

Canadian Chiropractic Guideline Initiative (CCGI) Guideline Summary

Guideline Title: Patellofemoral Pain: clinical practice guideline linked to the International Classification of Functioning, Disability and Health from the Academy of Orthopaedic Physical Therapy of the American Physical Therapy Association ([link to full guideline](#))

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1. Scope and Purpose

- **Objective:** This guideline provides recommendations regarding diagnosis, examination, and interventions/treatment of patellofemoral pain (PFP)
- **Definition:** PFP is a common musculoskeletal-related condition that is characterized by insidious onset of poorly defined pain, localized to the anterior retropatellar and/or peripatellar region of the knee.
- **Target population:** Primary adolescents (12 years of age or older) and adult persons with PFP
- **Target users:** Physical therapists and other rehabilitation specialists

2. Reporting of Recommendations

Levels of evidence	
I	Evidence obtained from high-quality diagnostic studies, prospective studies, randomized controlled trials, or systematic reviews
II	Evidence obtained from lesser-quality diagnostic studies, prospective studies, systematic reviews, or randomized controlled trials (e.g., weaker diagnostic criteria and reference standards, improper randomization, no blinding, less than 80% follow-up)
III	Case-control studies or retrospective studies
IV	Case series
V	Expert opinion

Grades of Recommendation		
A	Strong evidence	A preponderance of level I and/or level II studies support the recommendation. This must include at least 1 level I study
B	Moderate evidence	A single high-quality randomized controlled trial or a preponderance of level II studies support the recommendation
C	Weak evidence	A single level II study or a preponderance of level III and IV studies, including statements of consensus by content experts, support the recommendation
D	Conflicting evidence	Higher-quality studies conducted on this topic disagree with respect to their conclusions. The recommendation is based on these conflicting studies

E	Theoretical/foundational evidence	A preponderance of evidence from animal or cadaver studies, from conceptual models/ principles, or from basic science/bench research support this recommendation
F	Expert opinion	Best practice based on the clinical experience of the guideline development team

3. Key Recommendations

a. Impairment/Function-based Diagnosis

Recommendation	Grades of Recommendation
1. Use reproduction of retropatellar or peripatellar pain during squatting as a diagnostic test to PFP. Clinicians should also use performance of other functional activities that load the patellofemoral joint (PFJ) in a flexed position, such as stair climbing or descent, as diagnostic tests for PFP	A
2. Make the diagnosis of PFP using the following criteria: <ol style="list-style-type: none"> The presence of retropatellar or peripatellar pain AND Reproduction of retropatellar or peripatellar pain with squatting, stair climbing, prolonged sitting, or other functional activities loading the PFJ in a flexed position AND Exclusion of all other conditions that may cause anterior knee pain (AKP) including tibiofemoral pathologies 	B
3. Use the patellar tilt test with the presence of hypomobility to support the diagnosis of PFP	C

b. Examination

Recommendation	Grades of Recommendation
1. Use the AKPS, KOOS-PF, VAS for activity, or EPQ questionnaires to measure pain and function in patients with PFP. In addition, clinicians should use the VAS for worst pain, the VAS for usual pain, or the NPRS to measure pain. Clinicians should use one of the translations and cross-cultural adaptations with demonstrated validity, reliability, and responsiveness to change for patients in different countries and for those requiring questionnaires in languages other than English.	A
2. Administer appropriate clinical or field tests that reproduce pain and assess lower-limb movement coordination, such as squatting, step-downs, and the single-leg squats. These tests can assess a patient's baseline status relative to pain, function, and disability; global knee function; and changes in the patient's status throughout the course of treatment.	B
3. When evaluating a patient with PFP over an episode of care, assess body structure and function, including measures of patellar provocation, patellar mobility, foot position, hip and thigh muscle strength, and muscle length.	C



c. Interventions

Recommendation	Grades of Recommendation
<p>1. Include exercise therapy with combined hip- and knee-targeted exercises in the treatment of individuals with PFP to reduce pain and improve patient-reported outcomes and functional performance in the short, medium, and long term. Hip-targeted exercise therapy should target the posterolateral hip musculature. Knee-targeted exercise therapy includes either weight-bearing (resisted squats) or non-weight-bearing (resisted knee extension) exercise, as both exercise techniques target the knee musculature. Preference to hip-targeted exercise over knee-targeted exercise may be given in the early stages of treatment of PFP. Overall, the combination of hip- and knee-targeted exercises is preferred over solely knee-targeted exercises to optimize outcomes in patients with PFP.</p>	A
<p>2. Use tailored patellar taping in combination with exercise therapy to assist in immediate pain reduction, and to enhance outcomes of exercise therapy in the short term (4 weeks). Importantly, taping techniques may not be beneficial in the longer term or when added to more intensive physical therapy. Taping applied with the aim of enhancing muscle function is not recommended.</p>	B
<p>3. Prescribe prefabricated foot orthoses for those with greater than normal pronation to reduce pain in individuals with PFP, but only in the short term (up to 6 weeks). If prescribed, foot orthoses should be combined with an exercise therapy program. There is insufficient evidence to recommend custom foot orthoses over prefabricated foot orthoses.</p>	A
<p>4. Combine physical therapy interventions for the treatment of individuals with PFP, which results in superior outcomes compared with no treatment, flat shoe inserts, or foot orthoses alone in the short and medium term. Exercise therapy is the critical component and should be the focus in any combined intervention approach. Interventions to consider combining with exercise therapy include foot orthoses, patellar taping, patellar mobilizations, and lower-limb stretching.</p>	A
<p>5. Use gait retraining consisting of multiple sessions of cuing to adopt a forefoot-strike pattern (for rearfoot-strike runners), cuing to increase running cadence, or cuing to reduce peak hip adduction while running for runners with PFP.</p>	C
<p>6. Use acupuncture to reduce pain in individuals with PFP. However, caution should be exercised with this recommendation, as the superiority of acupuncture over placebo or sham treatments is unknown. This recommendation should only be incorporated in settings where acupuncture is within the scope of practice of physical therapy.</p>	C
<p>7. Use blood flow restriction plus high-repetition knee exercise therapy, while monitoring for adverse events, for those with limiting painful resisted knee extension.</p>	F
<p>8. Include specific patient education on load management, body-weight management when appropriate, the importance of adherence to active</p>	F



Recommendation	Grades of Recommendation
treatments like exercise therapy, biomechanics that are thought to contribute to relative overload of the PFJ, the evidence for various treatment options, and kinesiophobia. Patient education may improve compliance and adherence to active management and self-management strategies and is unlikely to have adverse effects.	
9. Do not use dry needling for the treatment of individuals with PFP.	A
10. Do not use manual therapy, including lumbar, knee, or patellofemoral manipulation/ mobilization, in isolation for patients with PFP.	A
11. Do not use patellofemoral knee orthoses, including braces, sleeves, or straps, for the treatment of individuals with PFP.	B
12. Do not use EMG-based biofeedback on medial vastii activity to augment knee-targeted (quadriceps) exercise therapy for the treatment of PFP.	B
13. Do not use visual biofeedback on lower extremity alignment during hip- and knee-targeted exercises for the treatment of individuals with PFP.	B
14. Do not use biophysical agents, including ultrasound, cryotherapy, phonophoresis, iontophoresis, electrical stimulation, and therapeutic laser, for the treatment of patients with PFP.	B

4. Methods of Guideline Development

Recommendations were based on the strength of evidence, including how directly the studies addressed the question on a PFP. In developing recommendations, the authors considered the strengths and limitations of the body of evidence, health benefits, side effects, risks of tests and interventions, and patient input. Identified reviewers who are experts in PFP management and rehabilitation reviewed the guideline content and methods for integrity, accuracy, and that it fully represents the condition.

5. CCGI Comments

- The CCGI recommends the use of this guideline, based on its quality and reporting as per the Appraisal of Guidelines Research and Evaluation (AGREE) II tool (available upon request).
- The CCGI recommends the use of this guideline to chiropractors in Canada, based on the methodology of how this guideline was developed.
- The CCGI would like to acknowledge Drs. Ashraf and To for their contribution in critical appraisal of this guideline.