SNS COLLEGE OF ALLIED HEALTH SCIENCE

Affiliated to The Tamil Nadu Dr. M.G.R Medical University, Chennai

DEPARTMENT OF RADIOGRAPHY AND IMAGING TECHNOLOGY

COURSE NAME :CLINICAL RADIOGRAPHY POSITIONING

UNIT :EXTREMITIES RADIOGRAPHY

TOPIC :HAND TO WRIST JOINT

FACULTY NAME : MRS.G.HELANA JOY

INTRODUCTION (DEFINE)

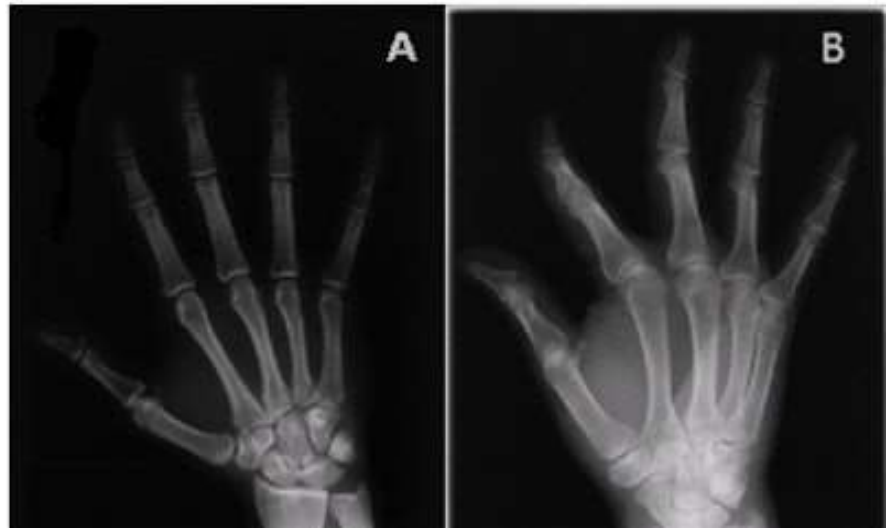
The upper extremities, particularly the hand and wrist, is essential for evaluating injuries, degenerative changes, and inflammatory conditions.

Common indications:

- Trauma (e.g., fractures)
- Rheumatoid arthritis & Osteoarthritis
- Soft tissue disorders.

Standard series:

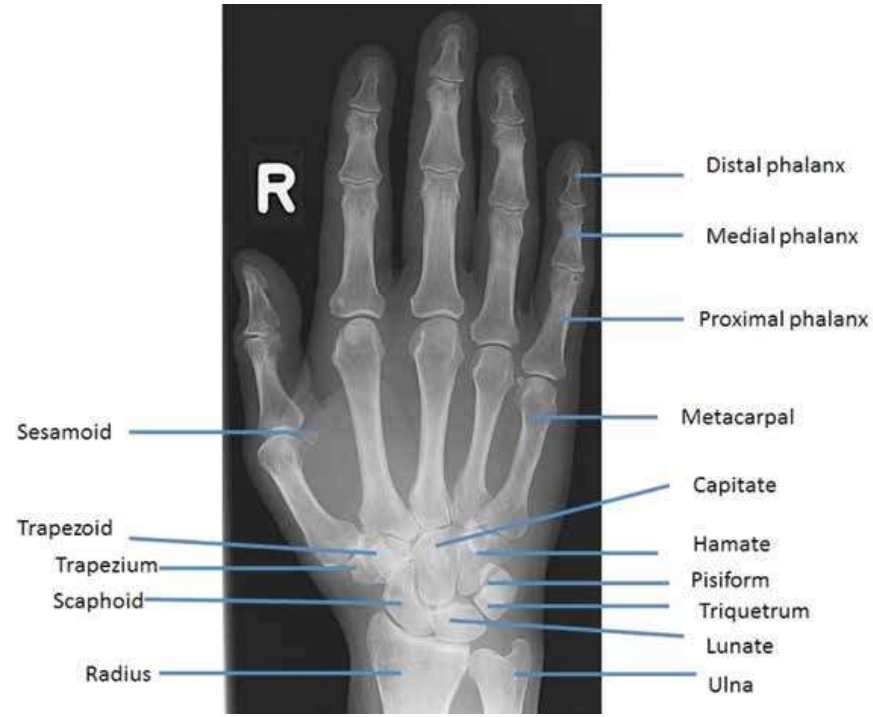
- Posteroanterior (PA)View
- Oblique View
- Lateral views to minimize superimposition.



Technical factors: 40-50 kVp, 2-5 mAs, SID 40 inches (100 cm), no grid for non-trauma cases.
Importance: Proper positioning ensures open joint spaces and clear visualization of bones like phalanges, metacarpals, and carpal bones.

ANATOMY OF THE HAND AND WRIST

- *Bones:* Phalanges (proximal, middle, distal), metacarpals (5), carpals (8: scaphoid, lunate, triquetrum, pisiform, trapezium, trapezoid, capitate, hamate).
- *Joints:* MCP (metacarpophalangeal), PIP (proximal interphalangeal), DIP (distal interphalangeal), wrist (radiocarpal).
- *Radiographic landmarks:* In PA view, metacarpals appear parallel; in lateral, superimpose phalanges.

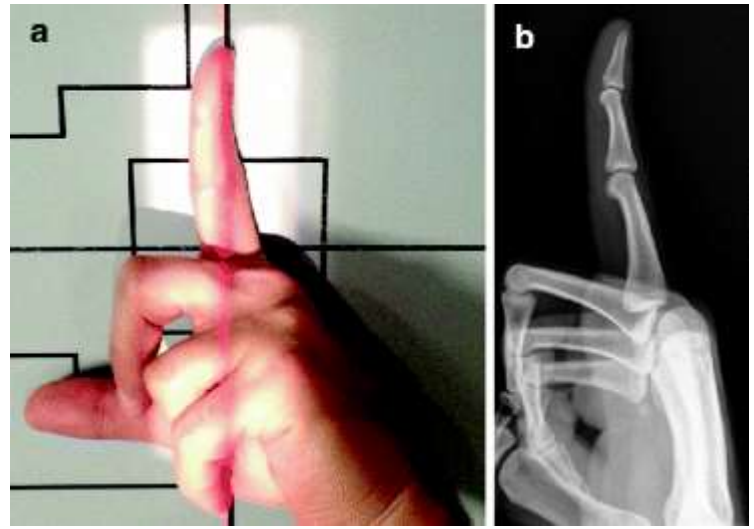


RADIOGRAPHIC POSITIONING FOR THE HAND

- *PA View:* Patient seated, hand flat on IR (image receptor) with fingers extended and spread; CR perpendicular to 3rd MCP joint. Collimation: 12x15 cm.
- *Oblique View:* Rotate hand 45° externally; thumb abducted. Demonstrates metacarpal heads and joint spaces.
- *Lateral View:* Hand in "karate chop" pose (ulnar side on IR), fingers fanned; CR to 2nd MCP.

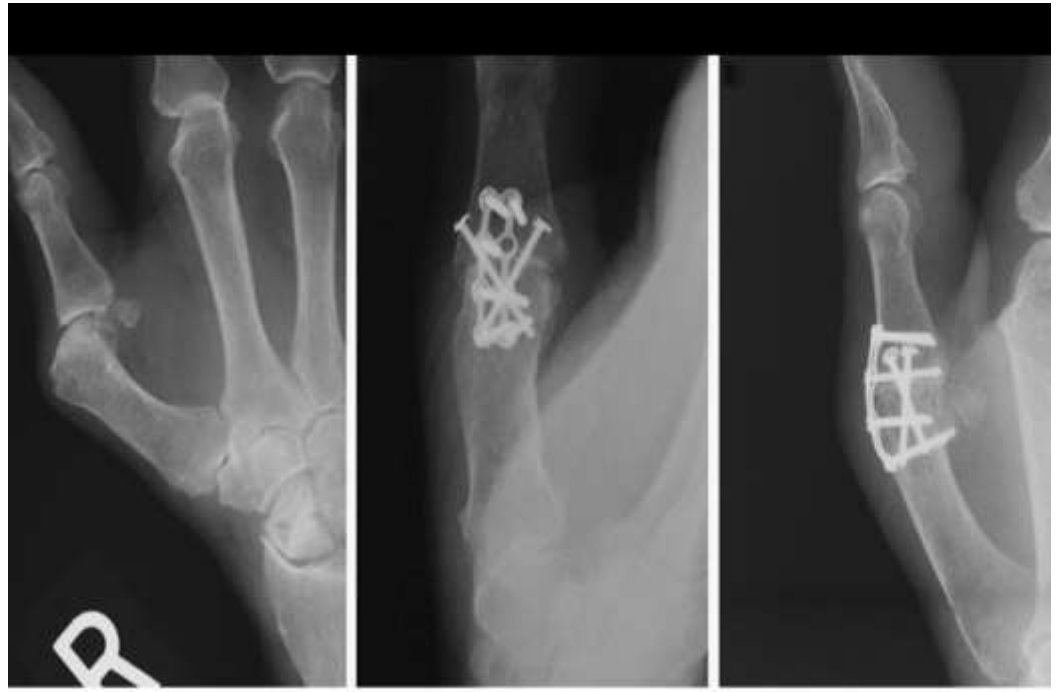
RADIOGRAPHIC POSITIONING FOR THE FINGER

- *PA View:* Finger extended, side against IR; CR perpendicular to PIP joint. For multiple fingers, fan slightly.
- *Oblique View:* Rotate finger 45°; useful for tuft fractures.
- *Lateral View:* Finger perpendicular to IR, thumb or other fingers stabilized; CR to PIP. Twist wrist for side positioning.
- *Collimation:* 5x5 cm per digit. kVp: 50-60.



RADIOGRAPHIC POSITIONING FOR MCP JOINT

- *PA View:* Hand flat, fingers flexed slightly to open MCP spaces; CR to 3rd MCP.
- *Oblique View:* 45° rotation; highlights radial/ulnar deviations.
- *Lateral View:* Thumb or finger isolated, perpendicular to IR; CR to MCP head.
- *Focus:* Visualize collateral ligaments and joint effusion.
- *Technical:* Tight collimation (8x10 cm), low mAs for soft tissue.



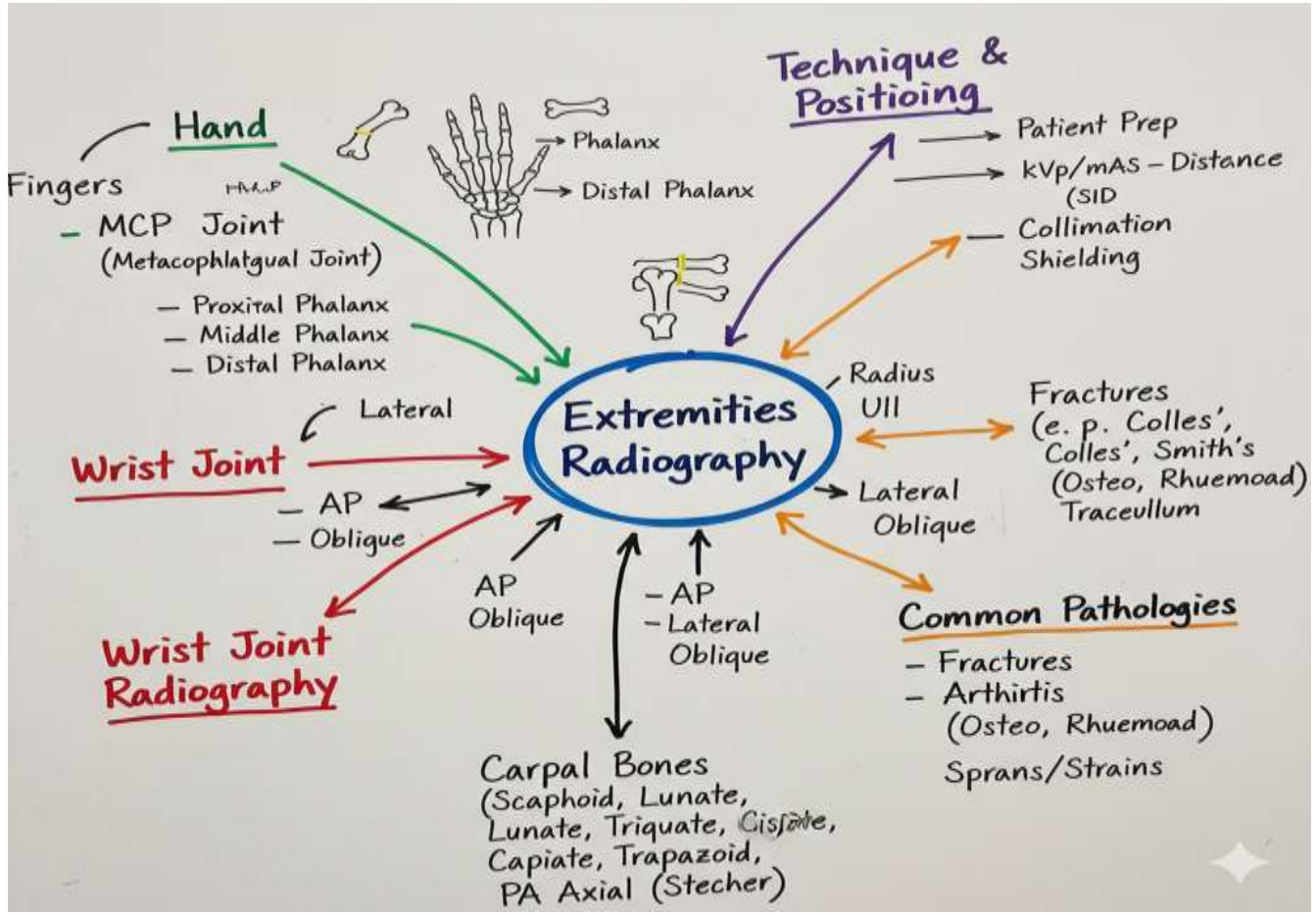
RADIOGRAPHIC POSITIONING FOR THE WRIST JOINT

- *PA View:* Forearm pronated, wrist neutral; CR to scaphoid (1 cm distal to radial styloid).
- *Oblique View:* 45° supination; demonstrates pisotriquetral joint.
- *Lateral View:* Hand/forearm perpendicular to IR; CR to radial head.
- *Collimation:* 10x12 cm. SID: 40 inches.

COMMON PATHOLOGIES AND RADIOGRAPHIC FINDINGS

- *Fractures:* Boxer's (5th metacarpal neck), scaphoid waist—lateral view key.
- *Arthritis:* Erosions at MCP/PIP in RA; joint space narrowing in OA.
- *Other:* Ulnar styloid avulsion, ganglion cysts (soft tissue swelling).
- *Interpretation ABCs:* Alignment, Bone density, Cartilage (joint space), Calcifications, Cartilage/soft tissue.

SUMMARY


Hand
Fingers
MCP Joint
(Metacophlatgual Joint)
Proxital Phalanx
Middle Phalanx
Distal Phalanx
Phalanx
Distal Phalanx
Technique & Positioing
Patient Prep
kVp/mAS – Distance (SID
Collimation
Shielding
Extremities Radiography
Radius
Ull
Fractures
(e. p. Colles',
Colles', Smith's
(Osteo, Rhuemoad)
Traceullum
Lateral
Oblique
Lateral
Wrist Joint
AP
Oblique
Wrist Joint Radiography
AP
Oblique
AP
Lateral
Oblique
Common Pathologies
Fractures
Arthirtis
(Osteo, Rhuemoad)
Sprans/Strains
Carpal Bones
(Scaphoid, Lunate,
Lunate, Triquate, Cisiome,
Capiate, Trapazoid,
PA Axial (Stecher)

References

- **Bontrager, K. L., & Lampignano, J. P.** (Latest Edition). **Textbook of Radiographic Positioning and Related Anatomy.** *St. Louis, MO: Elsevier.* (Excellent source for positioning details and evaluation criteria).
- **https://radiopaedia.org/articles/hand-pa-view-2**
- **https://ce4rt.com/rad-tech-talk/resources/radiographic-positioning-of-the-hand-fingers/?srsltid=AfmBOorB9-37qVWeaYxE9jMq7qNi3Is0EfAe7J9_AtsNHRsXIh1MrexT**
- **https://ce4rt.com/rad-tech-talk/resources/radiographic-positioning-of-the-wrist/?srsltid=AfmBOorammu92oQVSxV-DRekc54bNd_MpTN3RLYyLBKARrLmYiEAEIae**