CHILDREN'S KNEE SPECIALIST
Mr John Jeffery

Medial Patellofemoral Ligament (MPFL) Reconstruction + Patella Tendon Advancement (PTA) Post Operative Guidelines

INTRODUCTION

This is a general guide to rehabilitation for patients who have undergone an MPFL reconstruction and Patella Tendon Advancement by Mr John Jeffery, Consultant Orthopaedic Surgeon and Children's Knee Specialist.

Please note, when it comes to rehab, one size does not fit all. Rehab is physio led and may differ from these guidelines as a result of therapist preference, patient progress and local practices. Please check the post-operative note for any restrictions or variations from these guidelines.

A NOTE ON PATELLA TENDON ADVANCEMENT

During a patella tendon advancement the tendon is completely taken off the tibia (shin bone) and then advanced and secured to the bone with anchors and sutures. Although this reconstruction is strong and Mr Jeffery confirms the integrity intra-operatively, too much tension on the reconstruction too soon can result in a pull-off of the tendon which would require a return trip to theatre for revision.

Rehab therefore focuses on protecting the repair while it heals and minimising load on the extensor mechanism while allowing progressing flexion of the knee to avoid long term stiffness. This is done by using a hinged range of motion brace.

GUIDANCE

The time scales are an approximate guide and may be altered depending on various factors such as pain, swelling and muscle control. The patient's management should be tailored to meet individual objectives.

WEEK 0-2 (Brace locked straight) Immediate post-operative stage. The knee is painful and swollen and held in full extension. **Primary aims:** Control pain and swelling, maintain full extension and achieve quadriceps activation.	• Swelling management • Regular analgesia if required • Static quadriceps activation exercises • Aim to FWB supported with crutches for stability • Knee must remain straight 24/7 • Brace to be worn at all times except for personal hygiene - straps can be released/loosened at rest for comfort and to facilitate swelling management • Ankle exercises Precautions: • No knee flexion • Brace locked straight at all times
WEEK 2-4 (Brace at 0-30 degrees) The inflammatory phase of healing is now settling. **Primary aims:** Begin movement. Promote distal circulation.	• When weight bearing, the brace needs to remain locked straight • When not weight bearing the brace can be unlocked to allow flexion up to 30 degrees which should be encouraged at regular intervals • Continue swelling management – pain/swelling should now be settling • Scar management • Patella mobilisations • Continue quads activation and maintain active full extension • Prone straight leg raise in brace • Ankle and calf stretches • Contralateral limb and upper body strength Precautions: • No resistance exercises • Brace to remain locked straight when weight bearing
WEEK 4-6 (Brace at 0-60 degrees) **Primary aims:** Progress range of motion. Avoid scar tissue adherence.	• Continue to progress the amount of flexion • Aim to achieve 60 degrees active flexion by the end of this phase Precautions: • No resistance exercises • Brace to remain locked straight when weight bearing

WEEK 6-8 (Brace at 0-90 degrees) **Primary aims:** Active range of motion between 0 and 90 degrees.	• Can begin hydrotherapy at this stage if available. • Gait re-education • Improve neuromuscular control and proprioception • No extensor lag during straight leg raise • Can begin light load during active ROM • Brace can remain unlocked when weight bearing with crutches Precautions: • Avoid heavy loads or sudden quadriceps contractions
WEEK 8-14 (Low Impact) By this stage the tendon advancement has healed and is ready for progressive loading to increase strength. **Primary aims:** Promote extensor mechanism strength, endurance and sensorimotor performance.	• Exercises need to be tailored to their functional aim • Discard the hinged range of motion brace and crutches • Begin proprioception, balance and co-ordination training • Core and hip stability exercises • Build up cardiovascular fitness • Swimming — freestyle and pool walking • Once 100° flexion is achieved, can start using a static bike • Multigym if fully weight bearing with symmetrical gait and low/moderate pain and or swelling • Patient education - if they have had a long-term condition, they may have altered their movement patterns to accommodate. They need to be advised that rehabilitation could take 6–9 months. Precautions: • Avoid heavy loads or sudden quadriceps contractions • No breaststroke until 3 months
WEEK 14+ (High Impact)	• Increase fitness • Proprioception, balance and co-ordination training • Can introduce high-impact cardiovascular exercises such as running — only if a full range of extension, eccentric quadriceps control with correct alignment • Plyometrics should not be introduced until the patient has good proprioception and control • Progressive introduction of dynamic activity

RETURN TO SPORT

Final decision on return to sport is up to the individual physiotherapist after assessment of the patient's progress and milestones. Return to training and non-match play can be expected at about 4 months post op.

We do not recommend return to competitive/contact pivoting sport (i.e. match play) until 6 months post-surgery and this should be built up to in a graded fashion as with any rehabilitation. We do not have a preferred return-to-play criteria to use but example criteria include:

- >80% hop height, length and cross over
- >80% strength of non-involved limb
- Confidence in knee
- Awareness of safe positioning of limp and cutting/landing technique (see poweruptoplay.org)

FUNCTIONAL MILESTONES SUMMARY

Activity	Time Scale
Brace discarded	8 weeks
High-impact exercise (jogging)	3 months
Sport-specific drills	4 months
Non-match sport	5 months
Competitive sports	6 months

RED FLAGS

The following should prompt urgent referral back to clinic:

- Rupture of extensor mechanism
- Signs of infection
- Thrombosis

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