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## Humerus Mid-Shaft Fracture: s/p Open Treatment with Internal Fixation

### Post-Operative Rehabilitation Protocol

#### Lake Cook Orthopedics

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*Humerus fractures generally take 6-8 weeks to heal. Severity of humerus fractures can vary and affect time to healing and stability of the repair. The rehab protocol below relates to fractures that have a strong and stable surgical repair. Less stable fractures may require more protection and a less aggressive protocol.*

*The intent of this protocol is to provide the clinician with a guideline for the postoperative rehabilitation course of a patient that has undergone a surgical repair of a humerus fracture. This protocol is no means intended to be a substitute for one's clinical decision making regarding the progression of a patient's post-operative course based on their physical exam/findings, individual progress, and/or the presence of post-operative complications. If a clinician requires assistance in the progression of a post-operative patient they should consult with the referring surgeon.*

Phase 1:           **Time Frame:** 0-4 weeks

**Immobilization:** Sling Immobilizer / Brace with 15 degrees abduction x 4 weeks. Wear continuously except for therapy, HEP and hygiene / bathing.

**Restrictions:** No strengthening. Avoid aggressive stretching and rotational stress. Limit ER to neutral and IR to chest.

**Exercises:** Gripping exercises, elbow, wrist and finger ROM, shoulder pendulums, PROM/AAROM/AROM for shoulder should be slow and to tolerance. Instruct on HEP to perform twice daily. Modalities used as needed.

Phase 2:           **Time Frame:** 4-8 weeks

**Immobilization:** None

**Restrictions:** No strengthening until fracture healing. Avoid pain, stretch to tolerable discomfort only.

**Exercises:** Gradually increases ROM exercises. Stretching should continue to be slow and to tolerance while avoiding pain. Modalities used as needed.

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Phase 3: **Time Frame:** 8-12 weeks

**Immobilization:** None

**Restrictions:** Exercise advancement should be gradual and in slow increments while avoiding pain. If patient develops pain, drop back to early phase of rehabilitation, until pain free. ROM restrictions: FF-none, ABD-none, IR-S1 or 20° in abduction, ER 20°.

**Exercises:** Continue with shoulder PROM, AAROM and AROM. At 8 weeks begin shoulder isometric strengthening with arms at side (IR, ER, scapular stabilization). At 10 weeks add shoulder resistance strengthening exercises. Progression should be gradual and in slow increments while avoiding pain.

Phase 4: **Time Frame:** 12-26 weeks

**Immobilization:** None

**Restrictions:** No specific restrictions. Patients ROM, strength and endurance should be advanced progressively while avoiding pain.

**Exercises:** ROM should be 85% normal or greater; if not, continue to address with stretching and a HEP. Progressive upper-body strengthening may be more aggressive after 16 weeks. Add plyometric training for athletes at 18 weeks. Add exercises simulating work requirements at 18 weeks as part of return to work program.

Phase 5: **Time Frame:** 26+ weeks

**Goal:** Restore normal shoulder function and progress to return to sport or return to work.

**Restrictions:** No specific restrictions. Advance progressively while avoiding pain. If the patient develops pain they are to return to earlier stage of rehabilitation.

**Exercises:** Aggressive upper-body strengthening and with initiation of plyometric training and sports or work specific training. Consider work conditioning program based on patients job requirements and patient motivation.