



MPFL Rehabilitation guideline

This protocol is a general guide to rehabilitation. The time scales are an approximate guide and may be altered depending on various factors such as pain, swelling and control. Pain along the graft site is very common for up to 4 months post operatively and should not prevent participation in rehabilitation. The patient's management should be tailor made to meet individual objectives (ref Smith 2008)

Please check the post operative notes for any variation

<p>Week 0-2</p> <p>Inflammatory stage. No initial blood supply to the graft</p> <p>Aims: Decrease / control swelling and pain, full active and passive extension, 90° flexion. Ability to SLR. Full weight-bearing as tolerated.</p>	<ul style="list-style-type: none"> • <u>Inpatient at AOC days 1-2</u> • Active and active assisted knee flexion +/- CPM as required • Static and inner range quadriceps exercises, Straight leg raise taught • Ankle dorsiflexion/ plantarflexion exercises • Mobilise weight-bearing as tolerated with crutches • Swelling management <ul style="list-style-type: none"> • Education regarding rehabilitation. Address any fear avoidance issues (ref Smith 2008) • Gentle closed chain quadriceps exercises – emphasis on alignment and co-contraction. • Port hole / scar management • Start basic proprioception, balance and co-ordination training • Consider core and hip stability exercises <p>Contraindications:</p> <ul style="list-style-type: none"> • no resisted (hamstring graft), hamstrings or flicks for 4/52
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<p>Week 2 – 6</p> <p>2/52 Clinic review for removal of sutures and X Ray</p> <p>Graft fixation healing. Avascularisation of the graft which reduces its strength.</p> <p>Aim: Full extension (normal / hyper-extension) and near full flexion. Good activation of quadriceps and straight leg raise with NO lag. Minimal pain. Mild/stable effusion. Normal gait pattern</p>	<ul style="list-style-type: none"> • Swelling management • Wean off crutches as pain and quadriceps control allows • Progress closed chain quadriceps exercises with co-contraction- double leg wall mini squats, sit to stand, lunges (onto step if PFJ pain problematic) • Closed chain knee flexion exercises • Hamstring donor site management – soft tissue techniques, gentle stretching, concentric and eccentric exercises • Patella mobilizations - avoiding lateral glides (Fithian 2010).) • Proprioception, balance and co-ordination training • Core and hip stability exercises (Cichanowski 2007) • Once 100° flexion is achieved can start using a stationary bike <p>Precautions: Avoid overstressing fixation</p> <p>Contraindications:</p>
<p>Week 6- 12</p> <p>The graft goes through the process of revascularization and ligamentisation. By 6/52 the graft fixation is consolidated</p> <p>Aim: Controlled pain and swelling. FROM- must exceed 90 flexion – if not refer back to clinic as may need manipulation. Increase quadriceps and VMO control for restoration of proper patella tracking. Good proximal alignment and control</p>	<p>Exercises need to be tailored to their functional aim</p> <ul style="list-style-type: none"> • Road cycling – no clips or cleats – “normal pedals only” • CV fitness • Proprioceptive exercises – add controlled rotational exercises • Swimming – freestyle and pool walking <p>Precautions: Avoid impact work and deep squats/lunges especially if pre-existing PFJ pain and/or degenerative articular lesions (Fithian 2010)</p> <p>Contraindications: no breast stroke until 3 months</p> <p>Considerations: Referral to the multigym if fully weight bearing with symmetrical gait and Low / moderate pain and or swelling</p>

<p>Week 12- 16</p> <p>Clinic review plus outcome scores</p> <p>By 3 months the graft fixation is consolidated. At 4 months there is complete revascularization of the graft, laying down of collagen and gradual increase in strength</p> <p>Aim: knee extension strength at least 70% of other knee. Good active patella control with no evidence of lateral tracking or instability.</p>	<ul style="list-style-type: none"> • Increase fitness • Introduction of impact work-- ONLY if good range extension, eccentric quadriceps control (Fisher 2010)with correct alignment. • Gradual increase in resisted open chain/closed chain quadriceps (avoid pain) • Continue with proprioceptive training – increase rotational control
<p>Week 16+</p> <p>Aim:</p> <ul style="list-style-type: none"> • Full pain free ROM. • Raise fitness targets and set new goals • Increase speed of balance reactions and improve co-ordination • Normal gait in running. Good control of cutting, pivoting, stopping and starting if required • Sport specific exercises progressively sequenced to include walking followed by running forwards/ backwards/ sideways; changing directions • Advice on returning to training 	<ul style="list-style-type: none"> • Initiate running – gradual paced change of terrain / gradient and duration • Progressive introduction of dynamic activity <ul style="list-style-type: none"> – jumping / hopping (start on the trampette, emphasis on alignment of both push off and land) – change of direction; start single direction and progress to cutting, multidirectional and pivoting – stopping / starting and acceleration / deceleration – backwards running
<p>Months 6+</p> <p>Aim: (Non-contact -> contact) sports training Fisher et al (2010) most studies suggest return to sport at 6 months</p>	<p>Prior to return to sports training: Satisfactory single limb dynamic control 85% hop for height, length and cross over 80% strength of non-involved limb Confidence in knee</p> <p>Return to activity non contact training initially</p>
<p>Clinic review 12/12 for x-ray and outcome scores</p>	

Refer back to clinic:

Signs of infection
Thrombosis
Dislocation
Persistent stiffness > 8/52

Seen in clinic at approximately:

2/52, 12/52, 12/12

References

UHBristol MPFLR Rehabilitation Guideline – Mr Eldridge

Cichanowski HR, Schmitt JS, Johnson RJ, Niemuth PE (2007) Hip strength in collegiate female athletes with patellofemoral pain. Medicine and Science in Sports and Exercise 39: 1227-1232.

Fisher B., Nyland J., Brand E & Curtin B (2010) Medial Patellofemoral ligament reconstruction for recurrent patellar dislocation: A systematic review including rehabilitation and return to sports efficiency. Arthroscopy: The journal of arthroscopic and related surgery. 26 (10) 1384-1394.

Fithian D., Powers C & Khan N (2010) Rehabilitation of the knee after medial patellofemoral ligament reconstruction. Clinical Sports Medicine. 29. 283-290

Fithian D & Khan N (2010) Medial patellofemoral ligament reconstruction. Operative Techniques in Sports Medicine. 18. 93-97

Smith T & Donell, S (2008) The rehabilitation following medial patellofemoral ligament reconstruction. The Internet Journal of Orthopaedic Surgery. 8 (1) 1-18