IMG PHYSICAL THERAPY
RESTORING FUNCTION ONE PATIENT AT A TIME
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Runner's Guide to Patellofemoral Pain

Managing “Runner's Knee” by Symptom Irritability

Brief Overview

Patellofemoral pain is pain around or behind the kneecap that is commonly aggravated by running, stairs, squatting, jumping, or prolonged sitting. Management focuses on adjusting aggravating load and gradually building hip and knee strength.

Find Your Current Irritability Level

HIGH IRRITABILITY	Pain during most or all of the run; symptoms last more than 24 hours or are worse the next morning; pain may also occur with stairs, squatting, or sitting.
MODERATE IRRITABILITY	Mild to moderate pain during running that does not steadily worsen; symptoms return to baseline by the next day; little or no pain with daily activities.
LOW IRRITABILITY	Little or no pain during running; brief soreness may occur after harder efforts but returns to baseline by the next day; no pain with daily activities.

When to Progress to the Next Level

HIGH → MODERATE

- Running pain is mild and does not steadily worsen.
- Symptoms return to baseline by the next day.
- Stairs, squatting, and sitting cause little or no pain.
- Exercises do not cause a flare lasting more than 24 hours.

MODERATE → LOW

- There is little or no pain with running or daily activities.
- Your current run-walk or easy run causes no next-day increase in symptoms.
- Moderate strengthening is tolerated without a flare lasting more than 24 hours.
- There is no swelling, limp, or worsening running form.

Progress when these signs are consistent, not after only one good session. If symptoms worsen or last more than 24 hours, return to the previous tolerated level.

When progressing to the next category, continue any previously prescribed strategies or exercises that are still helping.

Pain-Response Rule

0-2 / 10 increase	3-4 / 10 increase	5+ / 10 increase
Continue at the planned level if symptoms remain stable.	Do not increase. Pain should return to baseline within 24 hours.	Stop the provoking activity and reduce the next session.

If 3-4/10 pain is not back to baseline within 24 hours, the session was too much. Scale back the next run or exercise session.

Contact Your Physical Therapist or Physician If You Develop:

New or increasing swelling • catching or locking • the knee giving way • pain at night or at rest • a limp or sharp pain • no meaningful improvement after about two weeks

High Irritability

Pain during most or all of the run, symptoms lasting more than 24 hours, or pain with daily activities.

Running and Activity Guidance

Reduce the Provoking Load

- As a starting point, reduce running distance, speed, or frequency enough to keep symptoms within the pain-response guidelines. A temporary reduction of 30–80% may be needed for highly irritable symptoms.
- Adjust distance, pace, or total weekly running based on symptom response.
- Temporarily remove hills, downhill running, speed work, and sessions that clearly increase symptoms.
- Use relative rest rather than automatic complete rest; pain-free biking, swimming, deep-water running, or elliptical training may be used during time in this category.

Ice and the 24-Hour Response

- For comfort, place an ice pack wrapped in a thin towel over the front of the knee for 15-20 minutes after activity or when sore.
- Ice may be repeated 2-3 times per day as needed. Never place ice directly on bare skin; remove it sooner if the area becomes numb or irritated.
- If 3-4/10 pain is not back to baseline within 24 hours, the session was too much. Scale back the next run or exercise session.
- Do not progress until daily activities and the 24-hour response are improving for several days.

Low-Load Hip and Knee Exercises

Choose a tolerable starting level. Mild discomfort is acceptable only when it follows the 24-hour rule. Use weight as needed as long as you are following soreness rules.



Quad Set
3 sets x 10 repetitions; hold 5 seconds-
Prop ankle on elevated surface and push back of the knee into the floor by contracting quad muscles



Straight-Leg Raise
2-3 sets x 10-12 repetitions-
With one leg bent, bring the other leg to the ceiling while keeping the knee straight.



Two-Leg Glute Bridge
2-3 sets x 10-15 repetitions- Starting with both knees bent, extend hips to sky. Do not overextend, go to the point in which hips are knee level.



Clamshell
2-3 sets x 12-15 repetitions each side- Lie on your side with your hips and knees bent. Keep your feet together and lift the top knee without rolling your hips backward. Slowly lower.



Side-Lying Hip Abduction

2-3 sets x 10-12 repetitions each side- Lie on your side with the bottom knee bent and top leg straight. Keep the top leg slightly behind you and toes facing forward. Lift the leg upward without rolling backward, then slowly lower.



Calf stretch

3 sets x 30 second hold; - Keeping your back heel on the floor, lean forward until you feel a stretch in your calf. Keep your back straight as you lean towards the wall.





Shallow Wall Sit Or Minisquats

Shallow wall sit- 3 sets x 20-30 seconds- Stand with your back against a wall and feet slightly forward. Slide down into a small squat, keeping your knees aligned over your toes. Hold, then press through your feet to stand.

Mini squats- Holding a chair for assistance with squat down keeping nose over toes through duration until 90 degree angle then ascend through the squat avoiding knees caving in.

Moderate Irritability

Mild to moderate running pain that stays stable and returns to baseline by the next day.

Return-to-Running Guidance

Build the Running Load Gradually

- Begin progressing running distance with run-walk intervals on flat, predictable ground. The starting amount should be individualized; this handout does not prescribe a fixed time. Do not increase distance load by more than 10% weekly while in this category
- Build total running distance or duration before increasing speed.

Progression and Cadence

- Repeat the current stage until there is no increased pain, swelling, or altered running form while running.
- As a general ceiling, keep weekly mileage increases near 10% or less; smaller changes may be needed based on symptoms.
- Try a 5-10% higher step rate using shorter, quicker strides.
- To get your cadence (steps per minute while running) during your run session count how many times one foot strikes the floor in 30 seconds and multiply that number by 4.
- A metronome app can provide the cue: set beats per minute to the target cadence (example: 160 steps/min is 160 bpm in metronome app).

Strength Progression

Continue 3-4 exercises from the high Irritability page and the exercises below.Increase resistance, depth, or range only when symptoms remain within the 24-hour rule. Use weight as needed as long as you are following soreness rules.



Single-Leg Glute Bridge

2-3 sets x 10-12 repetitions each side- Lie on your back with one knee bent and the other leg extended. Tighten your core and squeeze your glute to lift your hips while keeping your pelvis level. Slowly lower.



Step-Up (Low Step)

2-3 sets x 10-12 repetitions each side- Place one foot fully on a low step. Lean slightly forward and press through that foot to step up without pushing off strongly with the other leg. Slowly lower with control.



Side Plank

2-3 sets x 20-30 seconds each side- Lie on your side with your elbow under your shoulder and knees bent or legs straight. Tighten your core and lift your hips so your body forms a straight line. Hold without rotating forward or backward.



Side-Lying Hip Abduction

2-3 sets x 10-12 repetitions each side- Lie on your side with the bottom knee bent and top leg straight. Keep the top leg slightly behind you and toes facing forward. Lift the leg upward without rolling backward, then slowly lower.



Resisted Lateral Band Walk

2-3 sets x 10 steps each direction- Place a resistance band around your knees or ankles. Slightly bend your hips and knees, then take controlled steps sideways. Keep your toes forward and maintain tension on the band.



Split Squat

2-3 sets x 8-10 repetitions each side- Stand in a staggered stance with one foot forward and one behind. Lower straight down by bending both knees while keeping the front knee aligned over the toes. Push through the front foot to return.

Low Irritability

Little or no running pain, no pain with daily activities, and soreness returns to baseline by the next day.

Running Progression and Maintenance

Running Interventions

- Continue progressing total running distance or duration before adding faster running.
- Reintroduce hills, tempo, and speed one variable at a time.
- Keep weekly mileage increases near 10% or less, and use smaller changes if symptoms increase.
- Maintain the higher cadence only if it was recommended by your physical therapist and feels comfortable.
- After several weeks in this category with no pain try changes in shoes or running surface; introduce changes gradually.

Keep Building Capacity

- Select 3-4 exercises from the Moderate Irritability page and continue them about twice per week.
- Progress resistance, range, speed, and task specificity gradually.
- Continue using the 24-hour symptom response to guide progression.
- If symptoms return, reduce the newest running variable or return to the previous tolerated level.
- Continue strengthening even after your pain improves. Patellofemoral pain can return if strength and running load are not maintained.

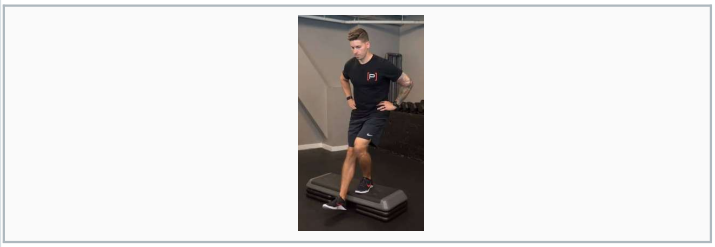
Loading and Maintenance Exercises

Continue 3-4 exercises from the Moderate Irritability page and the exercises below. Add more running-specific loading as tolerated. Use weight as needed as long as you are following soreness rules.



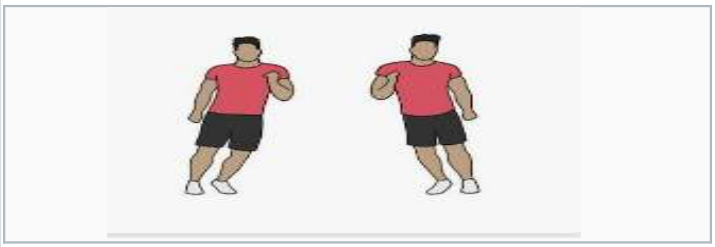
Single-Leg Squat

2-3 sets x 8-10 repetitions each side- Stand on one leg and slowly sit your hips backward into a shallow squat. Keep your knee aligned over your second and third toes. Press through your foot to return to standing. Squat to chair or with handlebar assistance if needed.



Step-Down

2-3 sets x 8-10 repetitions each side- Stand on a low step with one foot near the edge. Slowly bend the standing knee and lower the opposite heel toward the floor. Keep your pelvis level and knee aligned over your toes, then return.



Lateral Hops / Light Plyometrics

2-3 sets x 30 seconds- Stand on one leg with a slight bend in your knee. Hop a short distance side to side and land softly with your knee aligned over your toes. Pause and regain control after each landing.



Goblet squat

3 sets 10-12 repetitions- Hold a dumbbell or kettlebell close to your chest with both hands. Keep your feet about shoulder-width apart, sit your hips down and back, and bend your knees while keeping them aligned over your toes. Lower only as far as comfortable, then press through your feet to return to standing.