

Rehabilitation Protocol: Patellofemoral Pain – Non-Operative

Phases are based on **symptom irritability**, not time – patients may present in any phase. Progression is criteria-based and should align with patient goals. Avoid exercises and activities that are painful or exacerbate symptoms throughout. Please contact our office with any questions or concerns.

☐ Phase I – Acute / High to Moderate Irritability

- **Precautions:** Avoid painful or symptom-provoking exercises and activities; contact our office for new effusion or multi-joint symptoms
- **Treatment**
 - Education: patellofemoral loading and activity modification, standing posture, neuromuscular control, plan of care and goals
 - Manual therapy: effusion management; LE soft tissue and joint mobility; knee PROM/AAROM/AROM as needed
 - Movement strategies: hip strategy versus knee strategy; proximal and distal stretching (hip flexors, hamstrings, quadriceps, gastrocnemius/soleus)
 - Strengthening: quadriceps/hamstring isometrics progressing to isotonic as tolerated (knee extension at 60° to limit irritability); proximal and distal strengthening; core stabilization
 - Balance/proprioception; external supports as needed (bracing, taping); address footwear and inserts
 - Modalities as needed: ice, compression, TENS; NMES, biofeedback
 - BFR
 - Gait training with assistive device if needed; HEP
 - Cardio: upper body ergometer, Airdyne/stationary bike, swimming (pool buoy, no breaststroke)
- **Criteria to Progress:** Pain controlled with level-surface ambulation; no effusion; pain well managed with ADLs. If no improvement in 4–6 weeks, contact our office.

☐ Phase II – Sub-Acute / Moderate Irritability

- **Treatment**
 - Address flexibility and ROM deficits: soft tissue mobilization, joint mobilization (patella, ankle, hip), foam rolling, stretching
 - Proximal activation in single limb: weight shifting to single-limb stance, wobble board, hip hiking, retro walking, single-leg isometric leg press at less than body weight
 - Hip strategy (hip hinging); core (TA activation, Pallof press, front and side planks)
 - Gluteal strengthening: bridge progression, side-lying abduction and prone hip extension with ankle weight, clamshells
 - Closed chain quadriceps: double to single limb leg press at less than body weight
 - Body weight progression (double limb first): squat to chair, RDLs, band walks, step ups, step downs; heel raises, intrinsic foot exercises; continue BFR as needed
 - Neuromuscular control: bilateral to single-limb balance with hip/knee/ankle control
 - Cardio: increase volume before intensity – bike at 80 RPM, swimming, walking program; aquatic therapy if available
- **Criteria to Progress:** Pain well managed with activities and ADLs; single-limb activities with good alignment and control; hip strategy demonstrated; normalized gait on level surfaces

☐ Phase III – Chronic / Low Irritability

- **Precautions:** Monitor volume and load (avoid too much, too soon); avoid compensatory patterns, especially when fatigued

- **Treatment**
 - Progressive resisted strengthening, double to single leg (e.g., deadlift to single-leg deadlift); LE and core
 - Squat and stair progressions; eccentric quadriceps control; dynamic single-leg alignment and control
 - Low/non-impact cardio (elliptical, bike); aquatic step ups/downs, single-limb squats, lunges, light aqua jogging
 - Initiate return to running (antigravity treadmill if available)
- **Criteria for Discharge or Phase IV:** Independent symptom control; pain-free with modified recreational activity and ADLs; bilateral body weight squat and 6–8 inch step down with good alignment and control. Discharge to long-term HEP or progress to Phase IV if returning to sport.

☐ **Phase IV – Return to Sport (if applicable)**

- **Precautions:** Monitor volume, load and movement when fatigued; ensure adequate rest and recovery
- **Treatment**
 - Progressively increase volume and patellofemoral load to match the demands of the desired activity
 - Sport-specific movement patterns; light agility (ladder, jump rope) at low intensity and volume, then progress
 - Plyometrics (aquatic first if available): double and single leg jumps, split-stance hops, lateral push-offs, cariocas, sprinting
 - Increase cardiovascular load to match activity; collaborate with performance specialist/coach as needed
- **Return to Sport:** Pain-free patellofemoral loading with good movement quality; graded plan for return to full or modified activity in place