patellofemoral pain syndrome

what is patellofemoral pain syndrome?

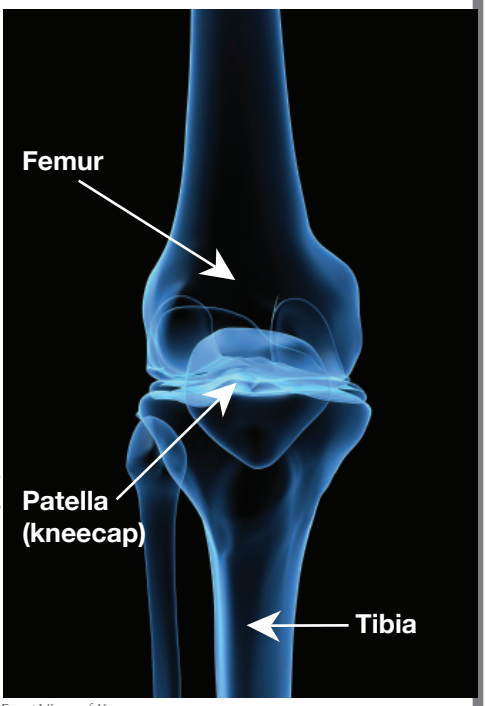
Patellofemoral pain syndrome is a dull, achy pain with minimal swelling around the patella (kneecap) due from malalignment of the femur (thigh bone), tibia (shinbone), patella and/or feet. Individuals with genu varum (bowed legs), genu valgus (knocked knees), femoral anteversion (thigh bone turning in), tibial torsion (shinbone turning in or out), patella alta (high-riding knee cap), patella baja (low-riding knee cap), leg length discrepancies, muscle imbalances and/or soft tissue tightness are more prone to have patellofemoral pain symdrome.

who is at risk?

- Children/adolescents who participate in sports that require repetitive squatting, jumping, running, stair stepping or kneeling (i.e. volleyball, football, basketball, soccer, track, hockey, gymnastics, dance, etc.).
- Children/adolescents who have a family history of patellofemoral pain syndrome.
- Children/adolescents who have poor flexibility (tight muscles) in legs during rapid growth.
- Children/adolescents who have had improper training techniques and/or equipment.

what are the symptoms?

- It can be described as non-specific global knee pain or it can be specific to one area.
- It can be described as dull, achy pain around the patella.
- Pain is often aggravated by overuse activities that require repetitive bending of knee during loading (weightbearing) on the patellofemoral joint (ie. running, jumping, cycling, squatting, stair climbing, etc).
- The child/adolescent might complain of pain with activity and/or immediately following activity.
- The child/adolescent might have muscular tightness in the quadriceps/hamstrings (thigh) muscles, iliotibial band (outside of thigh) and gastrocnemius/soleus (calf) muscles.
- The child/adolescent might have limited range of knee motion because of pain.
- The child/adolescent will have poor tolerance to having the knee in a bent position.
- The child/adolescent often has minimal swelling in the knee area.



Front View of Knee

what are the treatment options?

Conservative/non-surgical treatment:

- Rest from aggravating activities or "relative" rest.
- Ice the area after activity and when painful for 10 to 20 minutes up to once an hour.
- Muscle stretching to improve flexibility.
  - Stretching should be done both before and after activity.
  - Concentrate on hamstring (back of thigh), quadriceps (front of thigh), iliotibial band (outside of thigh) and gastrocnemius/soleus (calf) stretching.
  - It is beneficial to strengthen the leg with emphasis on the inside quadricep muscle, the VMO (vastus medialis) muscle. Avoid deep squats, the leg press and long arc/short arc exercises.
- Patellar (knee) braces or patellar tendon straps for support may be beneficial.
- If the condition does not improve, a referral to physical therapy to address pain, swelling, range of motion, flexibility, strength, gait, bracing/taping and a return to sport training program will usually improve symptoms.

Surgical treatment:

- Procedures to alter the muscle forces on the knee cap may be beneficial if therapy alone does not improve the condition.

what is the time frame for returning to activity/sport?

This is highly variable, but typically 12-16 weeks of muscle strengthening and flexibility is needed for a sustained improvement in symptoms.

what are the long-term side effects?

Most patients need to continue with strengthening and flexibility activities to avoid reoccurring symptoms.

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