Patello-Femoral Syndrome
Jumpers Knee
Rehabilitation Protocol

Introduction:

• This rehabilitation protocol has been developed for the patient with anterior knee pain which generally increases in intensity with daily and sporting activities. The symptoms usually decrease with rest and are frequently bilateral. Sporting activities, stairs, and deep squatting activities may intensify the pain. Sitting with the knees flexed for long periods of time may also cause an increase in symptoms. Early rehabilitation consisting of strengthening and stretching is recommended to decrease pain and allow for a successful return to activity.

Goals of rehabilitation are to:

- Control pain and swelling
- Regain normal knee range of motion
- Establish appropriate stretching and strengthening exercises
- Regain normal lower extremity strength
- Regain normal proprioception, balance, and coordination

It is extremely important for the supervised rehabilitation to be supplemented by a home fitness program.

Physical therapy for PF syndrome/jumper's knee varies in length on factors such as:

- Structure(s) involved: infrapatellar tendon, quad tendon, patellar cartilage, plica, or patellar tracking
- Acute versus chronic condition
- Lower extremity flexibility
- Lower extremity biomechanics: pronated foot, leg lengths
- Performance or activity demands
- Muscular strength and endurance

Return to activity requires both time and clinical evaluation. To safely and most efficiently return to normal or high level functional activity, the patient requires adequate strength, flexibility, and endurance. Return to intense activities may increase the possibility of repeat injury or the potential of compounding the original injury. Symptoms such as pain, swelling, or instability should be closely monitored by the patient.

Phase 1: Week 1-2

Range of Motion:

- Full range of motion
- Hamstring/ITB/Gastroc/Soleus/Quad/Hip flexor stretches
- Quad flexibility is essential and should be focused on
- Patella mobility exercises

Strength:

- Quad sets with biofeedback
- SLR in 4 planes
- Heel raise/Toe raise • SAQ (30-0°)
- Leg press (0-45°)
- Hamstring curls
- TKE with theraband
- Bicycle with resistance with seat high

Balance Training:

- Single leg balance with plyotoss
- Sportscord balance/agility work
- Wobble board balance work
- ½ Foam roller balance work
- Minitramp balance work

Modalities:

- E-stim/biofeedback as needed
- Ice 15-20 minutes

Goals for Phase 1:

- Control pain and inflammation
- Independent in HEP
- Initiate muscular strength and endurance training without pain
- Educate patient on diagnosis
- Adequate quad/VMO contraction

Phase 2: Week 3-4

Range of Motion:

- Continue with all stretching exercises from phase one
- Concentrate on Quad and muscle groups with greatest deficiency

Strength:

- SLR with ankle wt/tubing
- SAQ with ankle wt
- Knee extension (90-45°,90-30°)-range of motion depending on pain
- Leg press-single leg eccentric
- Hamstring curl
- Reverse lunge-not to migrate knee over toe
- Mini-squat (0-30°)
- Stool crawl
- Straight leg dead lift
- Multi-hip in 4 directions
- Bicycle for endurance
- EFX for strength and endurance

Balance Training:

- Continue with all balance activities from phase one
- Advance balance/neuromuscular by variance of surface Modalities:
- Ice 15-20 minutes

Goals for Phase 2:

- Minimize pain with all exercise
- Enhance lower extremity strength and endurance
- Normalize dynamic balance, proprioception, and coordination
- Preparation for return to functional activities

Phase 3: Week 5-Maintenance

Range of Motion:

- Continue with all stretching activity from previous phases
- Concentrate on Quad and muscle groups with greatest deficiency Strength:
- Continue with all strengthening activity from previous phases increasing weight and repetition
- Progressively increase resisted knee range of motion within a pain free arc
- Continue with all eccentric quad/hamstring work
- Bicycle for strength and endurance
- EFX for strength and endurance
- Advance all single leg activity within pain free range

Balance Training:

- Continue with advanced balance, proprioception, and coordination training

Running Program:

- Initiate running on a minitramp, progressing to treadmill as tolerated
- Initiate jump rope for impact/endurance activity
- Backward running Agility Program:
- Initiate agility drills-carioca, high knee drills, short sprints, figure 8's

Functional Program:

- Initiate sports specific drills
- Initiate functional drills

Modalities:

- Ice 15-20 minutes as needed for pain and/or swelling

Goals for Phase 3:

- Maximize lower extremity strength and endurance
- Maximize balance, proprioception, and coordination
- Minimize pain and swelling
- Return to functional activities
- Return to sports specific activities

Patello-femoral syndrome or Jumpers knee is a common problem. With early recognition and intervention long term disability can be avoided. This rehabilitation program will allow for a successful return to sport and provide you with the tools to treat the problem in the future should symptoms recur.