RADIOGRAPHY OF THE TOES, FOOT, and CALCANEUS
TOES
AP Axial Projection

• Patient Position:
  – Knee ___________; _________ surface of foot on IR

• Part Position:
  – _____ joints centered to IR
• Central Ray:
  – Center to ______ joint (to include all __ toes)
  – AP axial projection for joint spaces – angle ___°
    ___________ (toward ________)

• Optional
• Structures Shown:

• Criteria for Evaluation
  – The long axis of the foot is aligned with the ______________
    ____________
  – No rotation of ___________; midshaft concavity is ______
    ___________________________
  – Open __________________________ joints
NOTE: For *individual toe*, CR directed to _____ joint
TOES
AP Oblique Projection

• Patient Position:
  – Patient
  – Knee ______; ________ surface of foot on IR

• Part Position:
  – For digits 1 – 3 (or for all 5 toes):
    __________ rotate leg and foot _____
• Part Position:
  – For digits 4 – 5: _______ rotate leg and foot
  – Plantar surface forms _______ ° angle to IR

• Central Ray:
  – ____________ to __________ joint (to include all 5 toes)
  – Perpendicular to ______ (for individual toe)
• Structures Shown:

• Criteria for Evaluation
  – The long axis of the foot is aligned with the _____________________
  – More soft tissue width and more midshaft concavity on the side ______
    ______________
  – Open _____ and ____________________ _____ joints
TOE
Lateral Projection

• Patient Position:

• Part Position:
  – For digits 1 – 3: rotate leg and foot ______
  – For digits 4 – 5: rotate leg and foot _________
  – _______ centered to IR
  – Separate unaffected toes to ________
______________________________
• Central Ray:
  – _____________________ to IR
  – For digit 1: CR directed to ___ joint
  – For digits 2 – 5: CR directed to ____ joint

• Structures Shown:
• Criteria for Evaluation
  – The long axis of the foot/toes is/are aligned _______
  ______________________________________________________
  – Phalanges in _______, toenail ________.
  – Open _____________________________________________
Lateral Toes 2 – 5:
Case Study - Gangrene 1st Toe
SESAMOIDS
Tangential Projections

- Sesamoid ________________ of MT
- Lewis Method (patient __________)
  - Toes ______________________
  - CR _________ thru __________ joint
- Holly Method (patient __________)
  - Toes ______________________
  - CR perpendicular thru ________ joint
FOOT

AP Axial (___________)Projection

• Patient Position:
  – Patient
  – Knee ______ ; _______ surface of foot on IR

• Part Position:
  – Center to_______________________________
• Central Ray:
  – AP axial projection for ________________
  – angle _____° ________ (toward _____)
• Structures Shown:
  – Dorsoplantar projection of
• Criteria for evaluation:
  – The ________________ is aligned with the long axis of the IR
  – No rotation of foot – nearly _____ distance between ________________
  – Base of 1\textsuperscript{st} \& 2\textsuperscript{nd} metatarsals ____________, but bases of 2\textsuperscript{nd} – 5\textsuperscript{th} metatarsals ______________
  – Space between ________________ _______________ open
  – Space between ________________ ________________
• Enlarged view of bases of metatarsals and tarsals
  – Base of 1st & 2nd metatarsals
    __________________
  – Space between ___________  
    __________________
  – Space between ___________  
    ___________________ open
FOOT

AP ______Oblique Projection

• Patient Position:
  – Patient
  – Knee _____; __________of foot on IR

• Part Position:
  – Rotate foot ______________°
    (routine)
• Central Ray:

________________ to ___________________
• Structures Shown:
  – Medial rotation:
  – _________ fracture
• Criteria for evaluation:
  – The long axis of the foot is aligned with the____________________

  – 3rd – 5th metatarsal bases are ______
    ________________________________.

  – ___________free of superimposition
• Medial Oblique Foot – Criteria for Evaluation
  – The joint between the _________and the ______________ should be open.
  
  – The 1\textsuperscript{st} & 2\textsuperscript{nd} intermetatarsal joints should be ________, but the 3\textsuperscript{rd} – 5\textsuperscript{th} intermetatarsal joints should be ______.
  
  – The __________________should be open
  
  – The tuberosity of the 5\textsuperscript{th} metatarsal should be______________________________.
- Enlarged view of bases of metatarsals and tarsal bones.

- Bases of 3rd – 5th metatarsals

- ________separated from metatarsals, 3rd cuneiform and calcaneus.

- ________open
• AP Lateral Oblique Projection
  
  – Rotate foot ________________
    degrees
  
  – Structures Shown
• AP Medial Oblique foot – Error: ______ rotated – cuboid –cunieform joint space _____ _____ . Proximal 3rd – 5th intermetatarsal joints______. Tuberosity of the 5th metatarsal and sinus tarsi_______________.

Correction -
Oblique foot

_____________
• AP Medial Oblique foot – Error: _______ -rotated foot. Cuneiform-cuboid, navicular-cuboid, and intermetatarsal joint spaces______________.

Correction: _______ rotation of foot
FOOT
Lateral Projections

• Patient Position:

• Part Position: 1. Mediolateral projection –
  – ____________ surface of foot on IR; foot slightly
  ____________; plantar surface ________________ to
  IR
• Part Position: 2. Lateromedial projection –
  – _________ surface of foot on IR; foot slightly _________; plantar surface _____________ to IR (___________ lateral)
• Central Ray:
  – Perpendicular to level of
• Structures Shown:

• NOTE: Useful to show _________
  and displacement of__________
• Criteria for evaluation:
  – The long axis of the foot is aligned with the___________
  _________
  – The domes of the talus should be _____________________.
  – The tibiotalar joint should be _____________________.
  – About ½ inch of the ___________ should be posterior to the navicular.
• Criteria for evaluation:
  – The distal fibula should be superimposed by the _________
    ______________________

  – The metatarsals should be
    ______________________

  – The foot should be __________ until the lower leg and long axis of the foot form a __________
    ______________________
• Lateral foot – Error – foot is in ______________ __________. The tibiotalar joint will________ _________.
The __________ fat pad is ___ ______ and the lower leg does not form ____ degree angle.

Correction - _______ the foot until the lower leg and the long axis of the foot forms a _____ degree angle
• Lateral foot – Error – __________ rotation of foot. The medial talar dome is now ______ to the ______ talar dome. The fibula will be too ______ to the tibia. The tibiotalar joint ______________. Metatarsals ______________.

Correction - Elevate the _______ & depress the _______ (________________ rotate the leg).
Weightbearing AP Axial Projection

- CR directed ___° _______ to ________ between feet at level of __________________ (if bilateral) or at the level of the ____________________________ if only one foot is requested.
Weightbearing Oblique Projection

- CR directed __________ degrees to level of ________________
Weightbearing Lateral Projections

• CR directed ___________to level of base of 3rd metatarsal

• Shows ______________ status of the _______ ___________ or________________
CALCANEUS
Axial Projection (Plantodorsal Projection) - Harris Method

• Patient Position:

• Part Position:
  – _________ centered to IR
  – Ankle _________; plantar surface is _________ to IR
• Central Ray:
  – Angle ___° __________ – toward the long axis of the ______
  – CR enters ________ surface at ________________
    __________________________

• NOTE: It may also be called ________________
or ________________ projection
NOTE: May be done ______ (______________ or ___________________ projection)
NOTE: May be done________________
- Structures Shown:
• Enlarged view

- ____________ Joint
• Axial Calcaneus Error – __________ too much, calcaneus is __________. This is the same patient.
CALCANEUS
Lateral Projection

• Patient Position:

• Part Position:
  – Rotate leg _______
  – _________ surface perpendicular to IR
  – Foot is___________
• Central Ray:
  – ______________ to IR
  – Directed _____________________________
- Structures Shown:
• Enlarged view
Case Study

- Fx ankle, 2 yr later minor fall fx calcaneus
CT
CALCANEUS
Lateromedial Oblique Projection

- _______________________ Method:
- CR directed _____ ° ____________
- Useful in diagnosing ____________________
AP AXIAL PROJECTION
Weightbearing Axial Projection

1. Tube angled ___° toward l___ centered to the 3rd _______

2. Without moving foot, tube angled ___° __________ centered to____________
• Shows full outline of _________________

• Demonstrates:

  - bowleg varus
  - knock-knee valgus

![X-ray of a foot](image.png)
CONGENITAL CLUBFOOT SERIES (Talipes Equinovarus)

• Congenital defect in which the foot points _______ at the ankle and the_______ turns inward (______________).
CONGENITAL CLUBFOOT SERIES

Kite Method:

AP Foot

Lateral Foot
Kandel Method:

Weightbearing Axial Calcaneus
• **Situation:** A patient comes to radiology for an evaluation of the longitudinal arch of the foot. **Solution:** Lateral _________ projections would provide the best information about the arch.
• **Situation:** A radiograph of a plantodorsal (axial) projection of the calcaneus reveals foreshortening. The technologist used a 30° cephalad angle from the long axis of the foot. **Solution:** Increasing the CR cephalad angulation to _______________ degrees will produce a more diagnostic image of the calcaneus.
• **Situation**: A patient comes to radiology with an infection involving the sesamoid bones of the foot. Beyond the routine foot projections, which projection can be performed to best demonstrate these structures? **Solution**: A ________ projection best demonstrates the sesamoid bones.
• **Situation:** A radiograph of an AP oblique foot with medial rotation demonstrates considerable superimposition of the third through fifth metatarsals. How must the original position be changed to eliminate this problem? **Solution:** Repeat the radiograph with ____ obliquity of the foot.