

## **Guideline for the post-operative management of Posterior Cruciate Ligament (PCL) and combined Anterior Cruciate (ACL) + PCL repairs**

This guideline does not override the individual responsibility of health professionals to make appropriate decision according to the circumstances of the individual patient in consultation with the patient and /or carer. Health care professionals must be prepared to justify any deviation from this guidance.

### **INTRODUCTION**

This guideline covers the post-operative management of patients with a PCL repair or a combined ACL and PCL repair treated within Worcestershire Acute Hospitals NHS Trust. All patients with this diagnosis should be referred to physiotherapy for rehabilitation which will be informed by this guideline.

### **THIS GUIDELINE IS FOR USE BY THE FOLLOWING STAFF GROUPS :**

#### **Lead Clinician(s)**

Michael Mundy

Senior Physiotherapist

Approved by Physiotherapy clinical governance  
on:

7<sup>th</sup> February 2024

Review Date:

7<sup>th</sup> February 2027

This is the most up to date document and should  
be used until a revised version is in place

#### **Key amendments to this document**

Date	Amendment	Approved by:
June 2021	New document	Physiotherapy Governance
7 <sup>th</sup> February 2024	Document reviewed and extended for 3 years with no amendments	Physiotherapy Governance

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## **Posterior Cruciate Ligament (PCL) and combined Anterior Cruciate (ACL) + PCL Repair Post-operative guideline**

### **INTRODUCTION**

This guideline covers the post-operative management of PCL repair and combined ACL/PCL repair within the Worcestershire Acute Hospitals Trust. Post-operative management involves careful early management to protect the PCL graft. This involves the use of bracing, following specific precautions and graded exposure to activity. This document exists to guide this process using the best current evidence.

Time Following surgery	Precautions	Goals	Exercise examples
Phase 1 (0-6 weeks)	<p>Swelling management Avoid hyperextension (12 weeks) Prevent posterior tibial translation (12 weeks) Avoid isolated hamstring exercises for 16 weeks If ACL + PCL No OKCQ (6 weeks) <b>WB</b> – NWB with crutches <b>ROM</b> – Prone passive ROM from 0-90 for 2/52, then full ROM as tolerated <b>Brace</b> – Immobiliser/cricket splint (with posterior tibial support) 3 days until ready for PCL brace. PCL brace to be worn at all times (including sleep) for minimum 24 weeks</p>	<p>Protect PCL Graft  Manage swelling  Patient education  Maintain muscle length/strength  Full Extension</p>	<p>Prone passive ROM from 0-90 (2/52) – then ROM as tolerated  Glut strengthening (NWB)  Calf stretches/loading (NWB)  Core/Upper limb strengthening  Regular static quads/Straight leg raise (when no lag)  Isometric quads in a variety of ranges (after 2/52 and only up to 70 degrees flexion)  Patella mobilisations</p>
Phase 2 (6-12 weeks)	<p>Continue to prevent posterior tibial translation Continue to avoid hyperextension Continue to avoid isolated hamstring exercises Avoid loading beyond 70 degrees flexion <b>WB</b> – Progress to WB as tolerated <b>ROM</b> – Full ROM allowed (do not be over-aggressive with flexion work as this can put stress on the repair) <b>Brace</b> – Wear at all times</p>	<p>Protect PCL Graft  Increase ROM as tolerated  Address gait mechanics/wean crutches  Double leg loading through ROM (no greater than 70 degrees flexion) and isometric single leg loading.</p>	<p>Start light hamstring stretching as required  Double leg press/squat variations/Sit to stand  Double leg knee extension 0-70 degrees (70-45 initially with ACL + PCL – can gradually increase extension)  Hamstring bridges on ball (knees must be extended)  Light kicking in pool  Stationary bike when ROM &gt;115 degrees (No resistance)</p>

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<p>Phase 3 (13-18 weeks)</p>	<p>Continue to avoid isolated hamstring exercises until week 16 <b>WB</b> – Full WB <b>ROM</b> – No restrictions <b>Brace</b> – Wear for all activities. Can be removed at rest.</p>	<p>Address gait mechanics</p> <p>Progress strength (gluts/quads calf/core) – can include isolated hamstring work and loaded flexion beyond 70 degrees after 16 weeks</p> <p>Can progress to single leg loading through range as control allows</p> <p>Improve aerobic capacity</p>	<p>Bilateral leg press to unilateral leg press as control allows</p> <p>Sit to stand/Squat progressions/lunges</p> <p>Step up/down</p> <p>Balance/proprioceptive work (Bilateral to unilateral as able) – BOSU/Tandem stand/SLS progressions/Y excursion</p> <p>Single leg bridges (from week 16)</p> <p>Hamstring curls bilateral to unilateral as control allows (from week 16)</p> <p>Progress resistance and duration of exercise bike</p> <p>Deadlifts/SL deadlifts</p>
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At 18 weeks continue rehabilitation following the ACL guideline – begin at phase 2 and progress as able.

The patient should have a clinic review at 24 weeks to assess PCL healing/laxity. Provided there are no complications, the consultant will normally allow you to start weaning the brace at this point.

**Key: OKCQ – Open kinetic chain quads, WB – Weight bearing, NWB – Non-weight bearing, ROM – Range of movement**

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**Monitoring Tool**

This should include realistic goals, timeframes and measurable outcomes.

How will monitoring be carried out?

Who will monitor compliance with the guideline?

Page/ Section of Key Document	Key control:	Checks to be carried out to confirm compliance with the policy:	How often the check will be carried out:	Responsible for carrying out the check:	Results of check reported to: <i>(Responsible for also ensuring actions are developed to address any areas of non-compliance)</i>	Frequency of reporting:
	<b>WHAT?</b>	<b>HOW?</b>	<b>WHEN?</b>	<b>WHO?</b>	<b>WHERE?</b>	<b>WHEN?</b>
	General adherence to the guideline	As part of the out-patient notes audit in therapy	Yearly	Senior Physiotherapists	Clinical governance for therapies	Once per year, after the notes audit

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**REFERENCES**

Pache S, Aman ZS, Kennedy M, et al. Posterior Cruciate Ligament: Current Concepts Review. *Arch Bone Jt Surg.* 2018;6(1):8-18.

Pierce, C., O'Brien, L., Griffin, L. and LaPrade, R., 2012. 'Posterior cruciate ligament tears: functional and postoperative rehabilitation', *Knee Surg Sports Traumatol Arthrosc*

Senese M, Greenberg E, Todd Lawrence J, Ganley T. Rehabilitation following isolated posterior cruciate ligament reconstruction: a literature review of published protocols. *Int J Sports Phys Ther.* 2018;13(4):737-751.

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**Contribution List**

This key document has been circulated to the following individuals for consultation;

Designation
Michael Mundy – Senior Physiotherapist

This key document has been circulated to the chair(s) of the following committee's /  
groups for comments;

Committee
Mr Pearse - Orthopaedic Consultant
Mr Aslam - Orthopaedic Consultant
Mr Mathur - Orthopaedic Consultant
Physiotherapy Departments (Outpatients WRH/Alex/Kidderminster)

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**Supporting Document 1 - Equality Impact Assessment Tool**

To be completed by the key document author and included as an appendix to key document  
when submitted to the appropriate committee for consideration and approval.

Please complete assessment form on next page;

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**Herefordshire & Worcestershire STP - Equality Impact Assessment (EIA) Form**  
Please read EIA guidelines when completing this form

**Section 1 - Name of Organisation** (please tick)

Herefordshire & Worcestershire STP		Herefordshire Council		Herefordshire CCG	
Worcestershire Acute Hospitals NHS Trust	x	Worcestershire County Council		Worcestershire CCGs	
Worcestershire Health and Care NHS Trust		Wye Valley NHS Trust		Other (please state)	

<b>Name of Lead for Activity</b>	
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<b>Details of individuals completing this assessment</b>	<b>Name</b>	<b>Job title</b>	<b>e-mail contact</b>
	Michael Mundy	Senior Physiotherapist	Michael.mundy@nhs.net
<b>Date assessment completed</b>	17/05/2021		

**Section 2**

Activity being assessed (e.g. policy/procedure, document, service redesign, policy, strategy etc.)	<b>Title:</b> PCL post-operative guideline		
What is the aim, purpose and/or intended outcomes of this Activity?	To improve quality of post-operative management of PCL repair		
Who will be affected by the development & implementation of this activity?	<input type="checkbox"/> Service User <input checked="" type="checkbox"/> Patient <input type="checkbox"/> Carers <input type="checkbox"/> Visitors	<input type="checkbox"/> Staff <input type="checkbox"/> Communities <input type="checkbox"/> Other _____	
Is this:	<input checked="" type="checkbox"/> Review of an existing activity <input type="checkbox"/> New activity		



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	<input type="checkbox"/> Planning to withdraw or reduce a service, activity or presence?
What information and evidence have you reviewed to help inform this assessment? (Please name sources, eg demographic information for patients / services / staff groups affected, complaints etc.)	<p>Pache S, Aman ZS, Kennedy M, et al. Posterior Cruciate Ligament: Current Concepts Review. <i>Arch Bone Jt Surg.</i> 2018;6(1):8-18.</p> <p>Pierce, C., O'Brien, L., Griffin, L. and LaPrade, R., 2012. 'Posterior cruciate ligament tears: functional and postoperative rehabilitation', <i>Knee Surg Sports Traumatol Arthrosc</i></p> <p>Senese M, Greenberg E, Todd Lawrence J, Ganley T. Rehabilitation following isolated posterior cruciate ligament reconstruction: a literature review of published protocols. <i>Int J Sports Phys Ther.</i> 2018;13(4):737-751.</p>
Summary of engagement or consultation undertaken (e.g. who and how have you engaged with, or why do you believe this is not required)	Use of this document will be entirely based on clinical diagnosis.
Summary of relevant findings	N/A

**Section 3**

Please consider the potential impact of this activity (during development & implementation) on each of the equality groups outlined below. **Please tick one or more impact box below for each Equality Group and explain your rationale.** Please note it is possible for the potential impact to be both positive and negative within the same equality group and this should be recorded. Remember to consider the impact on e.g. staff, public, patients, carers etc. in these equality groups.

Equality Group	Potential <u>positive</u> impact	Potential <u>neutral</u> impact	Potential <u>negative</u> impact	Please explain your reasons for any potential positive, neutral or negative impact identified
Age		X		
Disability		X		
Gender Reassignment		X		
Marriage & Civil Partnerships		X		
Pregnancy & Maternity		X		
Race including Traveling Communities		X		
Religion & Belief		X		
Sex				

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Equality Group	Potential positive impact	Potential neutral impact	Potential negative impact	Please explain your reasons for any potential positive, neutral or negative impact identified
		X		
<b>Sexual Orientation</b>		X		
<b>Other Vulnerable and Disadvantaged Groups</b> (e.g. carers; care leavers; homeless; Social/Economic deprivation, travelling communities etc.)		X		
<b>Health Inequalities</b> (any preventable, unfair & unjust differences in health status between groups, populations or individuals that arise from the unequal distribution of social, environmental & economic conditions within societies)		X		

**Section 4**

What actions will you take to mitigate any potential negative impacts?	Risk identified	Actions required to reduce / eliminate negative impact	Who will lead on the action?	Timeframe
	N/A			
<b>How will you monitor these actions?</b>				
<b>When will you review this EIA?</b> (e.g in a service redesign, this EIA should be revisited regularly throughout the design & implementation)				

**Section 5** - Please read and agree to the following Equality Statement

**1. Equality Statement**

1.1. All public bodies have a statutory duty under the Equality Act 2010 to set out arrangements to assess and consult on how their policies and functions impact on the 9 protected characteristics: Age; Disability; Gender Reassignment; Marriage & Civil Partnership; Pregnancy & Maternity; Race; Religion & Belief; Sex; Sexual Orientation

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1.2. Our Organisations will challenge discrimination, promote equality, respect human rights, and aims to design and implement services, policies and measures that meet the diverse needs of our service, and population, ensuring that none are placed at a disadvantage over others.

1.3. All staff are expected to deliver services and provide services and care in a manner which respects the individuality of service users, patients, carer's etc, and as such treat them and members of the workforce respectfully, paying due regard to the 9 protected characteristics.

<b>Signature of person completing EIA</b>	M.Mundy
<b>Date signed</b>	07/02/24
<b>Comments:</b>	
<b>Signature of person the Leader Person for this activity</b>	M.Mundy
<b>Date signed</b>	07/02/24
<b>Comments:</b>	



**Supporting Document 2 – Financial Impact Assessment**

To be completed by the key document author and attached to key document when submitted to the appropriate committee for consideration and approval.

	<b>Title of document:</b>	<b>Yes/No</b>
1.	Does the implementation of this document require any additional Capital resources	No
2.	Does the implementation of this document require additional revenue	No
3.	Does the implementation of this document require additional manpower	No
4.	Does the implementation of this document release any manpower costs through a change in practice	No
5.	Are there additional staff training costs associated with implementing this document which cannot be delivered through current training programmes or allocated training times for staff	No
	Other comments:	

If the response to any of the above is yes, please complete a business case and which is signed by your Finance Manager and Directorate Manager for consideration by the Accountable Director before progressing to the relevant committee for approval