Hodgson SA, Mawson SJ et al. Rehabilitation of two-part fractures of the neck of the humerus (two-year follow-up). J Shoulder Elbow Surg 2007;16:143-145.

Design: Randomized clinical trial

Population/sample size/setting:

- 74 patients (61 women, 13 men, mean age 68) with minimally displaced (Neer group 1) proximal humerus fractures treated in a shoulder and elbow unit in UK and followed for two years
- Included if Neer definition (no segment displaced more than 1 cm or angled more than 45°); inability to understand written or verbal information was only exclusion criterion
- Original cohort had 86 patients; 74 contributed complete data at 2 year follow-up

Main outcome measures:

- Randomized to PT within one week of fracture (n=37) or PT following 3 weeks of immobilization (n=37)
- PT for both groups consisted of 2 weeks of education, passive ROM within pain tolerance, heat or ice, gravity-assisted pendular exercise; then adding passive and functional shoulder exercises with introduction of activity against gravity for up to 4 months
- Discharge occurred when physiotherapist and patient judged that independent shoulder function had been achieved; early PT group had mean of 9 sessions, and delayed PT group had mean of 14 sessions
- Croft shoulder disability questionnaire is a 22 item self-report of pain and activity (bathing, dressing, lying on side at night, shopping, pastimes, etc) for which score of 0 means no disability and score of 5 or more means significant disability; groups were compared at 1 and 2 years from time of fracture
- Croft scores at 1 year showed advantage for early PT (57% with score of 0 in early PT, 27.5% with score of 0 in delayed PT); $p<.01$
- Croft scores at 2 years showed that early PT group still had 57% with no disability; delayed PT had 40.5% with no disability ($p>.05$)
- At 2 years, 42% of all patients reported continued problems with lifting and 32% reported difficulty dressing
- Even though overall Croft scores did not differ significantly between groups, delayed PT had more sleep disturbance and pain on movement

Authors' conclusions:

- After minimally displaced proximal humerus fracture, immediate PT leads to faster recovery than delayed PT
- Maximal recovery normally achieved at 1 year; delaying PT may delay maximal recovery to 2 years post-injury
- Patients who fracture humerus have poor neuromuscular status and decreased bone density; delay of recovery can be detrimental to general health

Comments:

- Some aspects of design are not reported but were included in earlier study (JBJS Br 2003;85-B:419-422)
- For example, randomization method was sequential sealed envelopes; method of immobilization for delayed PT group was collar and stiff sling
- Self-report of disability is sole reported outcome measure; no objective measurement is reported
    - However, the self-report items are appropriate because they assess important activities of daily living

Assessment; Adequate for evidence that for patients with minimally displaced proximal fractures of the humerus, shoulder function is better when physical therapy begins one week after the fracture than when it is begun three weeks after the fracture