient based on their surgeon's recommendation (as applicable). This will be completed on discharge or follow-up clinic appointments.*

PHASE OF REHABILITATION	IDEAL CRITERIA	REHABILITATION GUIDE	GOALS	OBJECTIVE TEST	SPECIAL INSTRUCTION
PHASE 1 From Day 1 Continued overleaf...	<ul style="list-style-type: none"> ○ Successful operative outcome. ○ Adequate pain relief. ○ Understands post-op instructions. ○ <i>A brace might be fitted limiting knee F to 90° for 2 weeks, but this will be dependent on post-op instructions.</i> 	<ul style="list-style-type: none"> • DO NOT SIT with pressure on wound. • Avoid any direct pressure on wound. • Sleep side lying. • Ice. • Do not disturb wound dressings. • No active or passive H tension. Hip F must only occur with simultaneous knee F and no gravity knee F. • No scar or H muscle massage. • Glut squeezes. • Pelvic floor exercises. • SQ. 	<ol style="list-style-type: none"> 1. Reduce inflammation. 2. Prevent neural tension. 3. Promote distal circulation. 4. Increase confidence. 5. Promote early mobility. 		<p>Check if any specific post-op instructions have been given and amend the guide accordingly.</p>

PHASE 1

From Day 1

continued.

- PWB if no brace. If braced mobilise NWB.
- Neural mobilisations:
 - e.g. **(a)** In standing or side lying maintaining hip at 0°, combine Cx and Tx F/E with corresponding ankle PF/DF.
 - (b)** In supine (with lower leg over the end of the bed) or side lying, maintaining hip at 0° F/E the knee combined with corresponding Cx F/E.

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PHASE 2 From Week 2	<ul style="list-style-type: none"> ○ Minimal pain. ○ Mobilise independently +/- aids. ○ If applicable, remove brace. 	<ul style="list-style-type: none"> • Gait re-education PWB – FWB (by Week 6). • Gradually allow pressure on wound in sitting and sleeping. • Scar tissue massage (from Week 4). • Hamstring massage/ soft tissue techniques (From Week 4). • Supine heel slides → Long sitting heel slides. • Supine crook lying single leg press against resistance band. → Decrease weight through supporting leg → No contralateral leg support. • Clams. • Side lying hip Abd → Standing hip hitching → Standing hip hitching and Abd. [L] & [R] • Bilat heel raises. • Mini squats/ small knee bends. • Sit ↔ Stand. • Supine over the bed knee E – OKC progressive resistance for Q. [DO NOT perform in sitting]. • Other muscle groups not to be neglected • Upper body active exercise → resis/reps/sets/speed • Contralateral limb strength training 	<ol style="list-style-type: none"> 1. Prevent scar tissue adherence. 2. Promote early function. 3. Increase ROM. 4. Encourage FWB. 5. Improve muscular control. 	<p>AROM.</p> <p>PROM.</p> <p>Clams.</p>	

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PHASE 3 From Week 6	<ul style="list-style-type: none"> ○ FWB ○ Discard brace. ○ Full knee AROM at 0° hip position in supine or side lying ○ Pain free non-resisted, full hip AROM with ≥90° knee F. ○ Clams 10 reps with 10 sec hold ideal control [L] & [R] 	<ul style="list-style-type: none"> • Walking on flat ground as able. Comfortable pace for 10 min → 30min by Week 12. • Changing direction during walking. • Resisted side-stepping. • Core stability exercises as appropriate. • Exercise bike. • Cross-Trainer. • Standing hip F/E/Abd/Add with resistance band. • Double leg bridges → Decrease arm support → Feet on step. (Aim for ideal alignment and control). • Prone leg curls against gravity (no added resistance). • Standing leg curls (no added resistance). • ½ Squats, adding up to ¼ of body weight. (Aim for ideal alignment and control). • Mini-lunges. (Aim for ideal alignment and control) • Lateral box step ups. • Proprioception → single leg stance. • Core stability exercises as appropriate. • Flexibility exercises as appropriate. • Hydrotherapy (Avoid breast-stroke leg kick). 	<ol style="list-style-type: none"> 1. Progress functional activities. 2. Prevent scar adherence. 3. Prevent joint stiffness. 4. Restore normal gait pattern. 5. Promote appropriate muscle strength, power and endurance. 6. Improve neuromuscular/proprioception/sensorimotor performance. 7. Maintain cardiovascular fitness. 8. Encourage patient compliance. 	<p>AROM.</p> <p>PROM.</p> <p>Single Leg Stance.</p> <p>Clam.</p> <p>Hip strength; Oxford strength grading scale.</p> <p>Planks.</p>	

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PHASE 3 From Week 12	<ul style="list-style-type: none"> Normal symmetrical gait AROM = Full E - $\geq 100^\circ$ Single leg stance $\geq 80\%$ parity Clams 10 reps with 10 sec hold ideal control [L] & [R] Directional Planks 30 sec hold ideal control. Hip F strength 5/5 [Oxford strength scale]. Hip Abd strength 5/5. Hip Add strength 4+/5. Hip E strength 4/5. 	<ul style="list-style-type: none"> Power walking on flat ground. SLR (no more than 2/10 discomfort). Sitting OKC Q (no more than 2/10 discomfort). Add resistance to H exercises, Prone \rightarrow Standing \rightarrow Machine leg curls. Gymball bridges. Single leg $\frac{1}{4}$ Squats with up to $\frac{1}{4}$ body weight resistance. Leg Press machine, Double leg \rightarrow Single leg. Proprioception \rightarrow single leg stance/wobble boards/Trampoline/crash mats/etc. Step-ups (for/back/sideways/over) <p><i>Sequence Training:</i></p> <ul style="list-style-type: none"> Train strength and endurance 3 – 4 x per week. Train strength and endurance on separate days. Have a minimum of 24 hours between strength days. Strength: <i>See appendix; Pages 9 – 10</i> Adjust if necessary based on symptoms. Hypertrophy: <i>See appendix; Pages 9 – 10</i> Adjust if necessary based on symptoms. Endurance: Gradually progress toward ≥ 45 min continuous CV exercise (exception of jogging/running). <i>See appendix; Pages 9 – 10</i> Adjust if necessary based on symptoms. 	<ol style="list-style-type: none"> Promote appropriate strength, power and endurance based on individual's needs. Improve neuromuscular performance. Increase confidence. 	<p>AROM.</p> <p>PROM.</p> <p>H flexibility.</p> <p>SLR.</p> <p>Single Leg Squat 60°.</p> <p>Hip strength; Oxford strength grading scale.</p>	

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PHASE 4 From Week 16	<ul style="list-style-type: none"> Single Leg Squat 60° 5 sec hold with good alignment. H flexibility ≥80% parity. Hip strength >90% parity. SLR ≥90° 	<ul style="list-style-type: none"> Power walk up incline. Introduce jogging on flat when Q and H strength, neuromuscular control. Start with interval walk – jog and progress. Progress Ecc H exercises. Increase speed H contraction. Heel 'flicks' H curls in progressive positions of hip F. Gymball bridges →single leg→heel pull backs. Rowing machine. Arabesque exercises with support → no support → increasing weight held out in front. Landing drills and plyometrics, Double footed → Single footed. (Aim for ideal neuromuscular control). Introduce OKC Q, progress resis as dictated by symptoms. 	1. Sport specific function.	AROM. PROM. 5 RM. Vertical Jump.	

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Phase 5 From Week 24	<ul style="list-style-type: none"> ○ Full pain free AROM ○ H 5 RM >60% parity 	<ul style="list-style-type: none"> • Progress from jog → run → sprint. • Straight leg dead lifts. • Nordic H curls. • Add agility drills when sufficient control and confidence is achieved e.g. twist/turn/pivot/cut/accelerate/decelerate/direction. Progress from predictable agility to unpredictable. • Advance dynamic proprioceptive exercises e.g. volleying football, throwing, catching, racket and ball while balancing on trampette. • Perturbation training e.g. therapist randomly nudges patient off balance during a single leg throw-catch drill. • Non-contact sport specific training → terrain/volume/periodisation. 	1. Prepare neuromuscular and psychological ability to return to unrestricted function.	<p>Hop for distance.</p> <p>As indicated for individuals goals.</p>	

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PHASE 6 From Week 24+	<ul style="list-style-type: none"> ○ All Tests > 90% parity ○ Dependent on Consultant's approval 	<ul style="list-style-type: none"> • Earliest return to contact sport training. • Progress to full restriction free sports and activities. 	<ol style="list-style-type: none"> 1. Unrestricted confident function. 2. Injury prevention. 	Full sporting Function.	

Terminology Key:

Abd	Abduction	OKC	Open Kinetic Chain
Add	Adduction	PF	Plantarflexion
AKP	Anterior Knee Pain	PWB	Partial Weight Bear
AROM	Active Range of Movement	PROM	Passive Range of Movement
CV	Cardiovascular	Q	Quadriceps
Cx	Cervical	[R]	Right
DF	Dorsiflexion	reps	Repetitions
E	Extension	resis	Resistance
Ecc	Eccentric	RM	Repetition Maximum
EOR	End of Range	ROM	Range of Movement
F	Flexion	SLR	Straight Leg Raise
FWB	Full Weight Bear	SQ	Static Quadriceps
H	Hamstrings	TWB	Touch Weight Bear
IRQ	Inner Range Quadriceps	Tx	Thoracic
[L]	Left		

Summary of Post-Operative Restrictions (unless stated otherwise):

Activity	Dictated by sufficient neuromuscular control and time from surgery.
Weight bearing.	Might be limited due to brace, aim to FWB by Week 6.
Direct wound pressure, including sitting on wound.	From Week 2.
Scar tissue massage.	From Week 4.
Hamstring tension passive or active, including seated knee extension.	Gradually progressed from Week 6 (see guide for detail)
Hamstring flexibility/ stretching.	From Month 3.
Resisted Hamstring exercises.	From Month 4.
High impact and plyometrics.	From Month 6.
Return to full contact sport/ no restrictions.	From Month 9 – 12, if meets all specific RTS criteria and MDT approval.

Appendix:

Patient Education.

A **repetition maximum** (RM) is the most weight you **can** lift, push, press or curl for a defined number of exercise movements. For example, a 5RM would be the heaviest weight you could lift for 5 consecutive repetitions. What will dictate your RM is muscle fatigue/ weakness, or you are experiencing pain more than 2-3/10 above your normal baseline (10 = worst pain imaginable, 0 = no pain at all), or you are losing technique/ form.

1 – 5 RM will improve Muscle Strength

6 – 10 RM will improve Muscle Hypertrophy

11 – 15+ will improve Muscle Endurance

Sets are a series of reps of an exercise done in sequence (usually with a rest between). For example, 3 x 5 RM would be an exercise you can perform a maximum of 5 consecutive times (see **repetition maximum**), rest and then repeat twice more. Perform **a minimum of two sets** for each exercise.

Progress:

As you progress and the loads you are lifting are getting easier, but not easy enough to increase the weight, increase the volume. For example if you are lifting 5RM for 3 Sets, increase the number of sets. When this starts to feel easier reduce the number of sets and try increasing the weight to ensure you remain in the specific training zone for you.

Recommended Rest times between sets:

1 – 5 RM, 2 min. rest between sets.

6 – 10 RM, 1 min. rest between sets.

11 – 15 RM, 40 sec. rest between sets.

Particularly when you have 2 mins between sets, you might choose to save time and increase your workout intensity by performing a **Superset**. This can be a combination of two or three different exercises that work opposing muscle groups, or upper and lower body, or left and right limbs, and the exercises are done back to back with no rest in between. For example you may choose to switch between the leg press and the chest press. Working on the chest press during the 2 min. rest on the leg press and vice versa.

Single Leg and or Arm exercises will give you an indication of the strength differences between your limbs. It also means the weaker limb cannot be assisted by the stronger limb. If you are performing single limb exercises, make sure the RM is specific for each limb. Remember strengthening your non-injured side will limit the deconditioning of your injured side.

Circuits are a collection of exercise sets you repeat without a rest. A rest will be recommended between circuits rounds.

CV Endurance and Strength training don't mix. If you want to progress your CV work to more than a 20 min moderate session, don't do this in the same session that you strength train. The benefits of the two exercises counteract with each other, meaning you will not strengthen as quickly. If you want to progress you CV do so on a separate day.