Chapter 4. Part 2. Fractures and Dislocations

Chapter 4 • Management of Common Injuries

Part 2 • Fractures & Dislocations

(What breaks, what pops out, and what you do in the first 15 minutes)

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1 What Is a Fracture? What Is a Dislocation?

Term	Plain-language meaning	Key clue in real life
Fracture	Any break or crack in a bone	Sudden snap, pain on weight-bearing, visible deformity, or "guarding" the limb
Dislocation	A bone has **left its joint socket** and stays out of place	Joint looks odd, cannot move, extreme pain; often one limb looks longer/shorter

Bonus word: **Subluxation** = a partial, self-reducing dislocation (e.g., a shoulder that slips out and back in).

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2 Common Types of Fractures — Easy Visual Labels

Shape / Feature	Sketch in your mind	Everyday example
Closed (simple)	Skin intact	Wrist crack after fall on out-stretched hand
Open (compound)	Bone pokes through skin	Motorcycle tibia sticking out—URGENT infection risk
Transverse	Straight across like a clean cut	Direct blow to shin with stick
Oblique	Slanted line	Skier's twisting tibia
Spiral	Cork-screw line	Child's leg caught in rotating playground slide
Comminuted	Bone in 3+ pieces	High-speed car crash femur
Greenstick	Incomplete crack on one side (kids; pliable bone)	8-year-old falling from tree
Avulsion	Tendon pulls piece of bone off	Ankle sprain rips tip of fibula
Impacted	Bone ends driven into each other	Hard landing drives femur into hip socket
Stress	Hair-line crack from repetitive load	Runner's tibial stress fracture

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3 Typical Sites & Types of Dislocations

Joint	Odds it dislocates	Common mechanism	Extra note
Shoulder (gleno-humeral)	***Most common***	Arm forced back & up (throwing, fall)	95 % are **anterior**; watch axillary nerve
Elbow	High	Fall on hand with elbow slightly bent	Often with radial head fracture
Finger (PIP, MCP)	High	Ball hits tip of finger	Usually dorsal; quick reduction if no fracture
Patella	Moderate	Knee twists inward with quad contraction	Young athletes; lateral dislocation
Hip	Low (needs big force)	Dashboard injury in car crash	Posterior > anterior; sciatic nerve risk

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Joint	Odds it dislocates	Common mechanism	Extra note
Jaw (TMJ)	Low	Wide yawn or hit to chin	Mouth stuck open

4 First-Aid Priorities — "C.S.I."

1. **C = Control major bleeding** (especially for open fractures).
2. **S = Stabilise the limb or joint** exactly as you find it.
3. **I = Ice & call for Immediate transport** to hospital.

4.1 Step-by-Step for a Suspected Fracture

1. **Stop movement** – Ask patient to stay still; support with your hands.
2. **Look for open wound** – If bone exposed, cover with sterile gauze; **do not** push bone back.
3. **Check circulation** – Colour, warmth, capillary refill in fingers/toes.
4. **Immobilise** – Use **splint + bandage**. Rule: *Splint the joint above and below the break.*
5. **Ice** – 15 min on, 15 min off; cloth barrier.
6. **Elevate** – If no extreme pain and limb will safely go up.
7. **Treat for shock** – Lay flat, raise legs if no spinal injury, keep warm.
8. **Transport** – Call EMS (dial 112 in India) or get to ER.

4.2 Step-by-Step for a Suspected Dislocation

1. **Do NOT "pop it back"** unless you are formally trained and authorised.
2. **Immobilise in the position found** – Sling for shoulder/elbow; soft padding for hip/knee.
3. **Ice + analgesic (if available)** – Reduces spasm and pain.
4. **Monitor nerves/vessels** – Numbness, tingling, pale hand/foot = urgent.
5. **Rapid referral** – Joint surfaces need reduction within hours to protect cartilage and blood supply.

5 Quick-Build Immobilisation Techniques

Body Part	DIY Splint Ideas	Bandaging Method
Forearm / Wrist	Folded magazine, ruler, or wooden stick	Figure-8 wrap around wrist & between thumb/fingers
Upper arm (humerus)	Body-to-body (bind arm to chest)	Triangular sling, then broad band around chest & arm
Lower leg	Opposite uninjured leg as "natural splint"	Two cravats above and two below fracture
Ankle	Pillow splint	Wrap pillow snug with tape/bandage
Finger	Tongue depressor or pen	Spiral tape; leave nail bed visible to check blood flow

Two touch tests: After splinting, always check **warmth** and **capillary refill < 2 s** in fingers/toes. If lost → loosen bandage slightly.

6 From First Aid to Rehab — Very Short Overview

Phase	Fracture	Dislocation
Immobilisation	Cast or rigid brace 3–8 weeks depending on bone	Often brief immobilisation (sling 1–3 weeks) after reduction
Early Rehab	Wiggle fingers/toes, isometrics above/below cast	Isometrics of surrounding muscles, gentle pendulum (shoulder)
Mobility	After union shown on X-ray → gradual ROM	Controlled ROM using pain-free arc
Strength & Function	Progressive loading per physio plan	Proprioception (joint-sense) drills essential to prevent repeat

7 Red Flags — Call EMS Now

- Bone exposed or severe bleed you can't stop.
- Limb blue-cold or pins-and-needles appear after splinting.
- Obvious deformity plus no distal pulse.
- Hip or knee dislocation (risk of necrosis).
- Crush injury with increasing pain and tightness (compartment syndrome).

8 Self-Check Quiz

1. **Name two differences between a transverse and spiral fracture.**
2. **Why should you never try to relocate a hip dislocation on the field?**
3. **What is the simple rule for the length of a splint?**
4. **List three signs of vascular compromise after a fracture or dislocation.**
5. **Which joint is most likely to dislocate repeatedly and why?**

*(Answers: 1. Line direction: straight vs cork-screw; usually direct blow vs twisting force. 2. High risk to tear vessels/nerve; needs sedation and imaging. 3. Immobilise the joint above **and** below the break. 4. Pale skin, cold temperature, absent pulse, slow cap refill, numbness. 5. Shoulder; shallow socket and wide range of motion.)*

Key Take-Home Points

- **Identify, immobilise, and refer**—the essence of fracture/dislocation first aid.
- **Open fracture** = infection emergency; **blue limb** = circulation emergency.
- Splints should be *snug but not numb*—always re-check pulse and feeling.
- Early controlled movement under medical guidance prevents stiffness and re-injury.

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