

## Best Practice Recommendations

*A series of evidenced-based guidelines to improve your patient care, provided by the developers of ATGenius.com.*

### Acromioclavicular Joint Injuries

Each Best Practice Recommendation includes key elements to evaluating or treating the condition, a Strength of Recommendation (SOR) grade based on research quality, and supporting evidence.

#### Best Practice Recommendation #1

**Key examination findings include tenderness of the AC joint, limited range of motion and pain with cross body adduction. The examiner should also evaluate AC joint stability using various examination maneuvers.**

**SOR: C (usual practice, literature review articles)**

- Testing horizontal stability is a key part of the injury evaluation. The examiner should stabilize the acromion with one hand while shifting the clavicle posteriorly with the other hand.<sup>1</sup>
- Grade I and II injuries do not have gross deformity or instability. Patients typically have tenderness over the AC joint and have pain with cross-body adduction.<sup>2</sup>
- Having the patient shrug the shoulders can help the examiner differentiate a Grade 3 from a Grade 5 injury since this maneuver will reduce the AC joint with a Grade 3 injury. A Grade 5 will not reduce with this maneuver since the deltoid-trapezius fascia is stripped from the clavicle.<sup>1</sup>
- Crossbody adduction, Piano Key Sign and the Paxino test (examiner places thumb over posterolateral acromion, index finger over mid-superior clavicle and squeeze) are helpful in diagnosing an AC joint injury.<sup>3</sup>

#### Best Practice Recommendation #2

**Grade 1 and 2 injuries are treated conservatively with short-term sling use for comfort and early range of motion and strengthening exercises. Treatment of Grade 3 injuries is controversial; Grades 4-6 are typically treated surgically but can have complications. SOR: C (usual practice, literature review articles)**

- Non-operative treatment of Grade 1 and 2 injuries includes sling immobilization with early range of motion and a rehabilitation program when pain is tolerable.<sup>3</sup>
- Grade I and II injuries are treated non-operatively. Grade 3 injuries are controversial with current trends towards initial non-operative management. Operative treatment is recommended for Grades 4-6.<sup>1,2</sup>
- In adults with high grade injuries (Grades 3-6), non-operative management resulted in faster return to work activities and reduced infection rate but with poorer cosmetic outcome. No clinical difference in functional outcome, return to sports or Disability of the Arm, Shoulder and Hand (DASH) scores was found between operative and non-operative groups.<sup>4</sup>

### Best Practice Recommendation #3

**Standard anterior-posterior radiographs using the Zanca view and wrist weights is the standard for evaluating AC joint stability; a seated lateral stress view evaluates posterior displacement. SOR: C (usual practice, literature review articles)**

- The Zanca view (anterior-posterior view with x-ray beam tilted 10 degrees cephalic tilt) with a 10 kg weight hanging on both wrists evaluates AC joint integrity. A normal AC joint is separated 1-3 mm which decreases with age.<sup>1</sup>
- The CC distance is normally 1.1-1.3 cm and a 25-50% increase indicates disruption of the CC ligaments.<sup>5</sup>
- A seated axillary view or lateral stress view is used to visualize posterior displacement.<sup>1</sup>
- AC joint width greater than 7mm in males and 6mm in females is pathologic.<sup>6</sup>

### Best Practice Recommendation #4

**Clinicians should use a criterion-based rehabilitation progression, address scapular dyskinesis and set realistic return to activity expectations. SOR: C (usual practice, review articles)**

- Immediate treatment for grade 1-2 injuries consists of 3-10 days of sling use as needed, pain relief modalities, isometrics and range of motion exercises as tolerated. Once ROM is 65-75% of the contralateral side and deltoid strength 4/5, begin isotonic strengthening (no overhead shoulder press, bench press, or flies).<sup>7</sup>
- Once the patient has no pain, full ROM and 70-75% strength of contralateral side, advanced strengthening such as PNF patterns, pushups, light shoulder press and bench press (no wide grip or flies), and two-handed plyometrics may begin.<sup>7</sup>
- Grade 3 injuries are progressed more slowly with 1-4 weeks of sling use and advance strengthening usually not occurring until 4-6 weeks post-injury. Scapular dyskinesis management should be incorporated with scapular motion exercises, kinetic chain tubing exercises, and progress to combined scapular-trunk-hip- lower body exercises.<sup>7,8</sup>
- Return to sports activities can be expected in 1-4 weeks for Grade 1 injury, 4-6 weeks for a Grade 2 injury, and 6-12 weeks for a Grade 3 injury.<sup>7,9,10</sup>

### Best Practice Recommendation #5

**Patients should be educated about the possibility of chronic pain or surgery following an AC joint injury. SOR: C (case series, literature review)**

- Many patients with AC joint injuries suffer from chronic symptoms as far out as 10 years post-injury, and some require surgery. For Grade 1-2 injuries, over half of patients report ongoing occasional symptoms following AC injuries.<sup>11</sup>
- For Grade 2 injuries, over 40% may need to modify work or sports participation and as much as 27 percent may need surgery for ongoing symptoms.<sup>12</sup>
- Degenerative joint changes, joint laxity, distal clavicle osteolysis and ligament ossification can occur resulting in poor outcomes following these injuries.<sup>13</sup>

Information researched and provided by Casey Christy, DAT, ATC, CSCS, Co-Developer, ATGenius.com. Treatment decisions should be made based on the best available evidence, patient preference, and clinician expertise, in consultation with, and at the direction of a physician.

## References

1. Tauber M. Management of acute acromioclavicular joint dislocations: current concepts. *Arch Orthop Trauma Surg.* 2013;133(7):985-995.
2. Bishop J, Kaeding C. Treatment of the acute traumatic acromioclavicular separation. *Sports Med Arthrosc Rev.* 2006;14(4):237-245 (review).
3. Kim S, Blank A. Management of type 3 acromioclavicular joint dislocations: current controversies. *Bull Hosp Jt Dis.* 2014;72(1):53-60.(review)
4. Chang N, Furey A, Kurdin A. Operative versus nonoperative management of acute high-grade acromioclavicular dislocations: a systematic review and meta-analysis. *J Orthop Trauma.* 2018;32(1):1-9. Retrospective review Level III evidence
5. Bosworth B. Acromioclavicular separation: new method of repair. *Surg Gynecol Obstet.* 1941;73:866-871.
6. Bucholz RW, Heckmann, JD (2001) Acromioclavicular joint injuries. In: Bucholz R, Heckman J. *Rockwood and Green's Fractures in Adults, Vol 1, 5th ed.* Philadelphia: Lippincott Williams & Wilkins; 2001: 1210–1244.
7. Gladstone J, Wilk K, Andrews J. Non-operative treatment of acromioclavicular joint injuries. *Oper Tech Sports Med.* 1997; 5 (2): 78-87.
8. Kibler W, McMullen J. Scapular dyskinesia and its relation to shoulder pain. *J Am Acad Orthop Surg.* 2003; 11 (2): 142-51.
9. Mazzocca A, Arciero R, Bicos J. Evaluation and treatment of acromioclavicular joint injuries. *Am J Sports Med.* 2007; 35 (2): 316-29.
10. Cote M, Wojcik K, Gomlinski G, et al. Rehabilitation of acromioclavicular joint separations: operative and non-operative considerations. *Clin Sports Med.* 2010; 29: 213-28.
11. Mikek M. Long-term shoulder function after type I and II acromioclavicular joint disruption. *Am J Sports Med.* 2008; 36 (11): 2147-50.
12. Mouhsine E, Garofalo R, Crevoisier X, et al. Grade I and II acromioclavicular dislocations: results of conservative treatment. *J Shoulder Elbow Surg.* 2003; 12: 599-602.
13. Reid D, Polson K, Johnson L. Acromioclavicular joint separations grades I-III: a review of the literature and development of best practice guidelines. *Sports Med.* 2012;42(8):681-696.