Madigan Army Medical Center
Referral Guidelines

Knee Pain – Anterior

Diagnosis/Definition

Knee pain localized to the anterior portion of the knee, either retropatellar or peripatellar. Usually a gradual, non-traumatic onset aggravated with increased activity, running, squatting, and stair climbing or prolonged sitting. Symptoms normally decrease with rest.

Initial Diagnosis and Management

- History and physical examination
  - Rule out serious conditions. See below.
  - Most common aggravating conditions are often stairs, lunges, and squats
  - Typically not specific mechanism of injury
- Plain films not required
- Avoidance of aggravating activities (profile for active duty soldiers)
- Strengthening exercises for gluteals, quadriceps, stretching exercises for quads, hamstrings and calf muscle. Strengthening exercises should incorporate gluteal strengthening, especially the hip abductor muscles
- The evidence for the use of a knee braces is not very strong
- Ice PRN after activities
- Compression wrap is contraindicated
- Patient education. Please refer to the Clinical standard on knee pain.

Alerting Features or Serious Conditions Associated with Anterior Knee Pain

Feature or Risk Factor	Condition
Major trauma Sudden onset of pain (alerting feature for such entities as fracture and osteonecrosis) Minor trauma (if > 50 years, history of osteoporosis and taking corticosteroids)	Fracture or tendon and ligament rupture, osteonecrosis
Fever, night sweats, signs of inflammation (large, warm effusion) Risk factors for infection (e.g. underlying disease process, immunosuppression, penetrating wound)	Infection (e.g. septic arthritis), crystal arthritis
Past history of malignancy Age > 50	Tumor

Failure to improve with treatment Unexplained weight loss Pain at multiple sites Pain at rest Night pain	

Ongoing Management and Objectives

- Resolution or decreasing symptoms in three to four weeks
- If no resolution:
    - Trial of alternate NSAID
    - Trial of neoprene sleeve with patella opening
    - Obtain plain films with sunrise views
    - Do not order an MRI. Orthopedic clinic will order, or recommend, if patient meets pre-surgery criteria

Indication a profile is needed

- Any limitation that affects strength, range of movement, and efficiency of feet, legs, lower back and pelvic girdle.
- Slightly limited mobility of joints, muscular weakness, or other musculo-skeletal defects that may prevent moderate marching, climbing, timed walking, or prolonged effect.
- Defects or impairments that require significant restriction of use.
- Consider a limited profile that promotes stepped progression of activity instead of no activity at all. It can include low impact exercises such as the stationary bike.
- Consider putting on an 8 week return to run progression program

Specifications for the profile

- Months 1-3
    - No running, jumping, marching, squatting
- Months 4-6
    - Gradual transition into own pace and distance

Patient/Soldier Education or Self care Information

- See patient self-care handout (Appendix A) Demonstrate deficits that exist
    - Describe/show soldier his/her limitations
- Explain injury and treatment methods
    - Use diagram attached to describe injury, location and treatment
- Instruct and demonstrate rehab techniques
    - Demonstrate rehab exercises as shown in attached guide
    - Warm up before any sports activity
    - Participate in a conditioning program to build muscle strength

- Do stretching exercises dailyAsk the patient to demonstrate newly learned techniques and repeat any other instructions
- Fine tune patient technique
    - Correct any incorrect ROM/stretching demonstrations or instructions by repeating and demonstrating information or exercise correctly
- Encourage questions
    - Ask soldier if he or she has any questions
- Give supplements such as handouts
- Schedule follow up visit with Primary Care
    - If pain persists
    - The pain does not improve as expected
    - Patient is having difficulty after three days of injury
    - Increased pain or swelling after the first three days
    - Patient has any questions regarding care

Indications for Specialty Care Referral

- History of joint locking and giving way (refer to PT)
- Question of underlying instability
- Prolonged effusion > 10 to 14 days
- R/O fractures, septic joints, rheumatoid arthritis, etc. should be referred to appropriate specialty clinic (Orthopedics or Rheumatology)
- Refer to Physical Therapy progression of atrophy or persistent symptoms despite initial management.
- Completed full course of rehabilitation and have any of the following concerning symptoms: catching, locking, effusions, instability, warmth or erythema (Orthopedics referral indicated).

Criteria for Return to Primary Care

- Resolution of symptoms
- If persistence of anterior knee pain > 6-12 months, without concerning symptoms as described above, consider permanent profiling with patient specific limitations.
- If meets criteria for P3 profile, referral to MAMC MEB section for MEB is appropriate. MEB can be initiated by primary care.

Please also see the Knee Clinical Practice Guideline.

References:

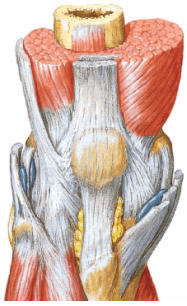
Evidenced Based Management of Acute Musculoskeletal Conditions: A Guide for Clinicians. Australian Government National Health and Medical Research Council. http://www.nhmrc.gov.au/_files_nhmrc/publications/attachments/cp95.pdf?q=publications/synopses/_files/cp95.pdf

Last Review for this Guideline: **November 2012**
Referral Guidelines require review every three years.

Appendix A

Patellofemoral Pain Syndrome

What is patellofemoral pain syndrome?



Patellofemoral pain syndrome is a fancy way of saying you have knee pain. It is caused by increased contact pressure between the patella (kneecap) and femur (thigh bone). As your knee bends and straightens the cartilage surfaces between the femur and patella rub against each other, and for a variety of potential reasons that constant rubbing can start to irritate the under surface of the patella. Knee pain from patellofemoral pain syndrome is rarely the result of a problem at the knee. Pain behind the patella more often manifests due to issues at the hip or foot and ankle complex. There may be degenerative changes on the under surface of the patella, but those changes are the result of poor biomechanics either above or below the knee itself.

How can I treat patellofemoral pain syndrome?

Treatment of patellofemoral pain syndrome is targeted at activity modification and restoring normal hip and/or foot function. Weak hips need to be strengthened, tight hips need to be stretched, and poor foot mechanics respond well to shoe inserts as treatment.

Activity modification means stop performing the activity that causes or increases your pain. For most people, a break of 6-8 weeks is sufficient. That may sound like a long time, but keep in mind that we can't speed up the healing process, only remove the roadblocks that will slow it down. It is critical that you find other means of maintaining your aerobic conditioning while allowing this to resolve. That means biking and/or swimming. Walking as a form of aerobic conditioning is an extremely poor choice, and will probably prolong your recovery.

If your healthcare provider determines that you have tight hips, then stretching is the best treatment targeting the underlying pathology of your knee pain. Stretching should be performed many times during the course of your day. Two or three sessions per day will be an insufficient stressor to force your tight muscles to permanently elongate. Stretching should not reproduce or worsen your pain. Hold each stretch for 20-30 seconds, and then return to what you were doing before you stretched. Again, repeat this many times during the course of the day – every couple of hours.

If your healthcare provider determines that you have weak hips, then strengthening is the treatment of choice. Strengthening should start addressing the endurance spectrum of strength by performing higher repetitions with lower weights. Perform each exercise 15-20 times; take a break, repeat 2-3 times per session. You should perform the exercises two to three times per day. None of these exercises should reproduce or worsen your knee pain.

Off-the-shelf orthotics are the most appropriate first-line intervention if your healthcare provider determines that your feet are causing alignment problems at your knees.

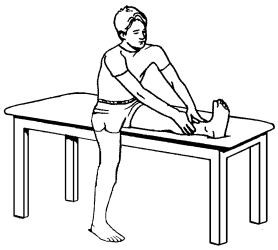
How can I prevent patellofemoral pain syndrome?
The most common cause of recurring patellofemoral pain syndrome is a return to prior activities with an insufficient train-up period, as well as stopping performance of the exercises that helped to get rid of your pain. The best way to prevent a recurrence of your knee pain is to incorporate the stretching and strengthening exercises into your daily routine as part of a maintenance program. The walk-jog progression included in this handout is a safe way to return to running.
When to see a Physical Therapist

In spite of following the above advice to the best of your ability, a minority of people will not get better. If your pain persists longer than 6-8 weeks with sufficient rest or if you are unable to return to your prior level of function, then a referral to a Physical Therapist may be warranted.

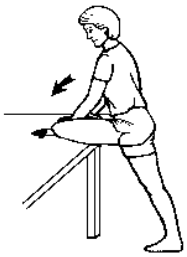
Stretching:

Hold each stretch for 20-30 seconds. Perform a different stretch every 1-2 hours throughout your day.

Hamstring Stretch



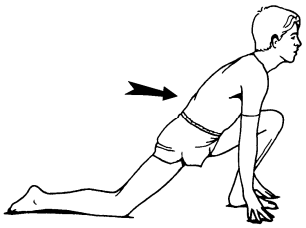
Piriformis Stretch



Hip Adductor Stretch

Hip Swivel Stretch

Lunge Stretch



Iliotibial Band Stretch

Strengthening:

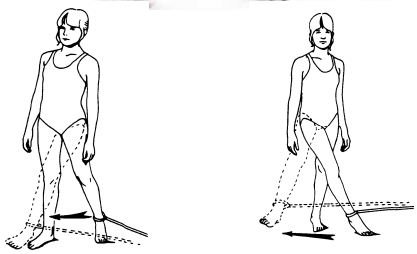
Perform 10 repetitions and repeat three times for each of these exercises. Perform 1-2 times per day.

side plank leg raises

mini-squats

Bridges

steamboats



Walk to Run Progression

<u>Guidelines:</u>

1. There are no set timeframes – progress using pain and swelling as a guide.
2. Try each Phase at least twice and progress to the next phase if there is no increased pain, swelling, or stiffness.
3. Stop if you feel pain, swelling, or stiffness during or after a session. Apply ice to the painful are for 15-20 minutes and go back one phase for the next three sessions.
4. Run no more than every other day. Do not run two days in a row.
5. Run at an easy pace on level surfaces – no hills.
6. Use running shoes appropriate to your foot type (not court shoes or cross trainers). Your shoes should not be older than 3-6 months.
7. <u>Be patient</u>, it generally takes twice the time that you have not run to return to pre-injury conditioning and running ability (ie. if you have not run in two months, it may take 4-6 months to get back up to speed).

Preparatory Stage

Prep I	Walk 2 miles at your own pace with no limp

Prep II	Walk 2 miles in 35 minutes with no limp

Stage 1

Phase	Walk	Jog	Repetitions	Total Time
I	5 min	1 min	5	30 min
II	4 min	2 min	5	30 min
III	3 min	3 min	5	30 min
IV	2 min	4 min	5	30 min
V	1 min	5 min	5	30 min
VI	5 min	10 min	2	30 min

Stage 2

Phase	Walk	Jog	Repetitions	Total Time
VII	None	15 min	1	15 min
VIII	None	20 min	1	20 min
IX	None	25 min	1	25 min
X	None	30 min	1	30 min