

**PICO Search Assignment Worksheet**

**Name; Jay Kolasinac**

28M, smoker, w/ no PMH presents to the ED with a complaint that his “shoulder popped out” after falling from a ladder. X-rays confirm an anterior dislocation of the humerus. The PA on duty decides to perform the traction-countertraction method for shoulder reduction.

Search Question: How do the success rates of the traction-countertraction method compare to other methods of anterior shoulder reduction?

Question Type: What kind of question is this? (boxes now checkable in Word)

- Prevalence      Screening      Diagnosis
- Prognosis      Treatment      Harms

Assuming that the highest level of evidence to answer your question will be meta-analysis or systematic review, what other types of study might you include if these are not available (or if there is a much more current study of another type)? Please explain your choices.

Along with meta-analyses and systemic reviews, I would consider studies that involved Randomized Controlled Trials [RCT]. RCTs would be the preferred study I am looking for since it is often used to test treatments. This will be perfect considering I want to know whether one form of treatment could potentially result in different success rate compared to another.

**PICO search terms:**

P	I	C	O
Adults	Traction-countertraction method	Other methods of anterior shoulder dislocation	Higher success rate
Anterior shoulder dislocations		Kocher method	Lower failure rates
		Scapular manipulation	

### Search tools and strategy used:

Database	Terms	Filter	# of Articles
PubMed	Anterior shoulder dislocation methods comparison	Medline, last 10 years	666
ScienceDirect	Anterior shoulder dislocation methods comparison	Research articles, last 10 years	177

There was very little research comparing the specific method of anterior shoulder reduction that I was curious in, so I needed to broaden my search terms and was able to find studies that included multiple methods of reduction that also included the technique I was interested in.

### Results found:

#### Article 1

<p>Citation</p> <p>Guler, O., Ekinci, S., Akyildiz, F., Tirmik, U., Cakmak, S., Ugras, A., ... Mahirogullari, M. (2015). Comparison of four different reduction methods for anterior dislocation of the shoulder. <i>Journal of Orthopaedic Surgery and Research</i>, 10(1). doi:10.1186/s13018-015-0226-4 <a href="https://sci-hub.se/10.1186/s13018-015-0226-4">https://sci-hub.se/10.1186/s13018-015-0226-4</a></p>
<p>Article Type</p> <p>Retrospective Study</p>
<p>Abstract</p> <p>Background: Shoulder dislocations account for almost 50 % of all major joint dislocations and are mainly anterior.</p> <p>Objective: The aim is a comparative retrospective study of different reduction maneuvers without anesthesia to reduce the dislocated shoulder.</p> <p>Methods: Patients were treated with different reduction maneuvers, including various forms of traction and external rotation, in the emergency departments of four training hospitals between 2009 and 2012. Each of the four hospitals had different treatment protocols for reduction and applying one of four maneuvers: Spaso, Chair, Kocher, and Matsen methods. Thirty-nine patients were treated by the Spaso method, 47 by the Chair reduction method, 40 by the Kocher method, and 27 patients by Matsen's traction-countertraction method. All patients' demographic data were recorded. Dislocation number, reduction time, time interval</p>

between dislocation and reduction, and associated complications, pre- and post-reduction period, were recorded prospectively. No anesthetic method was used for the reduction. Results: All of the methods used included traction and some external rotation. The Chair method had the shortest reduction time. All surgeons involved in the study agreed that the Kocher and Matsen methods needed more force for the reduction. Patients could contract their muscles because of the pain in these two methods. The Spaso method includes flexion of the shoulder and blocks muscle contraction somewhat. The Chair method was found to be the easiest because the patients could not contract their muscles while sitting on a chair with the affected arm at their side. Conclusions: We suggest that the Chair method is an effective and fast reduction maneuver that may be an alternative for the treatment of anterior shoulder dislocations. Further prospective studies with larger sample size are needed to compare safety of different reduction techniques.

#### Key Points

Chair method found to be easiest

Spaso method blocked muscle contraction

Authors of the article suggest that the Chair method is very effective and also fast regarding reduction time

Larger study sizes are needed to definitively conclude which method is best

#### Reason for choosing:

I chose this article since it was published within the last 10 years. It compared multiple methods of reduction against one another.

## Article 2

#### Citation

Ghane MR, Hoseini SH, Javadzadeh HR, Mahmoudi S, Saburi A. Comparison between traction-countertraction and modified scapular manipulation for reduction of shoulder dislocation. Chin J Traumatol. 2014 Apr 1;17(2):93-8. PMID: 24698578.

<https://www.sciencedirect.com/science/article/pii/S1008127515300912?via%3Dihub>

#### Article Type

Randomized Control Trial

#### Abstract

Objective: One of the most common joint dislocations presented to the emergency department (ED) is anterior shoulder dislocation (ASD). Various techniques for the treatment of this abnormality have been suggested. In this study, we evaluated the efficacy and success rate of modified scapular manipulation (MSM) as a painless procedure compared to traction-countertraction (TCT) for reduction of ASD.

Methods: Patients with ASD who were presented to ED of Baqiyatallah Hospital, Tehran during 2011 were included. They were randomly divided into MSM group or TCT group and

then pain at reduction, time of reduction, duration of hospitalization, and success rate were compared. In TCT group, reduction was performed using sedative and antipain medications. Results: Ninety seven patients (81.6% male) with a Chin J Traumatol 2014;17(2):93-98 mean age of 34.15 years±13.48 years were studied. The reduction time between both groups showed a significant difference (470.88 seconds±227.59 seconds for TCT group, 79.35 seconds±82.49 seconds for MSM group, P<0.001).

Conclusion: It seems that the manipulation technique can be more successful than the TCT method at the first effort whilst the second effort has the opposite results. Also MSM can be safer, cheaper and more acceptable for patients than TCT as a standard traditional method.

#### Key Points

First effort reductions seem to favor the manipulation technique better than the traction-countertraction method

However, the second effort in reduction, the traction-countertraction method yielded better results.

Manipulation method can be safer, cheaper, and more acceptable for patients compared to the traction-countertraction method

#### Reason for choosing:

Article directly answers my PICO question by comparing the traction-countertraction method. Published within the last 10 years which is good. The method of study was a RCT which is very good..

### Article 3

#### Citation

Michael Gottlieb, Shoulder Dislocations in the Emergency Department: A Comprehensive Review of Reduction Techniques, The Journal of Emergency Medicine, Volume 58, Issue 4, 2020, Pages 647-666, ISSN 0736-4679,  
<https://www.sciencedirect.com/science/article/pii/S073646791931090X>

#### Article Type

Systematic Review

#### Abstract

##### Background

Shoulder dislocations are a common presentation to the emergency department and one of the most frequent types of joint dislocations. Studies have found that delays from presentation to first reduction attempt and failed attempt at initial reduction are associated with lower rates of overall reduction success.

##### Discussion

This article reviews 26 total reduction techniques, as well as a variety of modifications to these techniques. Each technique has distinct advantages and limitations associated with its

use. While there are limited data comparing specific techniques, the individual success rates of most maneuvers range from 60–100%.

#### Conclusion

It is essential for emergency physicians to be familiar with multiple different reduction techniques in case the initial reduction attempt is unsuccessful or patient-specific characteristics limit the ability to perform certain techniques. This article reviews several reduction maneuvers for shoulder dislocations, variations on these techniques, and advantages and disadvantages for each approach. It is intended to serve as a resource for those interested in expanding their knowledge of shoulder reduction techniques.

#### Key Points

Compared the efficacy of 26 different techniques for shoulder reduction.

Success rates of most maneuvers yielded percentages of 60-100%

Clinicians in the ED should be familiar with multiple different reduction techniques in case the initial reduction attempt is unsuccessful.

Traction-countertraction yielded 90-100%

#### Reason for choosing:

I really liked this article because it is an in depth review on all the various shoulder techniques used for reduction. It compared the efficacy of 26 different techniques. The traction countertraction method was included and it yielded success rates of 90-100% so the technique I was interested in was compared to the rest of them opposed to only a few like previous articles.

### **What is the clinical “bottom line” derived from these articles in answer to your question?**

The clinical bottom line here is that there is no “go-to” method for anterior shoulder reduction. Some evidence does in fact point to the efficacy of the traction-countertraction method being 90-100% effective. There is simply not enough strong convincing evidence to suggest that the traction-countertraction method should be the most utilized shoulder reduction method simply based on its efficacy. The reason behind this may be in fact due to the unique characteristics of each anterior shoulder dislocation within each patient. Perhaps a scapular manipulation method would work very well on one patient who is able lie in the prone position. However, if you are worried about a patient’s airway, then you should not put these types of patients in the prone position and you would opt for another method of shoulder reduction that provides the best outcome regarding the patient in their entirety. Until there is more research done on the matter, I do think that EM clinicians should know various types of methods so that they can cater to the needs of many patients in different circumstances.