RADIOGRAPHY OF THE ANKLE and LOWER LEG
ANKLE
AP Projection

• Patient Position:

• Part Position:
  – True
  – Slight _______ to place foot’s long axis___________
  – Center to ______________
• Central Ray:
  – ____________ to IR
  – Midway__________

• Note: Ankle joint is _______________ to tips of malleoli
• Structures Shown

- Tibia
- Fibula
- Tibiotalar joint
- Lateral malleolus
- Medial malleolus
- Medial mortise
- Talus
• AP Ankle Criteria for Evaluation

– The long axis of the leg should be in alignment__________________________.

– The tibia should be slightly ______________
____________________________

– _______________ joint should be open.

– Medial mortise  should___________.

– Talus should be slightly ______________
____________________________

– The foot should be ______________
• AP ankle – Error – ankle____________, too much of the _______ is superimposed on the ______ and the tibiotalar joint ______________. The leg is slightly __________ rotated. Correction: rotate slightly __________ to place the leg in______________.
ANKLE
AP Mortise Oblique Projection
Medial Rotation

• Patient Position:

• Part Position:
  – Foot ______________________
  – Leg and foot rotated ___________°
  – Intermalleolar plane ________ to IR
  – Center to____________________
• Central Ray:
  - __________________to IR
  - Midway __________________

• Structures Shown:
Oblique Mortise Ankle Criteria for Evaluation

- The foot should be__________________.

- The distal fibula should be demonstrated ________________________________.

- Lateral mortise (___________ joint) should be__________

- ____________________ joint should be open.

- Medial mortise__________________.

- The lateral and medial malleoli should be demonstrated__________________.

- The tibia should be very slightly superimposed ________________.
• Oblique Mortise ankle – Error – the leg is __________ _____ – this causes the talofibular joint __________ _____ enough and the medial and lateral malleoli are not ________________ from the IR. Correction - Rotate the lower leg __________ (______) until the malleoli are ________________ from the IR.
- Oblique Mortise ankle – Error – the foot is ______ flexed – this will cause the ____________ to be too close to the ______ and will obscure the ____________ joint.
  Correction: ______________ the foot.

Good image
Calcaneus
Fx. – patient unable to dorsiflex foot
ANKLE
AP Oblique (45°) Projection
Medial Rotation

• Patient Position:

• Central Ray:
  – ___________ to IR
  – Midway_________________

• Part Position:
  – Foot ______________
  – Leg and foot rotated________________
  – Center to ___________(midway between ___________)

• Structures Shown:
• Oblique 45 degree ankle – Criteria for Evaluation

  – The medial mortise should be_______, the lateral mortise is__________________.

  – The fibula should be demonstrated ______
                      ________________________________.

  – The _____________ should be demonstrated distal to the lateral mortise and fibula.

  – The _____________ should be slightly seen.
• Oblique 45 degree ankle – Error - ________ rotation – the fibula will be superimposed on the _____ and the _________________ will be completely open.

Correction - ________________ foot and decrease rotation of leg to ____ degrees
• Oblique 45 degree ankle – Error - _______ rotation and foot is__________________, the sinus tarsi is ____ ____________ , and the fibula is superimosed on the ________________. Correction: _________ foot and _________ rotation of leg to ___ degrees.

Good image
Comparison

AP

15-20° Mortise

45° Oblique
ANKLE
Lateral (Mediolateral) Projection

• Patient Position:

• Part Position:
  – Leg and foot in __________________
  – __________________ of ankle on IR
  – __________ foot to ______________ with leg
  – Center to ______________________
• Central Ray:
  - ________________ to IR

• Alternate (______________) projection
• Structures shown:
• Lateral ankle – Criteria for Evaluation
  – The long axis of the foot is ________________________________
  – The talofibular joint ________________________________
  – The distal fibula is superimposed over the ________________________________
  – The domes of the talus ________________________________
  – The ________________________________ is seen
- Lateral ankle – Error; leg is ___________ rotated, the fibula is too far__________, the talus is ___________. Correction _______________ rotate leg.
• Trimalleolar Fracture includes:
STRESS METHODS

- Stress views demonstrate __________________—— ruptures of ligament is seen as a __________

  ________________________________________________

- Stress Inversion Shows ________ ligament
Stress Eversion  Shows _______ ligament
Alternative Method
__________________ AP Ankle & Lateral
LEG
AP Projection

- Patient Position:
- Part Position:
  - Leg in __________
  - Foot is __________ to ___°
  - Femoral condyles __________ to IR
- Central Ray:
  - __________ to IR
  - __________ of leg
• **Structures Shown:**
• Criteria for Evaluation:
  – The long axis of the leg should be in alignment ____________
    ________________
  – Ankle and knee joint ______
  – Distal fibula superimposed over ___________.
  – Slight overlap of ________________
    __________________
    over tibia
LEG
Lateral Projection

• Patient Position:

• Part Position:
  – Turned _____________________________
  – Patella _____________ to IR
  – Femoral condyles_____________
  – _________ superimposed
  – Knee flexed _____°
• Central Ray:
  - _______________ to IR
  - ___________ of leg

• Note Cross-table lateral with horizontal beam is obtained if patient is unable to ________________
  ________________
• Structures Shown:

• Criteria for Evaluation:
  – The _________ of the leg should be in alignment with the long axis of the IR.
  – Ankle and knee joint______
  – Distal fibula lying over ____________________
  – Slight overlap ____________
• Lateral Leg error: Leg is ________; head of fibula is ________ from the tibia and the distal_____________. Correction: roll patella ______ to IR (________ rotation of leg)
• Lateral Leg error: Leg is________; head of fibula is ____________
__________________and the distal fibula is _______________.
Correction: roll _________ from the IR
(___________ rotation of leg)
• **Situation:** A radiograph of an AP ankle projection reveals that the lateral joint space is not open (lateral malleolus is partially superimposed by the talus). The superior and medial joint spaces are open. Is a repeat exposure necessary? **Solution:**

_________________
• **Situation:** A radiograph of a AP mortise projection of the ankle reveals that the lateral malleolus is slightly superimposed over the talus and the lateral joint space is not open. **Solution:** Insufficient ____________ rotation of the foot and ankle was most likely the cause for this radiographic outcome.
• **Situation:** A patient enters radiology with a possible ligament tear to the lateral aspect of the ankle. Initial ankle radiographs are negative for fracture or dislocation. Because the clinic is in a rural setting, the patient cannot have an MRI performed to evaluate the ligaments of the ankle. **Solution:** AP projections may provide an assessment of the soft tissue structures of the ankle.