Radiographic Positioning Summary (Basic Projections RAD 222)

Lower Extremity

Projection	(FFD)	Patient/Part. Position	Central ray (CR) Center Point (CP)	Grid	Breathing instructions	Remarks
AP Pelvis	40 inches	• Pt lies supine on table • Align MSP to Center line of table or IR • internally rotate long axis of entire legs (15-20°) • IR is placed so that its top edge is 1inch above the iliac crest	**(CR)** Perpendicular to IR **(CP)** Midway between level of ASISs and symphysis pubis	Yes	N/A	• Visualization of the ID marker • Pelvic girdle,L5,sacrum and coccyx, femoral head and neck, and greater Trochanter should be included • Lesser Trochanter should not be visible at all • No rotation: Symmetric appearance of iliac wings
AP Hip (Unilateral) (L or R)		• Pt supine on table • Align midfemoral neck of the affected side in center of table or IR • internally rotate long axis of entire affected leg (15-20°)	**(CR)** Perpendicular to IR **(CP)** Through the midfemoral neck			**The following should be visualized** • The proximal one 3rd of the femur • Acetabulum and adjacent parts of pubis, ischium, and ilium. • The greater Trochanter and femoral head and neck should appear without foreshortening. • Collimation field should demonstrate the entire hip joint.
AP Femur Mid and distal		• Pt supine on the table • Affected femur is centered to the midline of the table or IR • **leg is rotated 5 degree medially for distal femur**	**(CR)** Perpendicular to femur and IR **(CP)** Midpoint of IR			• Include either knee or hip joint • In case of including hip joint affected side should be rotated 15 to 20 degree medially
AP Knee	40 inches	• Pt supine on the table • Affected knee center to CR and midline of table in full extension • Rotate leg internally 3-5° for true AP	**CR :-** **3-5 caudad for thin thighs** **0 degree for average thighs** **3-5 degrees cephalic for thick thighs** **CP:** 1.25 cm (.5 inch) below apex of patella	**Yes** If thickness more than 10cm	N/A	• Distal femur , proximal tibia and fibula should be visualized • Femortibial joint space should be open • **No rotation:** - Symmetric appearance of the femoral and tibial condyles - The intercondylar eminencies should be seen in the center of the intercondylar fossa
Lateral Knee		• Pt in a lateral recumbent position • the affected knee center to the table • knee flexed 20-30 degree • Knee in true lateral position with femoral epicondyles directly superimpose, and plane of the patella perpendicular to the film.	**CR :-** **5-7° cephalic** **CP:** 1 inch distal to medial epicondyles			• Distal femur , proximal tibia and fibula and patella should be visualized in lateral • Femopatellar and kneel joint space should be open • **No rotation:** - The posterior borders of the femoral condyles directly superimposed

Projection	(FFD)	Patient/Part. Position	Central ray (CR) Center Point (CP)	Grid	Breathing instructions	Remarks
AP **Tibia and Fibula**	40 inches	• Pt supine or seated on the table • Adjust knee and leg in true AP • Ensure both knee and ankle joints are included	**(CR)** Perpendicular to IR **(CP)** Midpoint of leg (midway between ankle and knee joint)	**Yes** If thickness more than 10cm	N/A	• The entire tibia and fibula should be visualized • Symmetric appearance of the femoral and tibial condyles • The intercondylar eminencies should be seen in the center of the intercondylar fossa
Lateral **Tibia and Fibula**		• Pt in a lateral recumbent position • knee flexed 45° • Ensure true lateral by ensuring a line drawn through the femoral condyle is perpendicular to the film, and plane of the patella perpendicular to the film.				• The entire tibia and fibula should be visualized • The proximal portion of the head of fibula should superimposed by the tibia • The posterior borders of the femoral condyles should appear superimposed
AP Ankle	40 inches	• Pt is supine or seated • Affected extremity toward the anode end of the table • **The foot is rotated 5° medially** (so intermalleolar plane is parallel to IR)	**(CR)** Perpendicular to IR **(CP)** Midway between malleoli	No	N/A	• The lower third of leg ,the malleoli, the talus, and proximal half or metatarsals should be visualized
Lateral Ankle		• Pt in a lateral recumbent position • knee flexed 45 degree • place support under the knee if ankle is not in contact with IR, • The leg and foot should be perpendicular to each other	**(CR)** Perpendicular to IR **(CP)** To medial Malleolus			• The distal one third of the tibia and fibula should be visualized • The distal fibula should superimposed by the distal tibia • The tibiotalar joint should be opened
Dorsoplantar (AP) Foot	40 inches	• Pt is supine or seated • Flex the knee and place the plantar surface of affected foot flat on the IR • Place ankle joint toward the cathode end of the table	**(CR)** 5-10°posteriorly(Towards heel) **(CP)** To base of 3rd metatarsal	No	N/A	• Entire foot should be demonstrated • Long axis of foot should be aligned to long axis of IR
Medial Oblique Foot		• Pt is supine or seated • Flex the knee and place the plantar surface of affected foot flat on the IR • Rotate the foot medially to place the plantar surface 40° -45° to plane of film.	**(CR)** Perpendicular to IR **(CP)** To base of 3rd metatarsal			
Lateral Foot Mediolateral		• Pt in lateral recumbent position with affected side down • Flex the knee of the affected side 45° • Center long axis of foot to long axis of IR	**(CR)** Perpendicular to IR **(CP)** To medial cuneiform (at level of base of 3rd metatarsal)			

Upper Extremity

Projection	(FFD)	Patient/Part. Position	Central ray (CR) Center Point (CP)	Grid	Breathing instructions	Remarks
Interal Rotation Shoulder	40 inches	• Pt erect or seated • Rotate body slightly towards the affected side to place the shoulder contact with IR • Internally rotate arm until epicondyles of distal humerus are perpendicular to IR	**(CR)** Perpendicular to IR **(CP)** 1 inch inferior to coracoid process	Yes	Suspend respiration during the exposure	• Image should include lateral view of proximal humerus, lateral two-thirds of the clavicle, and upper scapula.
External Rotation Shoulder		• Pt erect or seated • Abduct arm slightly • Rotate body slightly towards the affected side to place the shoulder contact with IR • Externally rotate arm until epicondyles of distal humerus are parallel to IR				• Image should include AP view of proximal humerus, lateral two-thirds of the clavicle, and upper scapula.
AP Humerus	40 inches	• Pt erect or supine • Rotate body towards affected side as needed to bring shoulder and proximal humerus in contact with IR • Align humerus to long axis of IR. • Abduct arm slightly and gently supinate hand • Epicondyles of elbow should be equidistant from IR	**(CR)** Perpendicular (90° to IR). **(CP)** Mid shaft of Humerus (Between elbow & shoulder J)	**Yes** If thickness more than 10cm	suspend respiration during exposure	• Image should include AP view of entire humerus including shoulder and elbow joints
Lateral Humerus		• Pt erect or supine • Elbow partially flexed, with body rotated towards affected side as needed to bring hummers and shoulder contact with IR. • Internally rotate arm for lateral position • Align humerus to long axis of IR. • Epicondyles of elbow should be perpendicular to IR				• Image should include Lateral view of entire humerus including shoulder and elbow joints • Humeral epicondyles should appear superimposed.
AP Elbow	40 inches	• Patent seated at end of table(parallel to table) • Extend elbow and supinate hand • Align arm &forearm to long axis of IR. • Center elbow joint to center of IR • Ask patient to lean laterally as necessary for true AP elbow • Support hand to prevent motion	**(CR)** Perpendicular (90° to IR). **(CP)** Mid Elbow Joint (2 cm distal to midpoint between epicondyles)	No	N/A	• Image should include AP view of distal humerus, elbow joint space and proximal radius and ulna. • Elbow joint space appears open
Lateral Elbow		• Patent seated at end of table(parallel to table) • Flex elbow 90° • Align long axis of forearm to long axis of IR. • Center elbow joint and CR to center of IR • Rotate hand and wrist into lateral position	**(CR)** Perpendicular (90° to IR). **(CP)** Mid Elbow Joint A point 4 cm medial to posterior surface of Olecranon process.			• Image should include lateral view of distal humerus, elbow joint space and proximal radius and ulna. • Humeral epicondyles should appear superimposed.

Projection	(FFD)	Patient/Part. Position	Central ray (CR) Center Point (CP)	Grid	Breathing instructions	Remarks
AP Forearm	40 inches	• Patient sits at the end of couch (Table) • Hand and arm fully extended with palm up. • Drop shoulder to place entire upper limb on same horizontal plane • Align and center forearm to long axis of IR. • Medial and lateral humeral epicondyles should be equal in distance from the IR	**(CR)** Perpendicular (90° to IR). **(CP)** Mid forearm (between the wrist & elbow Js)	No	N/A	• Image should include AP view of entire radius and ulna , proximal row of carpals ,elbow and distal humerus • Radial head, neck, and tuberosity should appear slightly superimposed by the ulna.
Lateral Forearm		• Patient sits at the end of couch (Table) • Elbow flexed 90° • Drop shoulder to place entire upper limb on same horizontal plane • Align and center forearm to long axis of IR. • Rotate hand and wrist into true lateral position • Medial and lateral humeral epicondyles Should be perpendicular to IR.				• Image should include lateral view of entire radius and ulna, proximal row of carpals and distal humerus • Humeral epicondyles should appear superimposed.
PA Wrist	40 inches	• Patient sits at end of couch (Table) • Elbow flexed 90° • Hand and wrist resting on IR with palm down. • Drop shoulder so that shoulder, elbow, and wrist are on the same plane • Align and center long axis of hand and wrist to IR • Center carpal area to center of CR.	**(CR)** Perpendicular (90° to IR). **(CP)** To carpal area (Midway between ulnar and radial styloids).	No	N/A	• Image should include PA view of distal radius and ulna, carpals and at least the mid metacarpal area.
Lateral Wrist		• Patient sits at end of couch (Table) elbow flexed 90° • Hand and wrist resting on IR • Shoulder, elbow, and wrist should be on the same plane • Align and center long axis of hand and wrist to IR • Adjust hand and wrist into a true lateral position by placing the dorsal surface of hand perpendicular to IR	**(CR)** Perpendicular (90° to IR). **(CP)** To carpal area (Radial styloid process).			• Image should include PA view of distal radius and ulna, carpals and at least the mid metacarpal area.
Scaphoid Ulnar deviation	40 inches	• Patient sits at end of couch (Table) • Hand and wrist resting on cassette with palm Down. • Shoulder, elbow, and wrist on the same horizontal plane • Position wrist as for a PA projection • Align writ to center of long axis of IR • Without moving forearm evert hand (Move hand towards ulnar)	**(CR)** Angle CR 10° to 15° proximally along long axis of forearm and towards elbow **(CP)** To Scaphoid (2 cm distal and medial to radial styloid process).	No	N/A	• Image should include :Distal radius and ulna, carpals and proximal metacarpals • Scaphoid should be demonstrated clearly without foreshortening.

Projection	(FFD)	Patient/Part. Position	Central ray (CR) Center Point (CP)	Grid	Breathing instructions	Remarks
PA Hand	40 inches	• Patient sits at the end of couch (Table) • Hand and forearm resting on IR. • Elbow flexed 90° • Pronate hand with palmar surface contact with IR • Finger fully extended and slightly separated • Align long axis of hand to long axis to IR. • Center hand and wrist to unmasked half of IR	**(CR)** Perpendicular (90° to IR). **(CP)** Third MCP Joint	No	N/A	• Image should include PA view of entire hand and wrist and about 1 inch of distal forearm • MCP and IP joints should appear open • Digits should appear separated slightly with soft tissue not overlapping.
Oblique Hand		• Patient sits at the end of couch (Table) • Hand and forearm resting on IR. • Elbow flexed 90°, • Pronate hand on IR • Center and align long axis of hand to long axis of IR. • Rotate entire hand and wrist laterally 45° • Support with radiolucent wedge				• Image should include Oblique view of entire hand and wrist and about 1 inch of distal forearm • MCP and IP joints should appear without foreshortening of midphalanges or distal phalanges Midshaft of metacarpals should not overlap.
Lateral Hand		• Patient sits at the end of couch (Table) • Hand and forearm resting on IR. • Elbow flexed 90° • Rotate hand and wrist with thumb side up into a true lateral position , • Extend fingers and thumb and support against a radiolucent support block • Ensure that all fingers are superimposed	**(CR)** Perpendicular (90° to IR). **(CP)** 2nd MCP Joints			• Image should include lateral view of Entire hand and wrist and about 1 inch of distal forearm • Thumb should appear slightly obliqued and free from superimposition with joint spaces open