

PRACTICE GUIDELINES: Reduction and Immobilization of Fractures and Dislocations

OBJECTIVE:

1. Identify common orthopedic injuries
2. Identify radiographic studies that may be used to define specific injuries.
3. List immobilization and reduction techniques that can be applied in the trauma room until definitive treatment can be undertaken.
4. Provide a list of potential definitive orthopedic procedures that will be considered for each injury.

DEFINITION:

Reduction is the repositioning of bones to their normal position after fracture or dislocation. The purpose of reduction is to promote healing, normal function and reduce pain. Immobilization is used to prevent movement of the bone or joint after realignment.

GUIDELINES:

1. The following are guidelines for immobilization and definitive management of fractures and dislocations by body part:

INJURY	X-RAYS	REDUCTION IMMOBILIZATION	TREATMENT
HAND:			
DIP or PIP dislocation	AP/Lat finger	Dorsal splint in extension, or Buddy tape	Closed reduction
Metacarpal fracture	AP/Lat hand	Dorsal-volar splint	Closed reduction, wires
ARM:			
Wrist	AP/Lat wrist	Dorsal-volar splint	Closed reduction
Distal radius	AP/Lat forearm	Sugar tong splint	Closed reduction, or ORIF
Forearm, radius and/or ulna	AP/Lat forearm	Sugar tong splint	Closed reduction, or plates
Radial head	AP/Lat Elbow AP/Lat forearm	Posterior elbow splint	Closed reduction, or ORIF
Olecranon	AP/Lat elbow AP/Lat forearm	Posterior elbow splint	ORIF
Distal humerus	AP/Lat elbow AP/Lat humerus	Posterior elbow splint (Beware of vascular compromise)	ORIF
Humeral shaft	AP/Lat humerus	Coaptation splint (Beware of radial nerve compromise)	Conservative ORIF
Proximal humerus (surgical and anatomic neck)	AP/axillary shoulder AP/Lat humerus	Coaptation splint Sling	Conservative ORIF

SHOULDER:			
Scapula	AP/axillary/scapular shoulder	Sling	Conservative ORIF
Clavicle	AP/axillary shoulder	Sling	Conservative
PELVIS:			
Anterior ring, pubic symphysis, rami	AP, inlet and outlet pelvis, CT scan	Initial bedrest	Non-operative or ORIF
Posterior ring, sacrum, SI fracture/dislocation, iliac wing	AP, inlet and outlet pelvis, CT scan	Initial bedrest. If hemodynamically unstable consider T-POD, angioembolization or external fixation	ORIF
Acetabulum	AP pelvis, Judet views, thin cut (3mm) CT scan	Distal femoral traction, Buck's traction, tibial traction, or nothing	ORIF
FEMUR:			
Femoral head	AP pelvis, AP/lat hip	Distal femoral traction, or nothing	ORIF
Femoral neck	AP pelvis, AP/lat both hips (uninjured side with templates)	Buck's traction, or nothing	ORIF
Intratrocchanteric femur	AP pelvis, AP/lat hip	Buck's traction, or nothing	ORIF
Subtrochanteric femur	AP pelvis, AP/lat femur	Distal femoral traction, tibial traction	ORIF
Femoral shaft	AP/lat femur, AP/lat knee, AP pelvis	Hare traction splint, or Speed Splint	ORIF
Supracondylar femur	AP/lat femur, AP/lat knee, AP pelvis	Knee immobilizer, or tibial traction	ORIF
LOWER LEG:			
Patella	AP/lat knee	Knee immobilizer	ORIF
Tibial plateau	AP/lat knee, CT scan (after spanning ex-fix)	Knee immobilizer	ORIF, or spanning ex-fix
Tibial shaft	AP/lat tibia	Posterior sugar tong splint	ORIF
ANKLE:			
Pilon	AP/lat ankle, mortise view, AP/lat tibia, or CT scan after spanning ex-fix	Posterior sugar tong splint, calcaneal traction	ORIF
Malleolus (medial, lateral, posterior)	AP/lat ankle, mortise view	Posterior sugar tong splint	ORIF
FOOT:			
Calcaneus	Lat foot, oblique foot, Harris heel view, thin cut CT (3mm)	Posterior sugar toe splint with toe plate	ORIF
Talus	Lat foot, oblique foot	Posterior sugar toe splint with toe plate	ORIF
Metatarsals and phalanx	AP/lat and oblique foot	Posterior sugar toe splint with toe plate	ORIF

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