

Department of Radiology Techniques  
Radiological Position  
The Second Stage



*Thumb , Scaphoid and Wrist Positions*

## ***Lecture 3***

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# *Basic Projections of Thumb*

## *Three Positions*

*1- Lateral*

*2- Anterior -Posterior (A P)*

*3- Posterior - Anterior (P A)*

*(8x10 inch) cassette size out Bucky .*

# 1- Lateral

## Position of patient and cassette

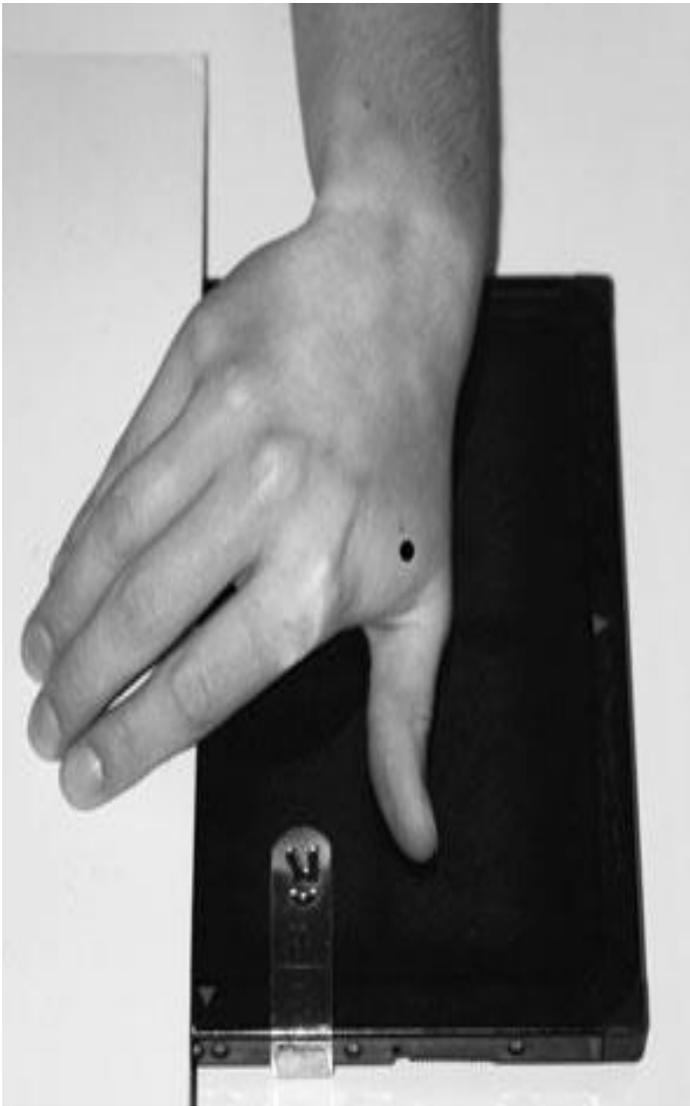
- The patient is seated alongside the table with the arm abducted, the elbow flexed and the anterior aspect of the forearm resting on the table.
- The thumb is flexed slightly and the palm of the hand is placed on the cassette.
- The palm of the hand is raised slightly with the fingers partially flexed and supported on a non-opaque pad, such that the lateral aspect of the thumb is in contact with the cassette.

## Direction and centering of the X-ray beam

- The vertical central ray is centered over the first metacarpophalangeal joint.

## Essential image characteristics

- Where there is a possibility of injury to the base of the first metacarpal, the capometacarpal joint must be included on the image.



Normal lateral radiograph of thumb

## **2- Antero-posterior**

### **Position of patient and cassette**

- The patient is seated facing away from the table with the arm extended backwards and medially rotated at the shoulder. The hand may be slightly rotated to ensure that the second, third and fourth metacarpals are not superimposed on the base of the first metacarpal.
- The patient leans forward, lowering the shoulder so that the first metacarpal is parallel to the tabletop.
- The cassette is placed under the wrist and thumb and oriented to the long axis of the metacarpal.

### **Direction and centering of the X-ray beam**

- The vertical central ray is centered over the base of the first metacarpal.



Normal anterior-posterior radiograph of thumb

# 3- Posterior-anterior

## Position of patient and cassette

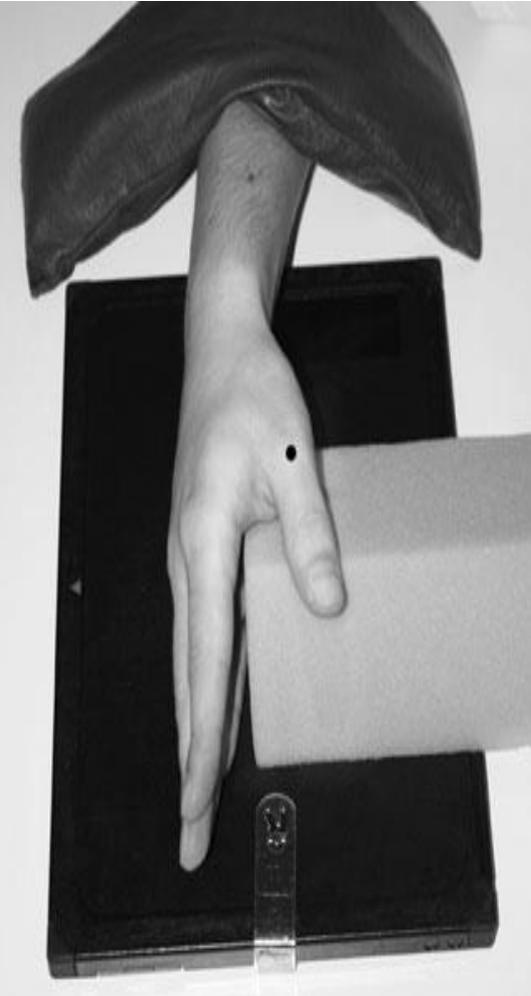
- With the hand in the postero-anterior position, the palm of the hand is rotated through 90 degrees to bring the medial aspect of the hand in contact with the table and the palm vertical.
- The cassette is placed under the hand and wrist, with its long axis along the line of the thumb.
- The fingers are extended and the hand is rotated slightly for wards until the anterior aspect of the thumb is parallel to the cassette .
- The thumb is supported in position on a non-opaque pad.

## Direction and centering of the X-ray beam

- The vertical central ray is centered to the first metacarpophalangeal joint.

## Essential image characteristics

- Where there is a possibility of injury to the base of the first metacarpal .the carpo-metacarpal joint must be included on the image.



Posterior-Anterior thumb showing dislocation at the first metacarpophalangeal joint

Radiograph of thumb showing Bennett's fracture

Antero-Posterior radiograph of thumb- incorrectly positioned

# *Basic Projections of Scaphoid*

## *Three Positions*

*1- Posterior-anterior – ulnar deviation*

*2- Anterior oblique – ulnar deviation*

*3- Lateral*

*(8x10 inch) cassette size out Bucky.*

# 1- Posterior-anterior – ulnar deviation

## Position of patient and cassette

- The patient is seated alongside the table with the affected side nearest the table.
- The arm is extended across the table with the elbow flexed and the forearm pronated.
- If possible, the shoulder, elbow and wrist should be at the level of the tabletop.
- The wrist is positioned over one-quarter of the cassette and the hand is adducted (ulnar deviation).
- Ensure that the radial and ulnar styloid processes are equidistant from the cassette.
- The hand and lower forearm are immobilized using sandbags.

## Direction and centering of the X-ray beam

- The vertical central ray is centered midway between the radial and ulnar styloid processes.

## Essential image characteristics

- The image should include the distal end of the radius and ulna and the proximal end of the metacarpals.
- The joint space around the scaphoid should be demonstrated clearly.



Normal posterior-anterior radiograph of scaphoid in ulnar deviation

## **2- Anterior oblique – ulnar deviation**

### **Position of patient and cassette**

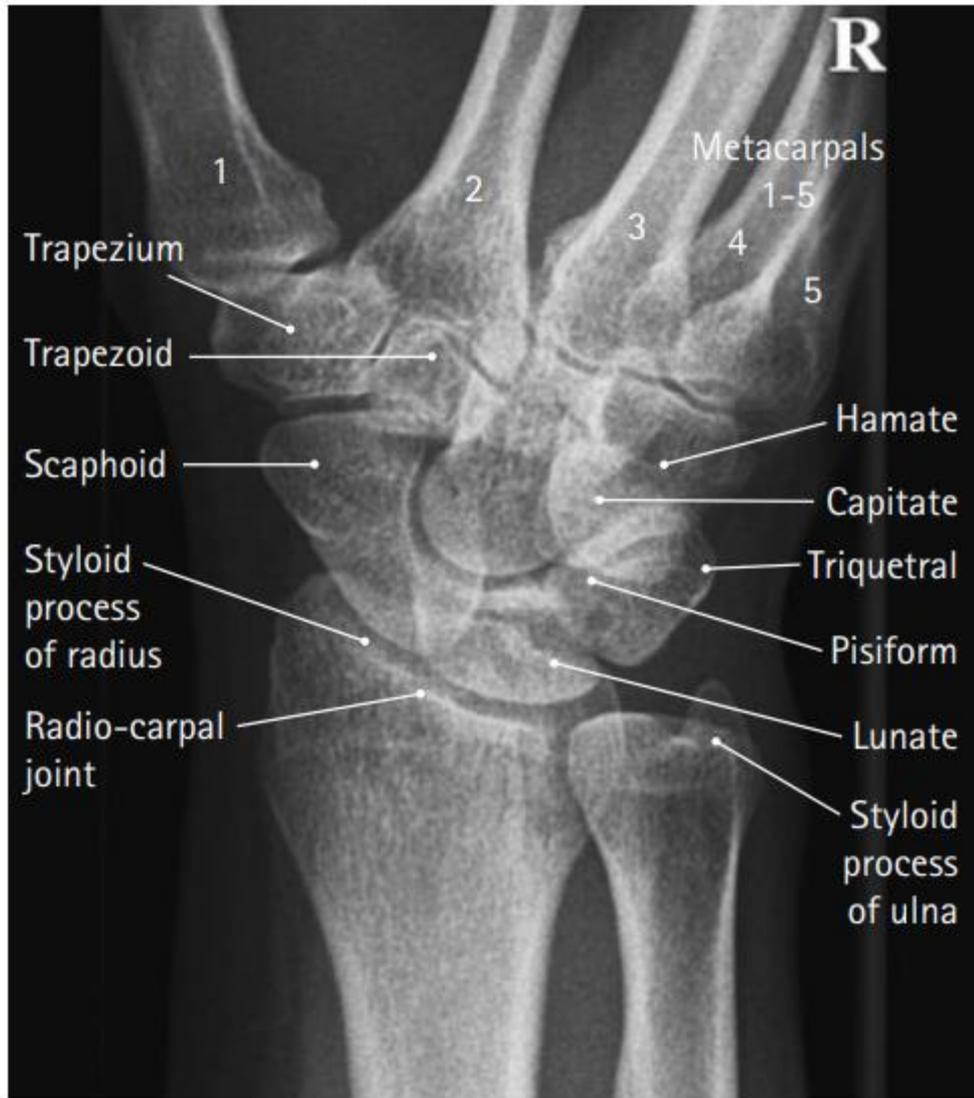
- From the postero-anterior position, the hand and wrist are rotated 45 degrees externally and placed over an unexposed quarter of the cassette. The hand should remain adducted in ulnar deviation.
- The hand is supported in position, with a non-opaque pad placed under the thumb.
- The forearm is immobilized using a sandbag.

### **Direction and centering of the X-ray beam**

- The vertical central ray is centered midway between the radial and ulnar styloid processes.

### **Essential image characteristics**

- The image should include the distal end of the radius and ulna and the proximal end of the metacarpals.
- The scaphoid should be seen clearly, with its long axis parallel to the cassette.



Anterior oblique radiograph of scaphoid



# 3- Lateral

## Position of patient and cassette

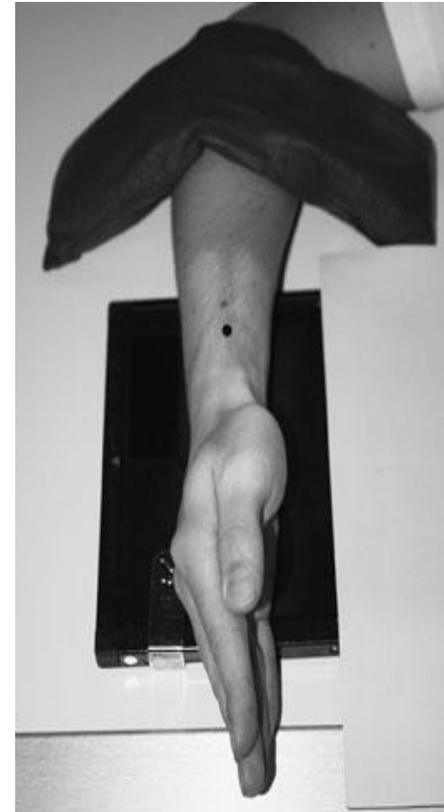
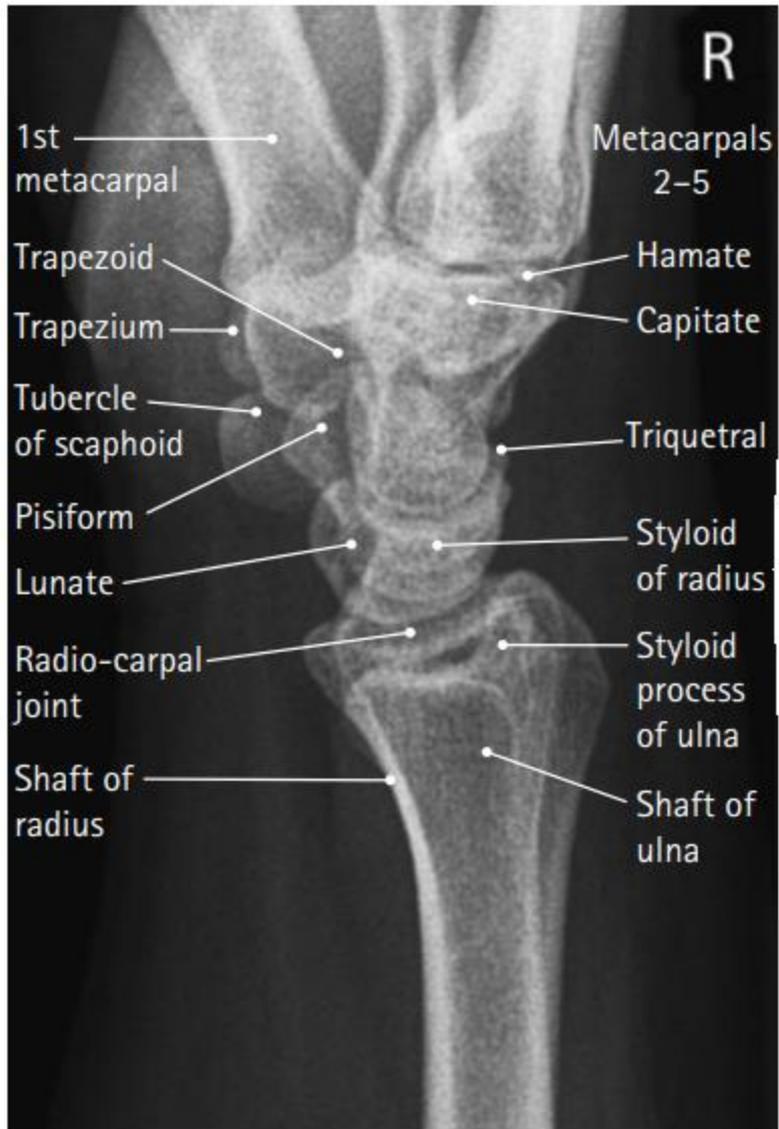
- From the posterior oblique position, the hand and wrist are rotated internally through 45 degrees, such that the medial aspect of the wrist is in contact with the cassette.
- The hand is adjusted to ensure that the radial and ulnar styloid processes are superimposed.
- The hand and wrist are immobilized using non-opaque pads and sandbags.

## Direction and centering of the X-ray beam

- The vertical central ray is centered over the radial styloid process.

## Essential image characteristics

- The image should include the distal end of the radius and ulna and the proximal end of the metacarpals.
- The image should demonstrate clearly any subluxation or dislocation of the carpal bones.



# *Basic Projections of Wrist*

## *Two Positions*

*1- Posterior-anterior*

*2- Lateral*

*3- Oblique (anterior oblique)*

*(8x10 inch) cassette size out Bucky.*

# 1- Posterior-anterior

## Position of patient and cassette

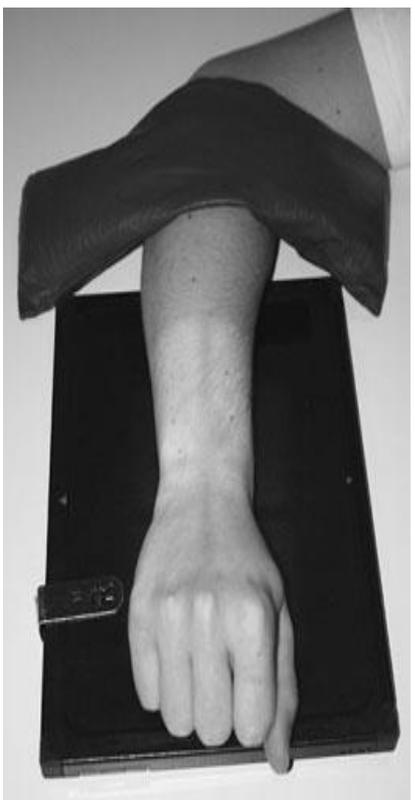
- The patient is seated alongside the table, with the affected side nearest to the table.
- The elbow joint is flexed to 90 degrees and the arm is abducted, such that the anterior aspect of the forearm and the palm of the hand rest on the cassette.
- If the mobility of the patient permits, the shoulder joint should be at the same height as the forearm.
- The wrist joint is placed on one half of the cassette and adjusted to include the lower part of the radius and ulna and the proximal two-thirds of the metacarpals.
- The fingers are flexed slightly to bring the anterior aspect of the wrist into contact with the cassette.
- The wrist joint is adjusted to ensure that the radial and ulnar styloid processes are equidistant from cassette.
- The forearm is immobilized using a sandbag.

## Direction and centering of the X-ray beam

- The vertical central ray is centered to a point midway between the radial and ulnar styloid processes.

# Essential image characteristics

- The image should demonstrate the proximal two-thirds of the metacarpals, the carpal bones, and the distal third of the radius and ulna.
- There should be no rotation of the wrist joint.



Normal posterior-anterior radiograph of wrist



Postero-anterior radiograph of wrist through conventional plaster



Postero-anterior radiograph of wrist through light-weight plaster

# 2- Lateral

## Position of patient and cassette

- From the posterior-anterior position, the wrist is externally rotated through 90 degrees, to bring the palm of the hand vertical.
- The wrist joint is positioned over the unexposed half of the cassette to include the lower part of the radius and ulna and the proximal two-thirds of the metacarpals.
- The hand is rotated externally slightly further to ensure that radial and styloid processes are superimposed.
- The forearm is immobilized using a sandbag.

## Direction and centering of the X-ray beam

- The vertical central ray is centered over the styloid process of the radius.

## Essential image characteristics

- The exposure should provide adequate penetration to visualize the carpal bones, metacarpals, the carpal bones, and the distal third of the

- The radial and ulnar styloid processes should be superimposed.
- The image should demonstrate the proximal two-thirds of the radius and ulna.



Normal lateral radiograph of wrist

# 3- Oblique (anterior oblique)

## Position of patient and cassette

- The patient is seated alongside the table, with the affected side nearest to the table.
- The elbow joint is flexed to 90 degrees and the arm is abducted, such that the anterior aspect of the forearm and the palm of the hand rest on the tabletop.
- If the mobility of the patient permits, then the shoulder joint should be at the same height as the forearm.
- The wrist joint is placed on the cassette and adjusted to include the lower part of the radius and ulna and the proximal two-thirds of the metacarpals.
- The hand is externally rotated through 45 degrees and supported in this position using a non-opaque pad.
- The forearm is immobilized using a sandbag.

## Direction and centering of the X-ray beam

- **The vertical central ray is centered midway between the radial and ulnar styloid processes.**



Normal anterior oblique radiograph of wrist





Thanks

The word "Thanks" is written in a large, pink, cursive font with a sparkling, glitter-like texture. The text is centered and surrounded by decorative pink roses and green leaves on thin black stems. One rose is positioned above the 'h', another to the left of the 'T', and a larger one to the right of the 's'.