

Lothian Best Practice Statement
Patellar Re-Alignment Surgery

Introduction

Surgery: This procedure is an open surgery which can include either proximal or distal realignment or a combination of both. A lateral release of the patella may also be included. On occasion, this procedure may also include reconstruction of the medial patella femoral ligament (MPFL). Isolated surgical procedures to reconstruct the MPFL may be indicated in instances of instability and are covered in a separate Best Practice Statement.

Indications for surgery: Symptomatic patellar instability, maltracking or malalignment which has failed to resolve with non-operative management.

Expected Length of Stay: Day Case

Surgeons: Mr Keating, Mr White, Mr Lawson

Scope of practice

These guidelines are designed to guide physiotherapists when treating patients following this surgical procedure. This Best Practice statement was developed through a focused review of the current evidence and multidisciplinary consultation. They were correct at the time of writing. They are general guidelines and any specific instructions in the post-operative notes must take precedence. They are not a substitute for sound clinical reasoning and good communication with the consultant team, and patients should always be treated on a case-by-case basis.

Aim

The aim of these guidelines is to provide physiotherapy staff with a series of recommendations from the current evidence base to assist them in the management of patients who have undergone this surgical procedure.

Search Process

Authors: Bethan Grech and Eilidh de Klerk

Adapted from Patella Realignment Best Practice Statement Oct 2020, authored by Andrew Baxter & Clem Nihill

Date: February 2025

Date for review: February 2030

LOTHIAN PHYSIOTHERAPY ORTHOPAEDIC GUIDELINES

Appraisal process: The databases below were searched between October 2020 and February 2025. The titles and abstracts of all identified studies were assessed to determine whether they were pertinent to the research question.

Total number of articles selected: 2

Total number of articles discarded: 9

Key Words:

Post operative, Patellar, Re-alignment, Physiotherapy

Databases:

Data Base	Dates	Limitations
Medline	Oct 2020 to current (February 2025)	English
Cinhal	Oct 2020 to current (February 2025)	English
Pedro	Oct 2020 to current (February 2025)	English
Embase	Oct 2020 to current (February 2025)	English
Cochrane	Oct 2020 to current (February 2025)	English

Results

Within the evidence reviewed (October 2020 – February 2025) it appears that overall, there is little change to the previous recommendations. It does appear, however, that evidence suggests accelerated protocols (e.g. no/minimal bracing and no/minimal restrictions on weight-bearing) have shown promising results, indicating that non-restricted ROM and early weight-bearing do not cause harm (Zhang et al. 2024). It is however, suggested that care should be taken when loading the

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quadriceps muscle for the first 6-8 weeks, avoiding resisted open chain exercises or heavy loading to avoid excess pulling through the osteotomy site (Hysing-Dahl and Inderhaug 2024).

Key points/ Specific precautions/ post op instructions

- Patients are usually discharged fully weight bearing as tolerated with elbow crutches in a hinged knee brace.
- Potential complications include but are not limited to patello-femoral pain and wound infection.
- Routinely, the hinged knee brace will be set at 0° - 30° for the initial two weeks, 0° - 60° for the subsequent two weeks followed by 0° - 90° for a further two weeks but check post operative instructions on each occasion.
- Timescales are approximate and rehabilitation progress, at each stage, is guided by minimal swelling, resolution of pain and good muscle recruitment.
- Evidence available remains variable and inconsistent and there are no RCTs comparing one programme of rehabilitation versus another.
- If the patient is not progressing as expected, this must be discussed with a senior physiotherapist or operating surgeon/consultant.
- Return to sport should be guided by functional goals and not timescales.

Recommendations:

Phase 1: 0-2 weeks

Hinged knee brace will routinely be set at 0° - 30° for the initial two weeks

Goals	Recommendations
Aim to increase ROM	Gentle progression of active or active-assisted knee flexion/extension with brace on.
Reduce Inflammation	Ice approx. 20 – 30 minutes at least three times daily. In case of effusion, compression when active and elevate (without compression) when resting

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Regain functional quads power	Quads muscle re-education (may require bio-feedback).
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Phase 2 (2 - 4 weeks)

Hinged knee brace will routinely be set at 0° - 60°.

Goals	Recommendations
Restore normal gait	Can mobilise without elbow crutches once sufficient quads control and gait appears normalised.
Increase active flexion to 60°	Active/ active assisted knee flexion in brace. Full extension Active/ active assisted knee extension in brace
Increase lower limb strength (particularly quads)	Closed kinetic chain quads exercises. Quad muscle re-education. Calf strengthening. Hamstring strengthening. Hip strengthening exercises as appropriate. Core strengthening
Improve proprioception	Commence dynamic standing balance exercises e.g. wobble board.
Maintain and improve lower extremity flexibility	Continue stretching exercises as required.

Phase 3 (4 – 6 weeks)

Hinged knee brace will routinely be set at 0° - 90°.

Goals	Recommendations
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Increase active flexion to 90°	Hinged knee brace 0°-90°. Continue to improve proprioception
Improve lower limb power	Progression of lower limb strengthening. <i>NB:</i> <i>Avoid resisted open kinetic chain quads until 6 weeks post-op (bodyweight only).</i>
Improve proprioception	Progression of dynamic standing balance exercises.

Phase 4 (6 weeks to 3 months)

Removal of hinged knee brace.

Goals	Recommendations
Increase active flexion	Unlimited active/ active assisted flexion. Static bike once able and ROM allows. Mobilisations to restore any residual loss of ROM. Quads stretching. Aim for full ROM at three months post-op
Improve lower limb power	Open kinetic chain quads strengthening (progress range as appropriate to patient's symptoms: NB patello-femoral pain).
Continue to improve proprioception	Progression of dynamic standing balance exercises.

Phase 5 (3 months until return to appropriate activities)

Goals	Recommendations
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Full ROM at three months post-op	Mobilisations and muscle stretching to restore any residual loss of ROM.
Functional lower limb power	Progress towards equal LL strength in operated and non-operated LL
Return to appropriate activity	Walk/ jog progression. Plyometrics. Sports specific drills.

Expectations

Improve or resolve symptomatic patellar instability, maltracking or malalignment.

Driving can commence when a patient has sufficient mobility and neuromuscular control to do so and has obtained advice from their insurance company. This will likely be 12 weeks.

Return to sport should be guided by a stable, non-irritable knee with full ROM, sufficient neuromuscular control and strength of the affected limb should be >90% of the unaffected limb (assuming contralateral limb is unaffected).

References

Hysing-Dahl, T., & Inderhaug, E. (2024). Rehabilitation after surgery for patellar instability. *Journal of experimental orthopaedics*, 11(3), **Evidence level 1**

Zhang, J., et al. (2024). Early Postoperative Rapid Rehabilitation Yields More Favorable Short-term Outcomes in Patients Undergoing Patellar Realignment Surgery for Recurrent Patellar Dislocation: A Prospective Randomized Controlled Study. *The American journal of sports medicine*, 52(9) **Evidence level 1**