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Clinical guideline for the assessment and diagnosis of patello-femoral pain and subsequent management of patella mal-tracking

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Type of document	Guidance
Target audience	Physiotherapy staff
Document purpose	To provide an evidence based pathway for the physiotherapy management of patients with patello-femoral mal-tracking

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CWP documents to be read in conjunction with	HR6 MH13 CP3	Mandatory Employee Learning (MEL) policy Part IV and IVA - MHA 1983 Consent to treatment Health records policy

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Training requirements	There **is** specific training requirements for this document. Physiotherapists using this guideline are qualified Chartered Physiotherapists who are state registered with the Health Professions Council. In-service training has been used to present the guideline. Additional training can also be provided for any staff member, if development need is identified during Personal Development Review process or Clinical Supervision sessions

Financial resource implications	No

Equality Impact Assessment (EIA)

Initial assessment	**Yes/No**	**Comments**
Does this document affect one group less or more favourably than another on the basis of:		
• Race	No	
• Ethnic origins (including gypsies and travellers)	No	
• Nationality	No	
• Gender	No	
• Culture	No	
• Religion or belief	No	
• Sexual orientation including lesbian, gay and bisexual people	No	
• Age	No	
• Disability - learning disabilities, physical disability, sensory impairment and mental health problems	No	
Is there any evidence that some groups are affected differently?	No	
If you have identified potential discrimination, are there any exceptions valid, legal and/or justifiable?		
N/A		
Is the impact of the document likely to be negative?	No	
• If so can the impact be avoided?	N/A	
• What alternatives are there to achieving the document without the impact?	N/A	
• Can we reduce the impact by taking different action?	N/A	
Where an adverse or negative impact on equality group(s) has been identified during the initial screening process a full EIA assessment should be conducted.		

If you have identified a potential discriminatory impact of this procedural document, please refer it to the human resource department together with any suggestions as to the action required to avoid / reduce this impact.

For advice in respect of answering the above questions, please contact the human resource department.

Was a full impact assessment required?	No	
What is the level of impact?	Low	

Document change history

Changes made with rationale and impact on practice
1.

External references

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Monitoring compliance with the processes outlined within this document

Please state how this document will be monitored. If the document is linked to the NHSLA accreditation process, please complete the monitoring section below.	The document will be monitored by the Lower Limb Special Interest Group who have been involved in developing the guideline. Any changes in light of new evidence will be made by the group and reported to the wider team in the general staff meeting or via in-service training. The guideline will be audited after 5 years by the team.

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1. Introduction

Patients with patello-femoral pain referred into CWP Musculoskeletal Physiotherapy Service are often complex and can be misdiagnosed, leading to inappropriate or ineffective treatment. Presently there is a lack of consistency in the assessment of patello-femoral pain. There is variation in the application of treatment principles together with the types and duration of treatment provided.

Accurate assessment and diagnosis of patello-femoral pain is essential to establish effective management. The aim of this evidence-based guideline is to provide a consistent approach to the assessment of patello-femoral pain and the subsequent management of those patients with patella mal-tracking, which in turn will improve the quality of patient care.

The guideline will cover the assessment and differential diagnosis of patients with patello-femoral pain. It will give guidance regarding the management and rehabilitation of those patients who have patello-femoral pain due to mal-tracking.

The aims of the guideline are:

- To establish a consistent approach to the clinical assessment of patello-femoral pain;
- To provide a more accurate diagnosis of patello-femoral pain;
- To enable the clinician to provide the most appropriate intervention;
- To measure clinical outcomes thus measuring effectiveness of treatment.

2. Definitions

The guideline is to be used for the assessment and treatment of patients presenting with signs and symptoms of patello-femoral mal-tracking.

3. Procedure

No.	Action	Rationale
1.	Introductions and gain informed consent to subjective examination.	- To comply with the consent to examination and treatment policy.
2.	Take a detailed and thorough history (appendix 4 and appendix 5).	- To establish nature of the condition; - To rule out red flags (appendix 4); - To provide a framework for the objective examination; - To establish patients expectations.
3.	Explain and gain documented informed consent for objective examination.	- To comply with the consent to examination and treatment policy; - Ensure patient is comfortable and relaxed.
4.	Conduct clinical examination of the patient.	- To establish and confirm diagnosis; - To identify patients with patella mal-tracking; - To rule out red flags not previously identified (appendix 4); - To establish a baseline for rehabilitation; - To establish if further investigations are required.
5.	Complete assessment sheet (appendix 5).	- To record details of assessment; - To comply with Health records policy.
6.	If red flags identified, liaise with the lower limb Advanced Musculoskeletal Practitioner or the referring GP regarding an urgent orthopaedic referral directly to secondary care.	- To ensure patient is referred for an orthopaedic opinion as soon as possible to enable further investigations and management.
7.	Formulate a diagnosis of the patient's condition.	- To ensure patients condition is managed appropriately
8.	Explain treatment plan to patient and obtain informed consent for treatment / management.	- To ensure patient understanding and compliance.

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No.	Action	Rationale
9.	Follow treatment pathway (appendix 1, appendix 2, appendix 3, appendix 4)	• To ensure treatment is of good quality and is evidence based; • To ensure that treatment is standardized across the trust; • To ensure effective progression of exercises.
10.	Provide patient with an information leaflet about their condition	• To provide patient with information to aid their understanding of their condition; • To aid compliance with physiotherapy treatment and exercises.

4. Duties and responsibilities

4.1 Author

Author(s) are responsible for ensuring that:

- Once ratified, the clinical guideline is maintained in an editable electronic version (master copy);
- An impact assessment has been completed for the document and submitted to the Head of Corporate Services and Business;
- The responsible committee or officers are alerted of any necessary review to be undertaken;
- All amendments are completed subsequent to the findings of any review.

4.2 Heads of service

Heads of service and line managers are responsible for:

- Bringing the attention of their staff to the publication of a new document;
- Providing evidence that the document has been cascaded within their team or department;
- Where appropriate, ensuring the new document is effectively implemented;
- Ensuring that their staff attend training in respect of new documents.

4.3 Employee

The Employee is responsible for:

- All staff employed by CWP are responsible for adhering to this guideline, regardless of role, band, discipline or service area.

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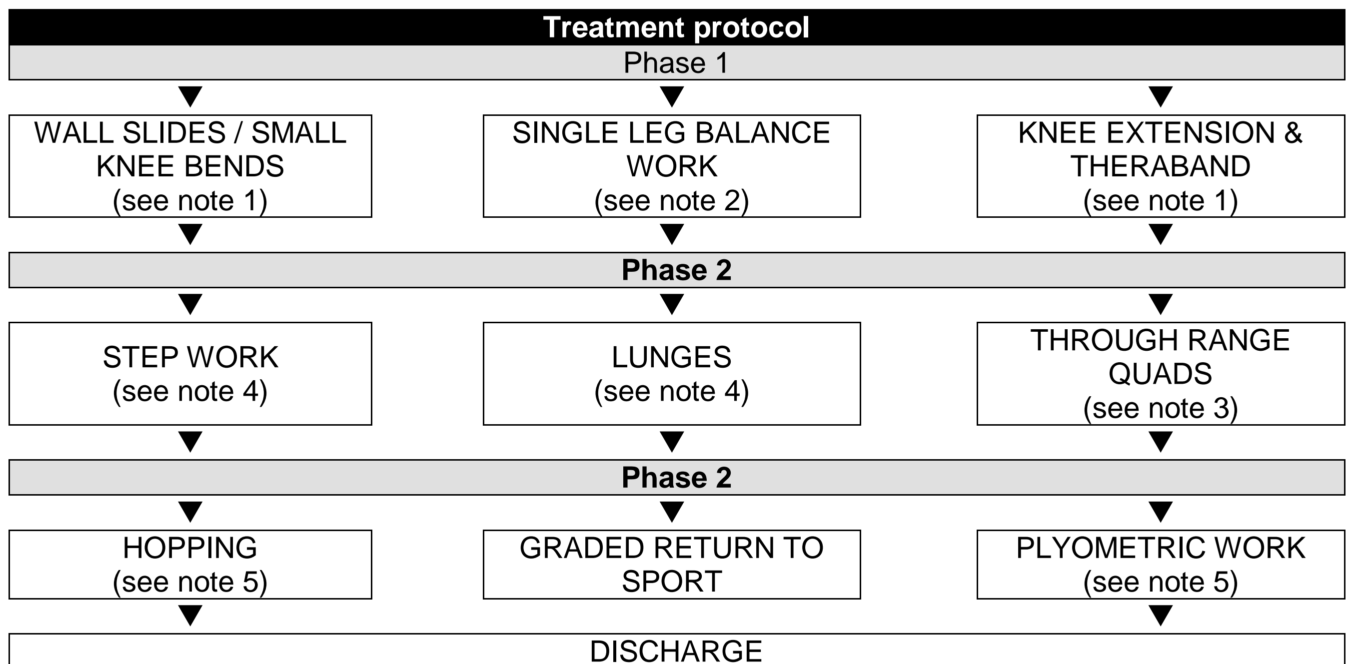
Appendix 1 – Treatment protocol for patello-femoral mal-tracking



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Appendix 2 - Notes to accompany treatment protocol for patello femoral mal-tracking (appendix 1)

Note 1	- Deloaded step down using wall bars or 2 chair backs to take support-high dose and high reps (3x30 reps) - Deloaded squats high dose/reps (3 x 30 reps) - Knees only need to be flexed to around 30 to 45 degrees. - Add in adductor squeeze or ball behind back to progress during wall slide. - During wall slide make sure knees do not come in front of ankles. - Progress to soft surfaces e.g. pillow, trampette or sit-fit. - Advance from bilateral to unilateral.
Note 2	- Progress to trampette, wobble board and sit-fit. - Advance to include catching and throwing tasks or closing eyes.
NOTE 3	- Perform seated leg extension as deloaded, using band or other leg to assist movement (3 x 30 reps), and loaded (3x30 reps). - Avoid 0-30 degrees extension with open chain and 60-90 degrees extension with closed chain. - On loaded leg extensions start initially with low weights and progress weight as pain allows. - Ensure no medial rotation of the femur or lateral rotation of the tibia occurs through range.
NOTE 4	- Initially start with deloaded step-up using wall bars/or 2 chair backs (3 x 30 reps) - Adjust the height of the step to progress. - Advance to lunge on a step adjusting height and depth. Progress to performing lunge on the sit-fit or trampette. - Progress to lunge and then change of direction.
NOTE 5	- Advance from bilateral to unilateral. - Add in change of direction to progress. - Finally increase the height and the distance of the hop.

NB. Retraining should include high-dose, high repetition exercises, mainly deloaded, in combination with static cycling. This form of exercise has shown to improve pain and functional scores (Osteras et al, 2013).

An appropriate stretching program must be maintained throughout phases.

Progress though phases are symptom dependant, but should take no longer than one month. Rehabilitation does not have to be symptom free, but tolerable to the patient and not detrimental to progress (avoid pain inhibition).

Control of alignment is crucial to symptom control. When bending the knee the foot should be positioned in neutral and the femur must be lined up with the second metatarsal. Check that lateral rotation of the tibia doesn't occur during the task.

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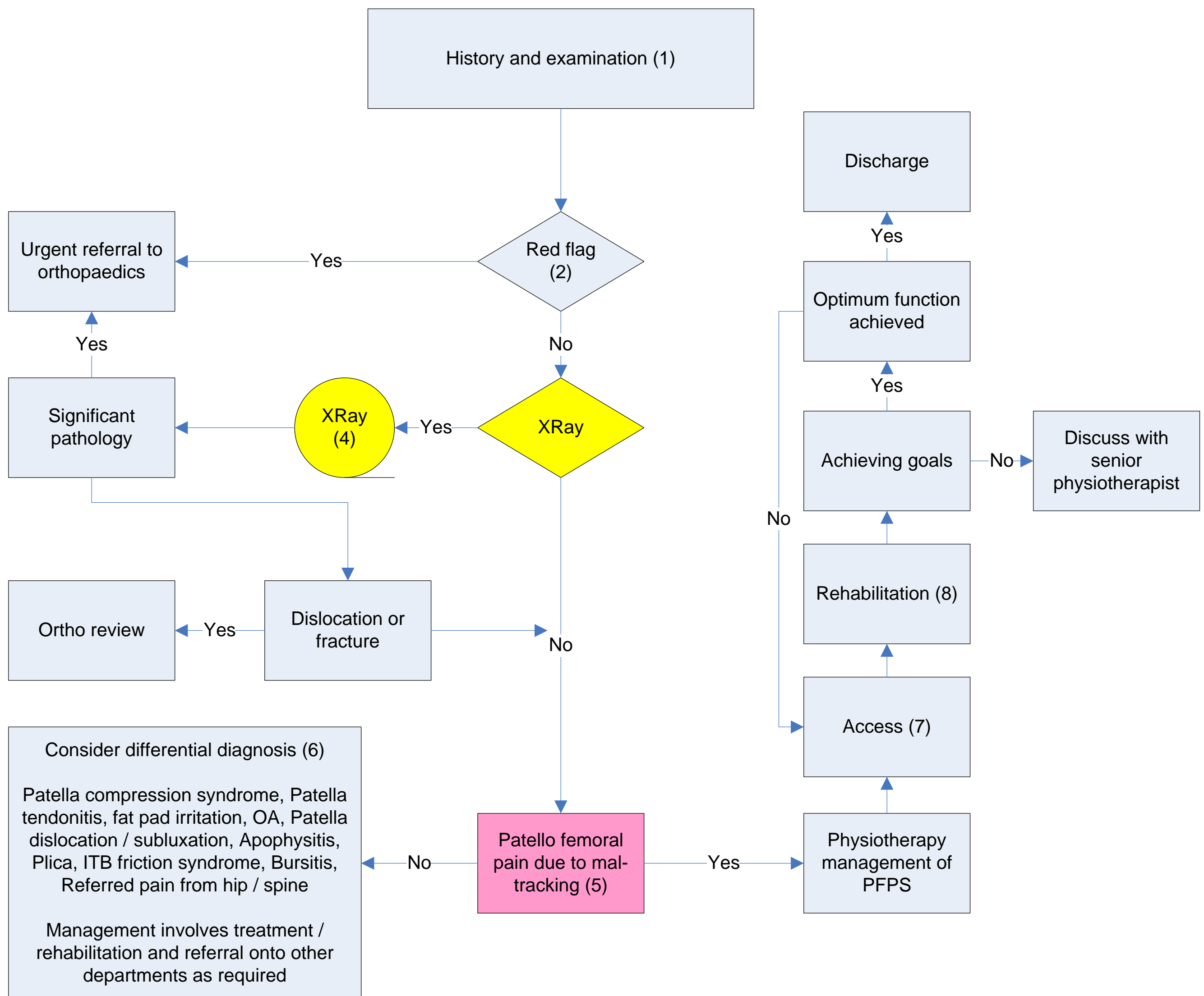
Appendix 3 – Management of patello-femoral pain



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Appendix 4 - Notes to accompany patello-femoral pain pathway (appendix 3)

Note 1: History and examination

Take a detailed and thorough history is important in establishing and confirming diagnosis and ruling out differential diagnosis.

Consider subjectively:

- History;
- Location of symptoms;
- Locking true or pseudo;
- Aggravating symptoms particularly stairs, squatting and rising from squatting, driving and prolonged sitting.

Consider objectively:

- Posture and lower limb alignment;
- Clear LBP and hip;
- Active range of movement;
- Patella movement and alignment;
- Check non contractile tissues, muscle length tests and patella retinaculum;
- Resisted tests;
- Clear intra-articular pathology if indicated from the subjective assessment;
- Palpation;

Note 2: Red Flags

- Trauma such as acute dislocation or extensor mechanism disruption;
- Suspected malignancy, previous Ca history;
- Constant and moderate to severe unremitting pain in the absence of injury;
- Night pain;
- Unable to weight-bear;
- Systemic signs and symptoms;
- Unexplained sensory and motor deficits;
- Acutely locked knee.

Note 3: Indications for x-ray

Used only to detect or to exclude pathology and thus contribute to decisions regarding further management. **It is not usual for patients with Patello-femoral pain syndrome to require an x-ray.** Liaise with referring GP or Advanced Practitioner if an X-Ray is required.

Consider an x-ray if:

- There is a history of significant trauma;
- Persistent difficulty with WB;
- Unable to flex beyond 90 degrees;
- Unresolved/unexplained bony tenderness;
- Unresponsive to conservative measures within the expected time frame and needed to aid differential diagnosis and thus further management.

Note 4: Views taken

- AP/lateral (in WB if possible);
- Skyline.

Note 5: Mal-Tracking

Patellofemoral Pain syndrome is defined as mal-tracking leading to pain arising due to stress on the articular cartilage and patella retinaculum. The assessment will determine whether the mal-tracking is due to contractile or non contractile structures.

Note 6: Differential diagnosis

- Patella compression syndromes;
- Patella dislocation;
- Patella subluxation;
- Osgood Schlatter syndrome;
- Sinding Larsen-Johansson syndrome;

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- Fat pad irritation;
- Synovial plica;
- Bursitis;
- Iliotibial band syndrome;
- Osteoarthritis patellofemoral joint;
- Patella tendonitis;
- Neurological;

Note 7: Assessment

Complete Patellofemoral pain syndrome assessment form (appendix 5).

Note 8: Rehabilitation

1. Reassurance, advice and education- explain findings to the patient explain that it is a nuisance problem which is best addressed with self management as results from surgical intervention are very variable and there is the possibility that the patient could be worse. Give patient information leaflet and discuss aims of physiotherapy and the likely outcome of physiotherapy with the patient. Establish level of compliance.

2. Reduce pain- Interferential, acupuncture, taping, pain needs to be addressed if it is going to affect the ability of the patient to comply with exercises etc.

3. Reduce swelling – if very swollen then try Pulsed Short Wave Diathermy as will not be able to re-educate Vastus Medialis Oblique if swelling is present.

4. Address biomechanics –If hip control appears to be an issue with small knee bend then may need to add Posterior Gluteus Medius exercises early. If foot position is more of an issue may want to try with a wedge and assess effect on symptoms. This could be used as an assessment tool as to the appropriateness of insoles. **DO NOT SEND THESE PATIENTS ROUTINELY TO PODAITRY.**

5. Stretch tight tissues- Calf, hamstrings, quadriceps and Iliotibial band are particularly important. May want to send patients away with stretches and reassess at 4-6 weeks if improving add in Vastus Medialis Oblique exercises (see below) If not improving then add in patella mobs, soft tissue massage to the lateral retinaculum.

6. Vastus Medialis Oblique exercises –will be ineffective if haven't addressed swelling, pain and biomechanics. May need to tape the patient so can perform the exercises. Exercises should be pain free.

7. Treatment protocol see page 7.

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Appendix 5 - Patella-femoral assessment

Patient name			NHS Number			
Present complaint						
Symptoms						
Associated symptoms	e.g. locking, give way, swelling					
Previous history						
General Information	Occupation					
	Hobbies / sports					
Diurnal pattern	Night pain					
	Aggravates					
	Eases					
Red flags	Other joints					
	Medication					
Position static	(front, side, back)					
Dynamic (*)	Walking					
	Step / Squat					
Muscle length	Hamstrings		Gastrocs		Hip Int. Rot	
	Hip Ext. Rot		ITB / TFL		Quads	
Ligament tests	Muscle strength					
Meniscal tests	Patella orientation					
Palpation						
Lateral structures	Glide			Tilt		
Active movements of knee	Flexion			Extension		
	Int. Rotation			Ext. Rotation		
Foot position	Rearfoot	L	R	Tibia Rot	L	R
	Forefoot	L	R	1st Ray	L	R

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