From Gameday to Post-Season Aftermath: Shoulder Injuries in Football Players along the Continuum

APTA’s Combined Sections Meeting

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Objectives:

1. Understand the biomechanical demands of football.
2. Describe the incidence and prevalence of shoulder injuries in football athletes.
3. Distinguish common shoulder injuries in football athletes.
4. Construct evidence-based, sport-specific rehabilitation programs for football athletes, both post-operative and non-operative, considering both in-season and post-season treatment.

Description:

The popularity of contact sports in North America is undeniable, with football ranked as the most popular men’s sport. The rate of injuries in these sports is reported as high as over 40 per 1000 athlete-exposures, with most injuries being traumatic in nature. Despite protective equipment and rigorous training, the shoulder complex remains especially vulnerable, and injuries of the shoulder girdle are common. High school football reports 480,000 shoulder injuries yearly; the incidence remains high at the professional level, where shoulder injuries are among the most common in NFL players.

Additionally, it is not uncommon for these athletes to continue playing through the season with a current shoulder injury. If the athlete is in season, and when they are expected to continue to play can heavily influence the decision-making algorithms. Comprehensive rehabilitation programs should consider the biomechanics of the sport and the player’s position, and should prepare the athlete to return to repetitive contact and/or forces.

This session will examine the incidence and prevalence of common shoulder injuries in football athletes; the clinical presentation and differential diagnosis of these conditions; and the sport specific rehabilitation for these athletes after shoulder injuries, encompassing non-operative and post-operative, in-season and post-season treatment. Diagnoses discussed will include dislocations, labral tears/repairs, acromioclavicular joint injuries, clavicular fractures, and pectoralis tears/repairs. A team physician’s perspective in management will also be included.

References:


Gameday Assessment of Shoulder Injuries in Football Athletes
I. RESPONSIBILITY
To be able to make quick, safe, and accurate assessment of a game related injury, render appropriate and safe treatment, and allow for timely return to competition resulting in minimal further risk to the athlete.
The Question: When can the athlete be safely returned to immediate competition?

II. Evaluation
   a. Phases of Care: Based on acuity of care needed/severity of injury
   b. Three phases/time periods
      i. On field assessment
      ii. Sideline assessment
      iii. Athletic training room assessment
   c. On field assessment: Usually handled by medical staff
   d. Sideline Assessment: Most common site for evaluation; severity of injury often less
      i. Most common injury patterns
         1. Stingers
         2. Contusions
         3. AC joint sprain
         4. GH instability
   e. Return To Play Criteria
      i. Functional range of motion
      ii. Minimal to no pain
      iii. Protective strength
      iv. Normal neurological examination
      v. Able to perform position specific activities
   f. Athletic Training Room: athletes triaged to this location for concussions, reductions, splinting, radiographs, injections, game ending injuries requiring further disposition

III. BURNERS: “STINGERS”
   a. Pinch / stretch to the nerve roots and/or trunk of the upper brachial plexus resulting in a transient or prolonged neuropraxia of a defined pattern
   b. Mechanism of Injury
      i. Depression of the ipsilateral shoulder w/ forceful deviation of the head and neck to the opposite side
      ii. 2- Extension / compression / ipsilateral rotation
   c. Diagnosis: burning sensation into neck / shoulder / extremity; paresthesias; weakness
   d. Treatment
i. Supportive / serial examinations
ii. Neck rolls / C-collars for recurrences

e. Return to Play
   i. Full / painless neck ROM
   ii. FULL RETURN of motor and sensory deficits

IV. STINGERS
   a. Rules of Thumb
   b. More than 2 “Stingers” same game.....OUT!!!
   c. Stinger on contralateral side.....OUT!!!
   d. Stinger symptoms concurrent in each UE.....OUT!!!
   e. Axial neck pain.....OUT!!!!
   f. Obtain good neuro exam
   g. C-spine radiographs if any of the above
   h. Follow up MRI if any of above

V. A-C Injuries
   a. Blow to superolateral acromion from fall with the arm adducted
   b. Direct blow to superior acromion
   c. Essential: evaluate Cspine; evaluate for stinger
   d. Diagnosis:
      i. Full ROM, protective strength, minimal pain with cross arm adduction
      ii. Minimal pain with functional activities
   f. For most athletes:
      i. Grade I = 7 - 10 days
      ii. Grade II = 2 - 3 weeks
      iii. Grade III = 4 - 6 weeks
   g. If pain is well localized to AC joint (not trapezius or deltoid) local injection may hasten return to play

VI. Glenohumeral Instability
   a. Need to understand: acute vs chronic; anterior vs posterior; position; associated symptoms
   b. Mechanism of Injury
   c. Diagnosis
   d. Treatment
   c. Return to Play
      i. No dislocation(subluxation or labral tear only)
      ii. Usually chronic
      iii. Full, painless ROM
      iv. Protective strength
      v. Normal neurological examination
      vi. Harness and functional at position
Non-operative Treatment of In-Season Shoulder Trauma

Marisa Pontillo, PT, PhD, DPT, SCS

I. Epidemiology
   a. Football: most popular men’s sport at high school and collegiate level
   b. Up to 40 injuries/ 1000 athlete exposures
   c. Shoulder injuries: 10-20% of all injuries at the collegiate and elite level
   d. Rotator cuff injuries and acromioclavicular joint separation most common

II. Pathophysiology and differential diagnosis
   a. Multiple diagnoses possible!

III. Biomechanical Demands
   a. Position-specific: unique combination of upper extremity closed chain, open chain, or non-upper extremity demands
   b. Football: stance; snapping; blocking; throwing; tackling/collision
   c. Transitions in/out of positions

IV. Keys to Success

V. Examination

VI. Prognosis

VII. Rehabilitation goals

VIII. Interventions
   a. ROM
   b. Manual treatment
   c. Strengthening
   d. NMC
   e. OKC and CKC

IX. Taping and bracing

X. In-season and Conditioning Considerations

XI. Practice limitations

Game Day Aftermath: Treatment Algorithm Decision Making: Surgical vs Non Surgical

Michael Moser, MD

I. Perspective

II. Case Based Learning and Examples

III. Bone Trauma

IV. AC Joint

V. Stingers

VI. Glenohumeral Instability

VII. Case studies
Post-Operative Management of Labral Repairs

Marty Huegel PT, M.Ed

I. Labral Tears
   a. SLAP tears
   b. Bankart Lesions
   c. Post labral tears
   d. MDI

II. Football Focus: Overhead Athlete versus Lineman

III. Focus
    a. Tackling
    b. Blocking: Post labral tears
    c. Ground contact: combination

IV. Bankart Stabilization
    a. Arthroscopy: May 2013, Vol 29(5)
    b. Systematic Review. Long-Term Outcomes After Bankart Shoulder Stabilization
    c. Harris et al

V. Bankart repair recurrence rates

VI. Anterior Bankart Reconstruction and/or Capsular Shift

VII. Phase I- Immediate Motion, weeks 0-6

VIII. Phase II Intermediate, weeks 6-16
     Phase III, weeks 16-23

IX. Phase IV: weeks 24 on

X. Return to Activity Criteria

XI. Return to Play Testing
    a. Trunk Stability pushup
    b. Seated Arm Shot Put
    c. Closed Kinetic Chain UE Stability Test
    d. Fatigue testing

XII. Bracing?
    a. Hayden: Ortho J Sports Medicine, Dec 2016: Use of a prophylactic shoulder-stabilizing brace may reduce the post labral injury rate among collegiate lineman and decreases amount of contact practices and games missed
    c. Lineman and linebackers had a significantly shorter career in years (5.2 +/- 3.9 vs 6.9 +/- 3.6)
    d. Games played 51 vs 81
Post-Operative Management of AC Separations and Pectoralis Tears

Georgio Zeppieri, MPT, CSCS*D

I. Introduction
a. Injuries to AC joint comprise 9% of shoulder girdle injuries and 8% of all joint dislocations in the body.
b. Over half AC joint injuries occur in patients in their 20s (5 to 1 male to female ratio).
c. Severity of AC joint pathology is based on the extent of injury to AC and CC (coracoclavicular) ligaments and the amount and direction of clavicle displacement.

II. Anatomy

III. Mechanism of injury
a. Usually a result of direct trauma
b. Typically a blow to the lateral shoulder, which moves the acromion away from distal clavicle
c. Can also be a result of indirect trauma
d. Fall on Outstretched Arm
e. Traction Injury
f. Usually present with concomitant pathology

IV. Clinical Examination
a. Evaluation
b. Visual observation
c. Palpation
d. Neurological Exam
e. Special Tests

V. Classification of AC Dislocation
a. Type 1
b. Type 2
c. Type 3
d. Type 4
e. Type 5
f. Type 6

VI. Imaging

VII. Treatment

VIII. Non-operative verse Operative

IX. Non-operative: Factors to consider – hand dominance, occupation, heavy labor, position/sport requirements, risk for re-injury

X. Operative: Type 4, Type 5, Type 6

XI. Treatment – Operative Management
a. Phase I – Restrictive Motion Phase (Weeks 0 – 6)
b. Phase II – Intermediate Phase (Weeks 7 – 12)
c. Phase III – Return to Activity Phase (Weeks 13 – 24)
d. Phase IV – Return to Competition Phase (Months 6 - 9)
XII. Pectoralis Major Rupture
   a. Anatomy
   b. Clinical Presentation
   c. History
   d. MOI
   e. Clinical Presentation
   f. Physical examination

XIII. Surgical Treatment
   a. Post-operative Rehabilitation
   b. PHASE I – IMMEDIATE POST-OPERATIVE PHASE (WEEKS 0-2)
   c. PHASE II – INTERMEDIATE POST-OPERATIVE PHASE (WEEKS 3-6)
   d. PHASE IV – ADVANCED STRENGTHENING PHASE (WEEKS 12-16+)