Dance Related Injuries: Shoulder
See also Shoulder Injuries (ortho)

Prevention/Tips for dancers
1. Overuse injuries require immediate attention
   o Dancers should not try to "work through the pain"
   o Injuries can become chronic
2. When strengthening the shoulder girdle, dancers should focus on:
   o Posterior shoulder muscles
   o Intrinsic rotator cuff muscles

Shoulder Dislocation
1. Falling - most common cause
2. Treatment:
   o Ice and NSAIDs
   o PT/OT to strengthen muscles around shoulder and upper back for stabilization
   o Surgery often recommended for first time dislocation in athletes-dancers are an exception to this:
     ▪ Surgery decreases range of motion
     ▪ Use physical therapy to improve muscle imbalance and flexibility
     ▪ Review performance for proper movements
3. Technical Tip:
   o Most dislocations occur accidentally, so safety in studio/rehearsal space is a priority
     ▪ Avoid repeating lifts or difficult movements too many times
   o Accidents more common with muscle fatigue

Shoulder Impingement
1. Definition:
   o Shoulder impingement syndrome is primarily due to narrowing of space underneath the acromion in shoulder
   o Impingement results from extrinsic compression or loss of competency of rotator cuff
2. Causes:
   o Repetitive arm movements, especially overhead activities
   o Frequent extension of arm at high speed under high load
   o Increase in upper extremity training by dancer whose rotator cuff muscles are not in good condition
3. Neer Classification of Impingement Syndrome
   o Stage I:
     ▪ Edema and/or hemorrhage
     ▪ Patients usually less than 25 years of age
     ▪ Frequently associated with overuse injury
     ▪ Generally reversible
   o Stage II:
     ▪ More advanced
     ▪ Patients usually 25-40 years of age
     ▪ Pathologic changes show fibrosis and irreversible tendon changes
Stage III:
- Patients usually over 50 years of age
- Frequently involves tendon rupture or tear
- Due to fibrosis and tendonosis usually present for many years

4. History:
- Patient presents with complaints of pain
- Exacerbated by overhead or above shoulder activities
- Pain at night
- Loss of motion and weakness

5. Physical exam:
- Range of motion:
  - Forward elevation (maximum arm-trunk angle)
  - Abduction (note classic painful arc)
  - External rotation (arm comfortably at side)
  - External rotation (arm at 90° abduction)
  - External rotation (arm at 90° abduction)
  - Internal rotation (highest posterior anatomy reached with thumb)
- Impingement Signs:
  - Impingement I (passive forward elevation in slight internal rotation)
  - Impingement II (passive abduction 90° external rotation)
  - Impingement III (passive abduction 90° internal rotation)
  - Impingement IV (passive adduction: crossover)
- Strength:
  - Forward flexion
  - External rotation (arm comfortably at side - teres minor/infraspinatus)
  - Internal rotation (arm comfortably at side - subscapularis)
  - Abduction - supraspinatus
- Specific area of tenderness:
  - Acromioclavicular joint tenderness
  - Supraspinatus/greater tuberosity tenderness
  - Biceps tendon tenderness (using Speed's test)
- Speed's test: extend arm fully anteriorly, palm facing up
  - Push down on hand as patient resists
  - Pain in anterior shoulder is a positive test for biceps tendonitis
  - Check for atrophy and crepitus

6. Diagnostic testing:
- X-rays: 3 recommended views
  - Anteroposterior view with arm at 30° of external rotation shows:
    - Glenohumeral joint
    - Subacromial osteophytes
    - Sclerosis of greater tuberosity
  - Outlet Y view shows:
    - Subacromial space
    - Can differentiate the acromion processes
  - Axillary view helps visualize acromion and coracoid process
    - MRI if suspect rotator cuff tear

7. Treatment:
- Conservative treatment with rest, ice, NSAIDs
- Corticosteroid injections may be considered for chronic cases
Physical therapy to improve rotator cuff strength
- Surgical decompression of acromioclavicular joint may be considered for unresolved conditions
- Sling not recommended
  - Encourages development of adhesive capsulitis from immobility

**Rotator Cuff Tear**
1. Treatment:
   - Partial tears can initially be treated with rest, ice, NSAIDs and physical therapy to strengthen shoulder and regain function
   - Complete tears usually require surgery

Acromioclavicular Joint Sprain

**References**
   http://orthoinfo.aaos.org/topic.cfm?topic=A00041

Evidence-Based Inquiry
1. What is the initial approach to the treatment of shoulder pain?
2. What is the best way to diagnose a suspected rotator cuff tear?

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