Dance Related Injuries: Knee, Thigh

Adolescent Anterior Knee Pain
1. Definition:
   o Chronic pain in front and center of knee
   o Initial onset as dull ache in area of patella
2. Causes:
   o Sudden increase in training frequency
   o Imbalance of thigh muscles that support knee
   o Poor flexibility
   o Malalignment
3. Symptoms:
   o Gradual onset of pain
   o Popping/crackling sounds in knee when climbing stairs or standing after prolonged sitting
   o Flare-up of pain with repetitive knee flexion
4. Treatment:
   o Ice, Rest, NSAIDs
   o Physical therapy to increase strength and flexibility

Patellar Dislocation
1. Treatment:
   o Physical therapy to restore strength and range of motion to the knee and to help prevent reoccurrence

Patellar Femoral Syndrome (Chondromalacia)
1. General:
   o Most common diagnosis in outpatients presenting with knee pain
2. Definition:
   o Anterior knee pain involving patella and retinaculum that excludes other intra-articular and peripatellar pathology
3. Causes:
   o Insufficiency of vastus medialis
     ■ Allows external rotation of the lower leg to compensate for inadequate external rotation of hips
   o Sliding across the floor repeatedly with certain dance maneuvers
4. Symptoms:
   o Pain around or behind patella that is aggravated with jumps, excessive knee flexion (grande plié), running, climbing stairs or sitting for prolonged periods of time
   o Iliotibial band tightness
   o Medial quadriceps muscle weakness
5. Treatment:
   o Ice
   o NSAIDs
   o Modification of training activities to decrease stress
   o Physical therapy (SOR:A)
     ■ Exercise therapy with quadriceps strengthening reduces pain in PFPS

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**Patellar Tendonitis**
1. Definition:
   - Irritation and inflammation of patellar tendon
2. Causes:
   - Overuse syndrome especially from jumping activities
3. Symptoms:
   - Chronic vague anterior knee pain over patellar tendon
   - Reproducible with resisted knee extension, jumping and flexion >90°
4. Treatment:
   - Rest, ice, NSAIDs
   - Physical therapy to improve strength, flexibility
   - Correct technique deficits

**Medial Plica Syndrome**
1. Definition: acute onset of medial knee pain caused by inflammation of plica (redundancy of joint synovial folds on medial aspect of knee)
2. Causes: overuse syndrome or marked increase in usual activities that require flexion
3. Symptoms:
   - Tender, mobile nodularity located at medial aspect of knee just anterior to joint line
   - Joint effusion usually not present
   - Remainder of knee examination normal
4. Treatment:
   - Rest, ice, NSAIDs
   - Physical therapy to strengthen and increase flexibility of the muscles surrounding knee joint
   - Correct technique deficits

**Meniscus Tear**
1. Technical Tip:
   - In dancers, meniscus tears usually occur when they perform a maneuver called "screwing home"
   - They turnout by planting the feet at desired angle of turnout and subsequently straighten knees
   - Turning out should always be done from the hips

**Medial Collateral Ligament Tear**
1. Treatment: complete rupture may require surgery to repair the ligament

**Anterior Cruciate Ligament Tear**

**References**
Evidence Based Inquiry

1. What exercises are most effective for relieving the pain of patellofemoral syndrome?

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