Distal Humerus ORIF — Rehabilitation Protocol

Overview

- Applies to: ORIF of intra-articular distal humerus fractures (AO types B and C)
- Triceps approach vs paratricipital: confirm with surgeon — affects early extension loading
- Elbow stiffness is the primary complication — early ROM is essential where fixation allows
- Heterotopic ossification (HO) prophylaxis per surgeon protocol (indometacin or radiation)

Rehabilitation Phases

Phase 1 — Early Motion	Weeks 0–4
Goals: • Initiate elbow ROM as soon as fixation stability confirmed • Control pain/swelling • Prevent flexion contracture	**Exercises & Interventions:** • Sling for comfort only — wean as tolerated; remove for exercises • Active-assisted elbow flexion/extension from Day 3–5 (surgeon-directed) • Forearm pronation/supination AROM • Wrist and hand AROM immediately • Cryotherapy and elevation • Gravity-assisted extension stretches (seated, arm relaxed)
Precautions: ■ No triceps loading (resisted extension) if olecranon osteotomy approach ■ No valgus/varus loading ■ No forced stretching of stiff joint	

Phase 2 — Progressive ROM	Weeks 4–10
Goals: • Elbow ROM: extension 0–20°, flexion ≥120° by Week 8 • Progressive forearm rotation • Initiate light muscle strengthening	**Exercises & Interventions:** • Dynamic elbow extension splinting (turnbuckle or static progressive) if extension lag >30° • Active-assisted flexion/extension (pulleys, gravity) • Submaximal elbow flexion/extension isometrics • Progressive forearm supination (particularly if radial head involved) • Light wrist/grip strengthening • Serial static progressive splinting PRN • Aquatic therapy from Week 6
Precautions: ■ Monitor for HO — pain with progressive stiffness requires imaging ■ No resisted extension if olecranon osteotomy present until bone healed	

Rehabilitation Phases (continued)

Phase 3 — Strengthening	Weeks 10–18
Goals: • Full functional ROM (0–130° minimum) • Progressive elbow, forearm, and wrist strengthening • Functional use of the hand/arm	**Exercises & Interventions:** • Isotonic elbow flexion (curls, hammer curls) • Triceps strengthening (from 12 weeks, if approach allows) • Resisted forearm pronation/supination • Wrist flexion/extension strengthening • Closed kinetic chain exercises • Progressive ADL loading • Work hardening if required
Precautions: ■ Beware of delayed HO: pain + reduced ROM + warmth = imaging referral ■ No heavy lifting until 16 weeks	

Phase 4 — Return to Function	Weeks 18–26
Goals: • Functional strength for return to work and activities • Manage residual ROM deficits • Long-term maintenance	**Exercises & Interventions:** • Progressive resistance exercises • Dynamic splinting continuation if ROM plateau at 20 weeks • Work/sport reintegration • Occupational therapy for persistent stiffness • Surgical review for HO or hardware if indicated at 6 months
Precautions: ■ Arthrolysis considered if functional ROM not achieved by 6 months ■ Hardware removal: typically not before 12 months	

Clinical Notes

- Olecranon osteotomy: resisted extension delayed until union (typically 8–12 weeks)
- Dynamic extension splinting essential if >30° flexion contracture at Week 8
- HO prophylaxis: indometacin 75mg SR daily for 6 weeks or single-fraction radiation 700cGy within 72h

References

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3. Soon JL et al. Surgical fixation of intra-articular fractures of the distal humerus in adults. Injury. 2004;35(1):44-54.
4. Palvanen M et al. Update in the epidemiology of distal humeral fractures. Clin Orthop Relat Res. 2008;466(12):3086-3093.
5. Chen RC et al. Elbow stiffness: evaluation, imaging, and nonsurgical management. J Shoulder Elbow Surg. 2021;30(1):8-15.
6. Wolff AM, Hotchkiss RN. Lateral elbow instability: nonoperative, operative, and postoperative management. J Hand Ther. 2006;19(2):238-243.

This rehabilitation protocol is intended as a general guide for qualified physiotherapists and healthcare professionals. It should be adapted to individual patient presentation, surgical findings, tissue quality, and progress. All progression decisions should be made in consultation with the treating surgeon.