Finestone A, Milgrom C, et al. Bracing in external rotation for traumatic anterior dislocation of the shoulder. JBJS Br 2009;91B:918-921.

Design: Randomized clinical trial

Study question: In the setting of primary anterior dislocation, does the rate of recurrence of dislocation differ between bracing in internal and external rotation?

Population/sample size/setting:

- 51 men with a mean age of 20 were treated for traumatic dislocation of the shoulder at orthopedic departments in Israel; 40 were active duty soldiers
- Exclusion criteria were concurrent fracture of the greater tuberosity and injury in a motor vehicle accident

Main outcome measures:

- All patients had closed reduction of the dislocation in the emergency department and all had brace immobilization for 4 weeks, followed by a standard regime of physiotherapy
- Patients were allowed to remove the brace to shower and change clothes but otherwise wore it continuously
- Randomization was to internal rotation (n=24) or external rotation (n=27)
    - External rotation angle was 15° to 20°
- Compliance was nearly complete in both groups; one patient in the external rotation group removed the brace 2 days early
- After a mean followup of 36 months (24 to 48), redislocation occurred in 10 patients in the external rotation group at a mean of 13.8 months after the first injury
- Similarly, after a mean followup of 31 months (24 to 47), redislocation occurred in 10 patients in the internal rotation group at a mean of 12.4 months after the first injury
- 10 of the 51 patients had axillary nerve neurapraxia which resolved within 10 weeks
- There were no fractures of the glenoid rim
- Of the 20 patients with recurrent dislocation, 19 had a Bankart lesion

Authors' conclusions:

- After primary anterior dislocation of the shoulder, bracing for 3 to 4 weeks allows optimal soft tissue healing
- The position of the bracing, internal or external rotation, made no difference in the rates of recurrence of dislocation

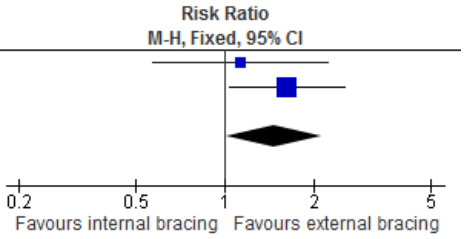
- The patients were young physically active men who returned to vigorous physical activity after treatment of the primary dislocation
    - These patients differ from those studied by Itoi 2007, who ranged in age from 12 to 90 and were of mixed gender
    - The probability of a Bankart lesion in older patients is lower than in younger patients, and older patients are more likely to have capsular pathology than younger patients
- External rotation bracing may not be as effective as previously described in reducing recurrent shoulder dislocation

Comments:

- While there is little description of factors involving risk of bias (description of randomization method, allocation concealment), it is not likely that there is serious risk of bias threatening internal validity
- As with Itoi, other outcomes such as shoulder function and pain scores are not reported
- As with Itoi 2007, all patients had closed reduction of the shoulder dislocation without surgical repair, and the recurrence rate may have been affected by this, since there is evidence that surgery to repair Bankart lesions reduces the risk of recurrent dislocation (Handoll 2004, Chahal 2012)
- Itoi 2007 reported redislocation in 31/74 patients with internal bracing and in 22/85 with external bracing
- Although the conclusions are different, the combined data of Itoi and Finestone are not statistically heterogeneous, as a forest plot illustrates

	Internal bracing		External bracing			Risk Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Fixed, 95% CI
Fairbank 2009	10	24	10	27	31.5%	1.13 [0.57, 2.23]
Itoi 2007	31	74	22	85	68.5%	1.62 [1.03, 2.54]
Total (95% CI)		**98**		**112**	**100.0%**	**1.46 [1.01, 2.13]**
Total events	41		32			

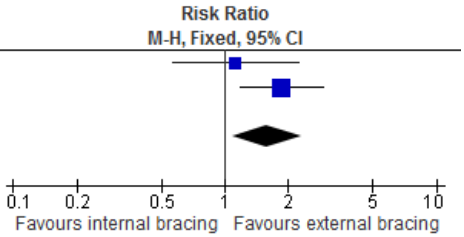
Heterogeneity: Chi² = 0.76, df = 1 (P = 0.38); I² = 0%
Test for overall effect: Z = 1.99 (P = 0.05)



- Although Itoi had some older patients in the study, most patients were under 30, and their combined results are also not statistically heterogeneous (I^2 of 30% is below the threshold of statistical heterogeneity);

	Internal bracing		External bracing			Risk Ratio
Study or Subgroup	Events	Total	Events	Total	Weight	M-H, Fixed, 95% CI
Fairbank 2009	10	24	10	27	37.9%	1.13 [0.57, 2.23]
Itoi 2007	25	42	18	56	62.1%	1.85 [1.17, 2.92]
Total (95% CI)		**66**		**83**	**100.0%**	**1.58 [1.08, 2.30]**
Total events	35		28			

Heterogeneity: Chi² = 1.42, df = 1 (P = 0.23); I² = 30%
Test for overall effect: Z = 2.37 (P = 0.02)



- The rates of return to vigorous physical activity may have been higher with a population which is mostly active duty military; however, the majority of patients in the study by Itoi had their dislocations during participation in sports, and a majority returned to sports activities after treatment
- The risk of recurrence for all participants in Finestone is 39%; the risk of recurrence in Itoi is 33%; the relative risk is a non-significant 1.18
- Although the studies arrive at different conclusions, they should not be interpreted as "conflicting," since the differences in conclusions may arise from different sampling sizes; the combined data favor external bracing

Assessment: Overall, there is some evidence that external bracing of dislocations with closed reductions reduce the risk of recurrent dislocation compared to bracing in internal rotation

References:

Chahal J, Marks PH, et al. Anatomic Bankart Repair Compared With Nonoperative Treatment and/or Arthroscopic Lavage for First-Time Traumatic Shoulder Dislocation. Arthroscopy 2012;28: 565-575

Handoll HH, Al-Maiyah MA. Surgical versus non-surgical treatment for acute anterior shoulder dislocation. Cochrane Database of Systematic Reviews 2004, Issue 1, Art # CD004325.

Itoi E, Hatakeyama Y et al. Immobilization in External Rotation After Shoulder Dislocation Reduces the Risk of Recurrence. JBJS 2007;89:2124-31.