Anserine Tendinopathy

Indexing Metadata/Description

› **Title/condition:** Anserine Tendinopathy

› **Synonyms:** Pes anserine bursitis; anserine tendonitis; goosefoot bursitis; anserine bursitis; tendinobursitis syndrome, anserine; pes anserinus tendinitis/bursitis; pes anserinus tendino-bursitis syndrome; pes anserinus tendinobursitis syndrome; anserine syndrome; tendinobursitis, anserine syndrome

› **Anatomical location/body part affected**

• The sartorius, gracilis, and semitendinosus tendons have the same insertion, which is 5-6 cm distally along the proximal anteromedial tibia. The 3 separate tendons from these muscles come together to form 1 structure that resembles the shape of a goose’s foot. This characteristic has led the conjoint structure to be named pes anserinus, which is Latin for goosefoot

• The pes anserine muscles are primarily knee flexors and secondarily tibial internal rotators, and they function as dynamic stabilizers to protect the knee from valgus and rotary stressors

• The pes anserine bursa is located at the medial tibial tuberosity deep to the pes anserine tendon but superficial to the medial collateral ligament. The bursa does not communicate with the intraarticular knee joint unlike other bursa found around the knee

› **Area(s) of specialty:** Orthopedic rehabilitation, pediatric rehabilitation

› **Description**

• Anserine tendinopathy is a pathology afflicting either the anserine tendon or bursa. Although most authors/clinicians use the term “anserine bursitis,” research involving imaging indicates the actual structure (i.e., tendon or bursa) that is injured or responsible for the symptoms has yet to be identified

• Despite the condition being somewhat common, the exact incidence of anserine tendinopathy is unknown

• Tendinopathy is a clinical syndrome describing an overuse tendon injury characterized by pain, swelling, and/or functional limitation. Tendinopathy can be tendinitis (presence of inflammation) or tendinosis (absence of inflammation). However, distinguishing tendinitis from tendinosis is not clinically feasible in most cases. Overuse tendon injury should be considered tendinopathy and not tendonitis

› **ICD-10 codes**

• M70.5 Other bursitis of knee

• M70.96 Unspecified soft tissue disorders related to use, overuse, and pressure, lower leg

• M76.89 Other specified enthesopathies of lower limb, excluding foot

• M76.9 Unspecified enthesopathy, lower limb, excluding foot

• M79.66 Pain in lower leg

(ICD codes are provided for the reader’s reference only, not for billing purposes)

The above codes require additional numbers to indicate laterality
G-Codes

- **Mobility G-code set**
  - G8978, Mobility: walking & moving around functional limitation, current status, at therapy episode outset and at reporting intervals
  - G8979, Mobility: walking & moving around functional limitation; projected goal status, at therapy episode outset, at reporting intervals, and at discharge or to end reporting
  - G8980, Mobility: walking & moving around functional limitation, discharge status, at discharge from therapy or to end reporting

- **Changing & Maintaining Body Position G-code set**
  - G8981, Changing & maintaining body position functional limitation, current status, at therapy episode outset and at reporting intervals
  - G8982, Changing & maintaining body position functional limitation, projected goal status, at therapy episode outset, at reporting intervals, and at discharge or to end reporting
  - G8983, Changing & maintaining body position functional limitation, discharge status, at discharge from therapy or to end reporting

- **Self Care G-code set**
  - G8987, Self care functional limitation, current status, at therapy episode outset and at reporting intervals
  - G8988, Self care functional limitation, projected goal status, at therapy episode outset, at reporting intervals, and at discharge or to end reporting
  - G8989, Self care functional limitation, discharge status, at discharge from therapy or to end reporting

- **Other PT/OT Primary G-code set**
  - G8990, Other physical or occupational primary functional limitation, current status, at therapy episode outset and at reporting intervals
  - G8991, Other physical or occupational primary functional limitation, projected goal status, at therapy episode outset, at reporting intervals, and at discharge or to end reporting
  - G8992, Other physical or occupational primary functional limitation, discharge status, at discharge from therapy or to end reporting

- **Other PT/OT Subsequent G-code set**
  - G8993, Other physical or occupational subsequent functional limitation, current status, at therapy episode outset and at reporting intervals
  - G8994, Other physical or occupational subsequent functional limitation, projected goal status, at therapy episode outset, at reporting intervals, and at discharge or to end reporting
  - G8995, Other physical or occupational subsequent functional limitation, discharge status, at discharge from therapy or to end reporting

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<td>At least 1 percent but less than 20 percent impaired, limited or restricted</td>
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<td>CM</td>
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<tr>
<td>CN</td>
<td>100 percent impaired, limited or restricted</td>
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</tbody>
</table>

Source: http://www.cms.gov
Reimbursement: No specific issues or information regarding reimbursement have been identified.

Presentation/signs and symptoms
- Patients might present with a dull ache and tenderness over the anteromedial tibia.
- Swelling might also be present over the pes anserine area,\(^4\) and the patient might report the presence of night pain\(^5\).
- On occasion, patients report having posteromedial to mid-line knee pain without edema, which makes differentiating anserine tendinopathy from a meniscus tear very difficult\(^1,2\).
- Episodes of rigidity lasting over 1 hour upon waking can be experienced.
- Getting out of a car or chair, and especially negotiating stairs, will likely increase symptoms\(^1,3,19,20\).
- Researchers also describe a case of snapping pes anserine syndrome, in which the patient felt a painful snapping sensation in the posteromedial left knee region. Diagnosis was confirmed by dynamic, real-time ultrasound\(^18\).

Causes, Pathogenesis, & Risk Factors

Causes
- The presumptive cause of anserine tendinopathy is overuse of the pes anserine tendons and/or excessive friction of the conjoint tendon on the bursa, possibly due to tight hamstrings\(^19\).
- Training mistakes might factor into mechanical overload of the structures\(^5\).
- Eccentric action of pes anserine muscle group dampens lateral rotation of the lower leg in terminal knee extension. Valgus stress on the knee when weight-bearing with the leg externally rotated increases the work required of the pes anserine muscles\(^2\).
- Direct trauma can cause a contusion of the bursa\(^6,19,20\).

Pathogenesis
- Pathological studies do not indicate if symptoms are due to bursitis, tendinitis, or fasciitis at this site\(^19\).
- There is controversy regarding the true pathophysiology of this condition\(^19\).

Risk factors
- Age 50-80 years\(^1\).
- Knee osteoarthritis/degenerative joint disease\(^1,7,19,20\).
- Diabetes mellitus\(^1,8,19,20\).
- Obesity\(^1,19,20\).
- Female gender\(^1,19\).
- Intraarticular pathology that promotes medial knee joint instability (e.g., rheumatoid arthritis, osteoarthritis, torn meniscus, cruciate ligament tears) and medial collateral ligament laxity\(^2\).
- Genu valgum\(^1,19,20\).
- Pes planus\(^1,19,20\).
- Subtalar hyperpronation\(^6\).
- Tight/inflexible pes anserine muscles
  - Tight hamstrings\(^6\).
- Long-distance running\(^1\).
- Activities/sports that involve lateral movements and cutting\(^19,20\).

Overall Contraindications/Precautions
- Inflammation of the pes anserine bursa can occur secondary to an acute bout of gout.\(^3\) Inflammation of the pes anserine bursa can also compress the saphenous nerve, resulting in pain in the lateral tibia\(^1\) and positive Tinel sign\(^19\).
- See specific Contraindications/precautions to examination and Contraindications/precautions under Assessment/Plan of Care.
Examination

Contraindications/precautions to examination

- The presence of swelling, redness, and warmth must be considered signs of an infection, in which case a patient should be referred back to the physician[10]

- Symptoms of anserine tendinopathy might be similar to symptoms of tibial stress fracture or meniscus tear. Thus, any coexisting knee joint pathology that compromises medial stability and alignment should also be evaluated and treated. If stress fracture is suspected, immediately refer back to physician

History

- History of present illness/injury
  - Mechanism of injury or etiology of illness
    - When did symptoms begin?
    - Insidious onset vs. traumatic event?
    - What was the patient doing immediately prior to developing symptoms?
    - How have the symptoms progressed?
  - Course of treatment
    - Medical management: Ask about patient’s past and current medical and/or surgical management for knee pain. How has the pain responded to treatments?
    - Possible surgical interventions are: removal of the bursa, removal of a bony exostosis,[1] or harvesting of the tendons[18]
    - Medications for current illness/injury: Determine what medications clinician has prescribed, if any. Are they being taken? Are they effectively controlling symptoms? NSAIDs are often recommended[1,20]
      - A steroid plus anesthetic injection (methylprednisolone plus lidocaine) might improve symptoms.[2,12] However, corticosteroid injections are controversial for this condition[5]
    - Diagnostic tests completed: The diagnosis is most often made clinically. However, imaging with ultrasonography,[18] arthrography, or MRI might be required to exclude other potential causes
    - Home remedies/alternative therapies: Document any use of home remedies (e.g., ice or heating pack) or alternative therapies (e.g., acupuncture) and whether or not they help
      - Mesotherapy is a minimally invasive technique that involves the subcutaneous injection of a substance (e.g., drug, plant, homeopathic agent, etc.), and is considered alternative or complementary[20]
      - Researchers who conducted a randomized controlled trial in Italy of 117 patients with knee arthritis and pes anserine bursitis found the administration of NSAIDs by mesotherapy to be as effective, safe, and well-tolerated as oral administration of the same medication
      - Outcome measures used were VAS and Knee Injury and Osteoarthritis Outcome Score (KOOS)
    - Previous therapy: Document whether patient has had physical therapy for this or other conditions and what specific treatments were helpful or not helpful
    - Aggravating/easing factors: With weight-bearing, active knee flexion worsens symptoms, while full knee extension alleviates them. Vague discomfort at rest becomes sharper and more localized with certain daily activities, such as prolonged standing, walking, climbing/descending stairs, squatting, and getting into or out of a vehicle[3]
    - Body chart: Use body chart to document location and nature of symptoms. Patients usually present with dull ache and tenderness (and variable mild warmth or swelling) over the medial tibial tuberosity
    - Nature of symptoms: Document nature of symptoms (constant vs. intermittent, sharp, dull, aching, burning, numbness, tingling). Symptoms might include dull ache, tenderness, and swelling
    - Rating of symptoms: Severe point tenderness at anserine tendon insertion–anteromedialportion of superior (proximal) tibia might be present. Use a visual analog scale (VAS) or 0-10scale to assess symptoms at their best, at their worst, and at the moment (specifically address if pain is present now and how much)
    - Pattern of symptoms: Document changes in symptoms throughout the day. Symptoms are usually related to activities
    - Sleep disturbance: Document number of wakings/nightrelated to this condition. Does placing a pillow between the legs or sleeping in a brace alleviate symptoms? Do they wake up with a stiff knee?
    - Other symptoms: Document other symptoms patient might be experiencing that could exacerbate the condition and/or symptoms that could be indicative of a need to refer to physician (foot drop, lower leg paresthesia)
- Barriers to learning
  - Are there any barriers to learning? Yes __ No __
  - If Yes, describe _______________________

• Medical history
  – Past medical history
    - Previous history of same/similar diagnosis: Any previous dysfunction, surgery, or injury involving the leg or knee? Any history of knee arthritis or gout?
    - Comorbid diagnoses: Ask patient about other medical concerns, including diabetes, cancer, cardiovascular disease, outcomes of pregnancy, psychiatric disorders, orthopedic disorders, rheumatoid arthritis, gout, etc.
    - Medications previously prescribed: Obtain a comprehensive list of medications prescribed and/or being taken (including over-the-counter drugs)
    - Other symptoms: Ask patient about other symptoms he/she might be experiencing
  – Social/occupational history
    – Patient’s goals: Document what the patient hopes to accomplish with therapy and in general
    – Vocation/avocation and associated repetitive behaviors, if any: Does the patient participate in any sports or recreational activities? What does the patient’s occupation require? Do they experience long bouts of static standing or sitting during their day?
    – Functional limitations/assistance with ADLs/adaptive equipment: Inquire about any pre-existing functional limitations or adaptive equipment already in place
    – Living environment: Does the patient have stairs? What is the number of floors in the home? With whom does the patient live? (e.g., caregivers, etc.) Identify if there are barriers to independence in the home; are any modifications necessary?

› Relevant tests and measures: (While tests and measures are listed in alphabetical order, sequencing should be appropriate to patient medical condition, functional status, and setting)
  – Anthropometric characteristics: Assess for leg length discrepancy. Calculate body mass index (BMI) for overweight/obese patients. Measure swelling/edema with circumferential measurements
  – Assistive and adaptive devices: Assistive devices are rarely indicated for isolated anserine tendinopathy
  – Balance: Assess single leg stance; assess eyes open and closed, dynamically and on unstable surface. Compare to unaffected leg for timing and quality
  – Cardiopulmonary endurance: Assess endurance with 6 minute walk test (6MWT) for distance
  – Functional mobility (including transfers, etc.): Assess for increased pain with stair climbing and squatting; assess technique with squat
  – Gait/locomotion: Perform thorough gait assessment and document any abnormalities or asymmetries that might be contributing to the problem. If present, antalgic gait pattern is more likely caused by knee joint pathology such as osteoarthritis rather than anserine tendinopathy
  – Joint integrity and mobility
    – Examine the low back, hip, knee, ankle/foot, and patellofemoral joint mobility to help assess for any pathologies that cause symptoms similar to those of anserine tendinopathy or that might increase valgus stress at the knee (e.g., subtalar hyperpronation)
  – Muscle strength
    – Pain might be experienced in patients with anserine tendinopathy when pes anserine muscles (i.e., sartorius, gracilis, or semitendinosus) are individually strength tested
      - Sartorius muscle flexes, abducts, and laterally rotates thigh at hip joint
      - Gracilis muscle adducts thigh at hip joint, flexes, and medially rotates leg at knee joint
      - Semitendinosus muscle extends thigh at hip joint, flexes, and medially rotates leg at knee joint
    – Assess strength of quadriceps and hamstrings. If hand dynamometry or isokinetic testing is available, compare the ratio of strength between quadriceps and hamstrings
    – Assess ability to maintain quad control during straight leg raise
    – Also assess hip and lower leg muscular strength, as lack of strength in these areas can contribute to faulty lower extremity biomechanics
  – Observation/inspection/palpation (including skin assessment)
    – Patients with anserine tendinopathy will have severe point tenderness at the pes anserine bursa/insertion with occasional local swelling
—If palpation reveals a firm mass attached to the tibia without warmth, erythema, or other systemic signs, pigmented villonodular synovitis (giant cell tumor) needs to be considered and be referred back to the physician\(^1\)

**Posture:** Assess for intrinsic factors that contribute to valgus stress, including genu valgum and subtalar hyperpronation
—Assess subtalar neutral

**Range of motion**
—Assess knee, hip, and ankle ROM
—Assess ability to achieve full knee extension
—Assess tightness/flexibility of the hamstrings, quadriceps, hip adductors/flexors, and lower leg

**Sensory testing:** Saphenous nerve entrapment by anserine bursitis has been reported to mimic tibial plateau stress fracture.\(^12\) Signs of saphenous nerve entrapment include lateral tibial pain and paresthesia and a positive Tinel’s sign

**Special tests specific to diagnosis**
—Straight-leg raise: in supine position, measure the amount the leg can be raised, as this assess the flexibility of the hamstrings. The hamstrings include 1 of the 3 pes anserine muscles (i.e., semitendinosus)
—Thomas test: measures the flexibility of the hip flexor muscle group, of which includes the sartorius. The patient is asked to lie supine with the gluteal folds near edge of the table. The patient then brings the contralateral limb to the single knee-to-chest position, making sure that the lumbar region remains flush with the table. The clinician then lowers the patient’s test leg to the point where motion stops or the leg begins to rotate externally. Goniometric measurements are then taken—the test is considered normal if the thigh is parallel with the floor
—Other special tests might be performed (e.g., McMurray’s meniscus test, knee collateral ligament stress tests, Ober’s test) to rule out other orthopedic conditions
—Lower Extremity Functional Scale (LEFS)
—KOOS

**Assessment/Plan of Care**

› **Contraindications/precautions**

• **Cryotherapy** contraindications\(^{13}\)
  —Raynaud’s syndrome
  —Cryoglobulinemia
  —Cold urticaria
  —Paroxysmal cold hemoglobinuria
  —Impaired circulation
  —Over area of nerve regrowth

• **Cryotherapy** precautions\(^{13}\)
  —Hypertension
  —Hypersensitivity to cold
  —Over an acute wound
  —Over superficial nerves

• **Electrotherapy** contraindications/precautions\(^{13}\)
  —Do not place electrodes near
    - carotid bodies, cardiac pacemakers or implantable cardioverter defibrillators, phrenic nerve or urinary bladder stimulators, phrenic nerve, eyes, gonads
  —Osteomyelitis
  —Hemorrhage
  —Impaired sensation, mental status, communication
  —Cardiovascular disease
  —Malignancy
  —Dermatological conditions
  —Proximity of electromagnetic radiation
  —In pregnant women, near the pelvis, lumbar spine, hips, abdomen
  —In patients with stroke or seizures, near the neck
  —History of spontaneous abortion in pregnant women
**Therapeutic ultrasound** contraindications; do not use:(13)
- Over the region of a cardiac pacemaker
- Over the pelvis, abdominal and lumbar regions during pregnancy
- Over the eyes or testes
- In an area with infection or bleeding
- If a tumor or malignancy is present in the area
- In the area of a deep vein thrombosis (DVT) or thrombophlebitis
- Over the heart, stellate or cervical ganglia
- Over epiphyseal plates

**Therapeutic ultrasound** precautions(13)
- Sensory deficits
- Ineffective communication skills in a patient (e.g., impaired cognition, language barrier)
- Circulatory impairments
- Plastic or metal implants
- Peripheral vascular disease
- Always decrease ultrasound intensity if the patient complains of discomfort

**Diagnosis/need for treatment:** Anserine tendinopathy causes pain and localized swelling on the medial knee and is aggravated after prolonged static positioning and during functional activities such as getting out of a car or negotiating stairs

**Rule out**
- Patellofemoral pain syndrome(6)
- Degenerative joint disease(1)
- Patellar tendinopathy(6)
- Torn meniscus(6,19)
- Lumbar (L3-L4) radiculopathy(1)
- Osteochondritis dissecans(6)
- Osgood-Schlatter disease(6)
- Tibial stress fracture(6,19)
- Medial collateral ligament sprain(6,19)
- Medial plica syndrome(6)
- Popliteal cyst(3)
- Gout(3)
- Referred pain from hip as hip disease is a common cause of knee pain in a child(6)
- Osteosarcoma(19)
- Saphenous nerve compression(17,19)
- Spontaneous osteonecrosis(19)
- Other diagnostic possibilities include synovitis, synovial hemangioma, synovial sarcoma, ganglion cyst, meniscal cyst, and pigmented villonodular synovitis(14)

**Prognosis**
- Tendinopathies might take several months to heal. However, if the patient seeks care promptly, recovery might take only 6-10 weeks(5)
- If the patient undergoes surgery, return to sport will likely take at least 4-6 months(5)
- Researchers who conducted a study in Canada determined that a custom-made foot orthosis and a local corticosteroid injection (orthosis group) increased the likelihood of recovery from anserine bursitis when compared to injection alone (control group). Thirty-two subjects were in each group; at 8 weeks, 55% reported recovery in the control group and 76% in the orthosis group. At 4 months, 41% reported recovery in the control group and 88% in the orthosis group(16)

**Referral to other disciplines**
- Rheumatologist
• Orthopedist
• Orthotist

› Other considerations:

› Treatment summary

• Address extrinsic and intrinsic factors associated with patient’s symptoms. Design conservative therapeutic regimen to reduce pain and restore function. Treatment for anserine tendinopathy is primarily noninvasive\(^2\).

• Although differentiating between anserine tendinitis and anserine bursitis can be extremely difficult due to the close proximity of the two structures, treatment is still the same\(^1\).

• Prospective, randomized, controlled intervention trials are lacking. Existing evidence is based mainly on a few case series. Current opinion is that symptoms related only to anserine tendinopathy will likely resolve with physical therapy and patient education.

• The primary components of a conservative treatment plan include relative rest, activity modification, avoidance of aggravating activities, pain management, therapeutic exercises to regain/maintain knee strength and ROM, and interventions to control excessive knee valgus stress.

<table>
<thead>
<tr>
<th>Problem</th>
<th>Goal</th>
<th>Intervention</th>
<th>Expected Progression</th>
<th>Home Program</th>
</tr>
</thead>
</table>

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\(^1\)\(^2\) Numbers refer to citations or references in the original source.
| Presence of pain and tenderness | Decrease pain intensity and promote healing | **Physical agents and mechanical modalities**<br>Ice pack/cryotherapy for pain relief\(^{(1,13)}\)<br>Electrical stimulation might also provide pain relief\(^{(13)}\) in addition to promoting collagen synthesis\(^{(5)}\)<br>Therapeutic ultrasound has also been reported to be effective in reducing the inflammation, if present\(^{(1)}\) | **Reduced reliance on modalities over time** | **Patient education**<br>Advise patient to avoid high-impact and aggravating activities such as running, hills/stairs, and jumping. If patient is still active, promote low-impact cross-training (cycling, elliptical trainer, upper body ergometer) | **Prescription/application of devices and equipment**<br>Consider knee brace if any underlying knee joint pathology exists, as it can diminish the load on the tendons and might facilitate healing\(^{(2)}\) | **Patient education for pain management (e.g., ice packs for pain, the use of a pillow between the knees when sleeping)**\(^{(1)}\) |
| Inflexible/tight pes anserine muscles | Increase/maintain full knee and hip ROM and flexibility of involved muscles | **Manual therapy**
Manual stretching of the hamstrings, adductors, and quadriceps to increase flexibility of the pes anserine muscle group \(^{1}\) |
|------------------------------------|-------------------------------------------------|-------------------------------------------------------------|
| **Therapeutic exercises**
Static stretching of the hamstrings, adductors, and quadriceps to increase flexibility of the pes anserine muscle group (1) | Progress patient to be completely independent with stretching program | Instruct patient in simple ROM and stretching exercises to perform at home |

| Reduced quadriceps (VMO) strength and quadriceps-hamstrings balance | Increase/maintain quadriceps strength and general lower extremity strength | **Therapeutic exercises**
Focus initially on VMO strengthening because VMO fibers that attach directly to the patellar tendon might function to reduce valgus stress at end-range knee extension. \(^{15}\) Isometric exercises can also be introduced in the initial stages, especially if patient is elderly or at risk for muscular atrophy (e.g., cases involving chronic pain or post surgery) \(^{1}\) |
|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------------------|
| **Therapeutic exercises**
Quadriceps, hamstrings, and gastrocnemius strengthening. Balance quadriceps-hamstrings strength. Progress to eccentric exercises might be particularly beneficial when tendinosis is present by encouraging collagen production \(^{5}\) | Continue prescribed exercises at home | |

| Antalgic or faulty gait pattern | Restore normal gait pattern | **Prescription/**
**application of devices and equipment**
Prescribe orthotics if pes planus or other abnormality is present, as they can contribute to increased valgus stress at the knee |
|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------------------|
| **Gait training**
Gait train to normalize gait and reduce unnecessary valgus stresses at the knee | Progress to more difficult conditions (e.g., uneven walking surface, stairs) | Provide schedule for integrating use of orthotics into footwear |
<table>
<thead>
<tr>
<th>Reduced functional status</th>
<th>Restore prior lower extremity functional capacity in daily activities and/or sports</th>
<th><strong>Patient education</strong></th>
<th>Progress as appropriate to the status of the patient</th>
<th>Patient education for prevention of reinjury and independent care</th>
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<tbody>
<tr>
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<td><em>Address faulty training methods or poor equipment</em></td>
<td><strong>Therapeutic exercises</strong></td>
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<td></td>
<td><strong>Exercises</strong></td>
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<td></td>
<td>Exercises should simulate activities (i.e., movement, speed, intensity, endurance) necessary to return to functional activities</td>
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<td><strong>Functional training</strong></td>
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<td></td>
<td>Progress functional strengthening and reintegration into sports/activity specific activities</td>
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**Desired Outcomes/Outcome Measures**

- Desired outcomes and associated measures
  - Decrease pain intensity and promote healing
    - VAS
  - Increase/maintain full knee and hip ROM and flexibility of involved muscles
    - Goniometry
    - Muscle flexibility tests
  - Increase/maintain quadriceps strength and general lower extremity strength
    - Manual muscle tests
    - Isokinetic testing
  - Restore normal gait pattern
    - Gait analysis
  - Restore normal balance
    - Single limb stance
  - Restore prior lower extremity functional capacity in daily activities and/or sports
    - Patient satisfaction surveys
    - Functional outcome testing
    - Lysholm Knee Score
    - KOOS
    - Cincinnati Knee Rating Scale

**Maintenance or Prevention**

- Maintain strength and flexibility of tissues that support the knee and apply therapeutic interventions for underlying knee joint pathology
Patient Education

› See “Pes Anserine (Knee Tendon) Bursitis” from the American Academy of Orthopaedic Surgeons at http://orthoinfo.aaos.org/topic.cfm?topic=a00335

Coding Matrix

References are rated using the following codes, listed in order of strength:

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<th>Code</th>
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<td>Published meta-analysis</td>
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<td>SR</td>
<td>Published systematic or integrative literature review</td>
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<td>RCT</td>
<td>Published research (randomized controlled trial)</td>
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<td>R</td>
<td>Published research (not randomized controlled trial)</td>
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<tr>
<td>C</td>
<td>Case histories, case studies</td>
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<td>G</td>
<td>Published guidelines</td>
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<td>RV</td>
<td>Published review of the literature</td>
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<td>RU</td>
<td>Published research utilization report</td>
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<tr>
<td>QI</td>
<td>Published quality improvement report</td>
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<td>L</td>
<td>Legislation</td>
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<tr>
<td>X</td>
<td>Practice exemplars, stories, opinions</td>
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<td>General or background information/texts/reports</td>
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<td>U</td>
<td>Unpublished research, reviews, poster presentations or other such materials</td>
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<td>CP</td>
<td>Conference proceedings, abstracts, presentation</td>
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References