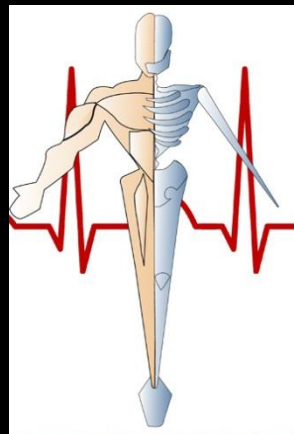


Three Phase CEUs Presents:
*Practical Radiographic
Positioning ©*

‘Mastery Test’

by

John Fleming, M.Ed., RT(R)(MR)(CT)



Please scroll down to proceed.

Forward:

The premise behind the creation of this tutorial is to provide imaging professionals with access to high quality yet affordable continuing education.

Our courses qualify as Category A (technical) points for the following: all ARRT recognized imaging modalities, ARRT-CQR, FDOH-Bureau of Radiation Control, NMTCB, and RCIS.

According to the ARRT, a current license as a general radiographer with the FDOH is required to qualify to complete this course.
This rule does not apply to either the NMTCB or RCIS credentials.

Please scroll down to proceed.

Payment Methods:

1. Venmo: @John-Fleming-Three-Phase-CEUs (press to copy & paste)
2. Cash App: \$ThreePhaseCEUs (press to copy & paste)
3. Zelle: (727) 744-7946
4. Apple Pay: (727) 744-7946
5. PayPal: (727) 744-7946
6. Check: please make your check payable to, “Three Phase CEUs” and return it along with your answer sheet to the address below.

Three Phase CEUs
c/o John Fleming
80 Bay Woods Drive
Safety Harbor, FL 34695

Text John Fleming at (727) 744-7946 for our current prices.

Please scroll down to proceed.

Mastery Test Instructions:

Please place an “X” over the correct response on your answer sheet. Feel free to write your answer down on a blank piece of paper if you do not have access to a printer. That is just as good.

After you complete your answer sheet, just snap a picture of it with your cell phone and text it to John Fleming at (727) 744-7946. The picture does not need to be perfect, only legible.

We will return your certificate of completion to you via e-mail after we receive your payment and completed answer sheet.

Thanks for your support and be sure to reach out via text message if you encounter any snags.

Please scroll down to proceed.

Question #1:

The body is upright with the arms at the side and the palms of the hands facing forward. This describes which of the following?

- a. anatomical position
- b. recumbent
- c. decubitus
- d. oblique

Question #1: Review

- Position is a term is used to describe the how the patient's body has been physically placed.
- The following is a list of terms that are examples of a position.

Anatomical Position

- The body is upright with the arms at the side and the hands facing forward.

Recumbent

- This term is used to describe the body anytime it is lying down.

Lateral

- When the body has been turned on its side.

Decubitus

- Refers to when the patient is recumbent and a horizontal x-ray tube is employed.

Question #2:

It is traditionally accepted within the industry that the child-bearing years extend up to a maximum of and include age _____.

- a. 40
- b. 45
- c. 50
- d. 55

Question #2: Review

- Shield patients in the child-bearing years and younger.
Traditionally, the child-bearing years extend up to and include age 50.
- Employ a small focal spot whenever possible.
- Remove the patient's watch and any rings or bracelets that may obstruct the anatomy of interest.
- A grid should be used on any body part that measures greater than 10 cm.
- For each 5° of tube angle, the SID must be reduced by 1”.

Question #3:

For a lateral position of the forearm, the elbow must be bent _____.

- a. 15°
- b. 45°
- c. 60°
- d. 90°

Question #3: Review

SID	40"
kVp	55
IR Size & Placement	24 x 30 or 35 x 43 cm; LW.
Tube Angle	None.
CR	Mid Forearm.
Collimation	Include lateral borders of forearm and both joints.
Patient Positioning	The elbow must be bent 90°; Place forearm in a true lateral position; Humerus flat and at level of the table; The thumb is in the up position and the epicondyles are perpendicular to IR.

Lateral Forearm

Question #4:

The CR is directed to the glenohumeral joint space for which of the following projections/methods of the shoulder?

- a. Grashey method
- b. AP internal rotation
- c. AP external rotation
- d. inferosuperior axial projection

Question #4: Review

SID	40"
kVp	75 to 80
IR Size & Placement	24 x 30 cm; CW.
Tube Angle	None.
CR	Glenohumeral joint space.
Collimation	Show collimation on all four borders.
Patient Positioning	Rotate the body 35 to 40° towards the affected side; Place the arm in a neutral position.
Breathing Instructions	Suspend.
Additional Comments	Place the marker on the bucky and just lateral to the humerus.

Grashey Method

Question #5:

What is the name of the plane that divides the body into equal right and left portions?

- a. transverse
- b. axial
- c. midcoronal
- d. midsagittal

Question #5: Review

- Sagittal Plane
 - Divides the body into right and left portions.
- Midsagittal Plane or Midline
 - Divides the body into equal right and left portions.
- Coronal Plane
 - Divides the body into front and back portions.
- Midcoronal Plane
 - Divides the body into equal front and back portions.
- Axial or Transverse Plane
 - Divides the body into top and bottom portions.

Question #6:

The exact CR location for an AP thumb is the _____ joint.

- a. interphalangeal
- b. metacarpophalangeal
- c. proximal interphalangeal
- d. distal interphalangeal

Question #6: Review

SID	40"
kVp	55
IR Size & Placement	24 x 30 cm; Lengthwise (LW).
Tube Angle	None.
CR	Metacarpophalangeal (MP) Joint.
Collimation	Include the entire first metacarpal.
Patient Positioning	True AP Projections.
Breathing Instructions	None.
Additional Comments	Place the marker at the end of the digit and within the light field.

AP Thumb

Question #7:

The exact centering point for an AP projection of the sacrum is to the midline of the body and 2" _____.

- a. above the top of the iliac crests
- b. below the top of the iliac crests
- c. above the symphysis pubis
- d. below the symphysis pubis

Question #7: Review

SID	40"
kVp	85 to 90
IR Size & Placement	24 x 30 cm; LW.
Tube Angle	Angle the tube 15° cephalic.
CR	Center to the midline and a point 2" above the symphysis.
Collimation	Tight collimation to the sacrum.
Patient Positioning	The patient is recumbent with their arms at their side.
Breathing Instructions	Suspend Respirations.
Additional Comments	Place a marker within the light field.

AP Sacrum

Question #8:

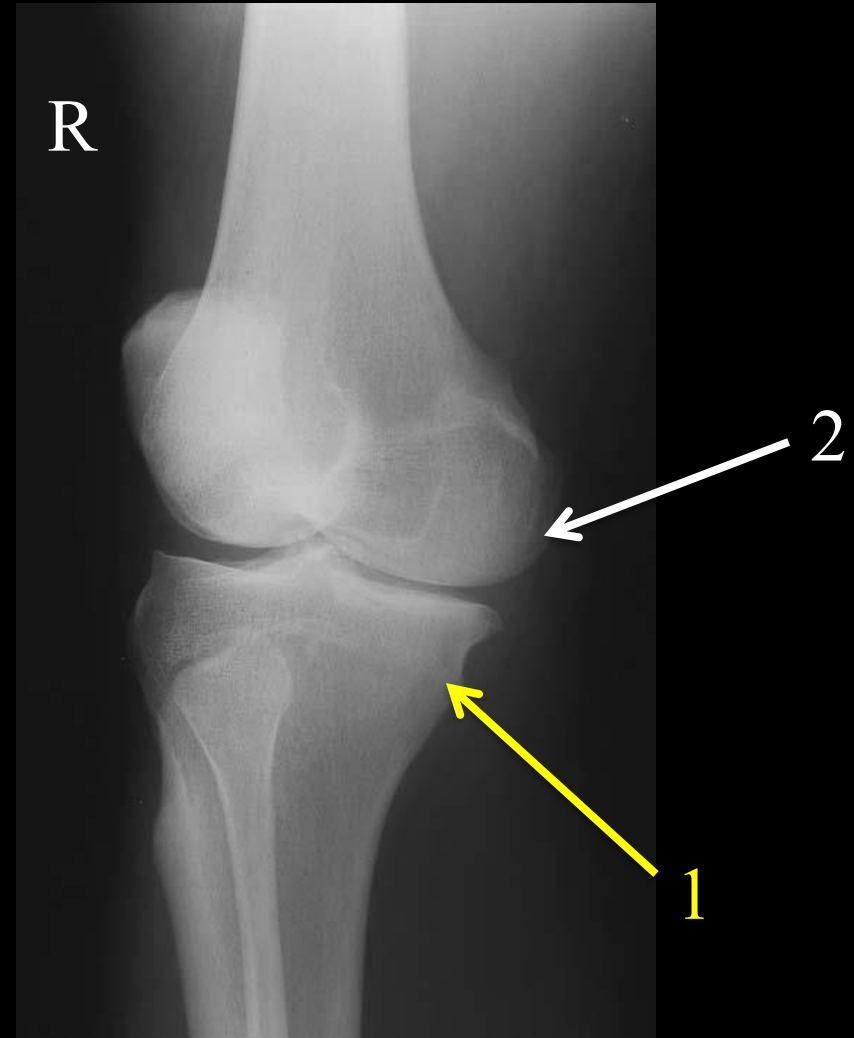
The arrow on this lateral oblique position of the knee is pointing to the:

- a. tibial tuberosity.
- b. medial condyle of the femur.
- c. medial condyle of the tibia.
- d. intercondylar eminence.



Question #8: Review

This position will best demonstrate the medial condyle of the tibia (1) and the medial condyle of the femur (2) in profile.



Lateral Oblique Knee

Question #9:

The Caldwell method of the skull requires a _____ caudal tube angle.

- a. 15°
- b. 20°
- c. 25°
- d. 30°

Question #9: Review

SID	40"
kVp	85
IR Size & Placement	24 x 30 cm; LW.
Tube Angle	15° Caudal to the OML.
CR	The CR exits at the nasion.
Collimation	Tight collimation to the lateral borders of the skull.
Patient Positioning	With the patient seated and in the PA projection, place the patient's forehead and nose against the IR; The OML and midsagittal plane must be perpendicular to the IR.

Caldwell Method (PA Axial Projection)

Question #10:

Which of the following terms would be used to describe the CR when it is used to skim the surface of the patient?

- a. anteroposterior
- b. tangential
- c. posteroanterior
- d. axial

Question #10: Review

- Projection is a term that is used to describe the path of the primary x-ray beam or central ray.
- The following is a list of terms that are examples of a projection.

Anteroposterior (AP)

- The CR will pass through the anterior aspect of the patient and exit the posterior aspect.

Posteroanterior (PA)

- The CR will pass through the posterior aspect of the patient and exit the anterior aspect.

Tangential

- The CR will skim the surface of the patient.

Axial

- Refers to a tube angle that directed along the long axis of a body part.

Question #11:

The exact CR location for a PA projection of the 3rd digit is the _____ joint.

- a. interphalangeal
- b. metacarpophalangeal
- c. proximal interphalangeal
- d. distal interphalangeal

Question #11: Review

SID	40"
kVp	55
IR Size & Placement	24 x 30 cm; LW.
Tube Angle	None.
CR	Proximal Interphalangeal (PIP) Joint.
Collimation	Include the distal third of the adjacent metacarpal.
Patient Positioning	True PA Projection.
Breathing Instructions	None.
Additional Comments	Place the marker at the end of the digit and within the light field.

PA 3rd Digit

Question #12:

For a standard barium enema, the centering point for an AP axial projection of the sigmoid colon is to the midline of the body and at the level of the:

- a. symphysis pubis.
- b. top of the iliac crest.
- c. ASIS.
- d. greater trochanter.

Question #12: Review

SID	40"
kVp	100 to 110
IR Size & Placement	35 x 43 cm; LW.
Tube Angle	Angle the tube 30 to 40° cephalic.
CR	Center to the level of the ASIS and the midline of the body.
Collimation	Collimate to the size of the IR.
Patient Positioning	Place the patient into a supine position with their arms at their side.
Breathing Instructions	Expose on expiration.
Additional Comments	Mark the lower right-hand corner of either the IR or the patient.

AP Axial Sigmoid

Question #13:

A tangential projection of the patella will require a tube angle of _____ to the lower leg.

- a. 10 to 15°
- b. 15 to 20°
- c. 25 to 30°
- d. 35 to 40°

Question #13: Review

SID	40".
kVp	65 Non Bucky.
IR Size & Placement	24 x 30 cm; LW.
Tube Angle	15 to 20° to the long axis of the lower leg (tibia) and in an inferosuperior direction.
CR	Mid femoropatellar joint space.
Collimation	Tight collimation to the patella.
Patient Positioning	The patient is supine with the knee flexed 40 to 45°.
Breathing Instructions	Suspend Respirations.
Additional Comments	Mark the lateral aspect of the knee.

Tangential Patella: Reverse Hughston

Question #14:

For a neutral lateral position of the cervical spine, the CR is directed to which of the following?

- a. C2
- b. C3
- c. C4
- d. C5

Question #14: Review

SID	72"
kVp	80
IR Size & Placement	24 x 30 cm; Lengthwise (LW).
Tube Angle	None.
CR	Center to the level of C4.
Collimation	Tight collimation to the neck.
Patient Positioning	Mid coronal plane is perpendicular; Slightly elevate the chin to avoid superimposition on the cervical spine; Use weights to lower the shoulders.
Breathing Instructions	Deep expiration to lower the shoulders.
Additional Comments	Place a marker within the light field.

Neutral Lateral Cervical Spine

Question #15:

Which of the following terms would be used to describe when one structure is located further from the midline in relation to another structure?

- a. lateral
- b. distal
- c. proximal
- d. medial

Question #15: Review

- Medial
 - Refers to a structure that is closer to the midline.
- Lateral
 - Refers to a structure that is further from the midline.
- Proximal
 - Refers to a structure that is closer to a source.
- Distal
 - Refers to a structure that is further from a source.
- Cephalic or Cephalad
 - In a direction towards the head.
- Caudal or Caudad
 - In a direction towards the feet.

Question #16:

The exact CR location for a lateral position of the hand is the _____ joint.

- a. 3rd interphalangeal
- b. 2nd interphalangeal
- c. 3rd metacarpophalangeal
- d. 2nd metacarpophalangeal

Question #16: Review

SID	40"
kVp	55
IR Size & Placement	24 x 30 cm; LW.
Tube Angle	None.
CR	2 nd Metacarpophalangeal Joint.
Collimation	Include the entire hand, wrist, and distal forearm.
Patient Positioning	Lateromedial Projection; Fan Fingers.
Breathing Instructions	None.
Additional Comments	Place the marker next to the radius and within the light field.

Lateral Hand

Question #17:

For an AP unilateral projection of the hip, the CR is direction to the:

- a. ASIS.
- b. mid femoral neck.
- c. head of the femur.
- d. greater trochanter of the femur.

Question #17: Review

SID	40"
kVp	85
IR Size & Placement	24 x 30 cm; Lengthwise (LW).
Tube Angle	None.
CR	Mid femoral neck.
Collimation	Tight collimation to the hip.
Patient Positioning	The patient is supine with their legs internally rotated 15 to 20°.
Breathing Instructions	Suspend respirations.
Additional Comments	Place a marker within the light field & along the lateral margin of the hip.

AP Unilateral Hip

Question #18:

What are the breathing instructions for a neutral lateral position of the cervical spine?

- a. suspend respirations
- b. taken on inspiration
- c. taken on expiration

Question #18: Review

SID	72"
kVp	80
IR Size & Placement	24 x 30 cm; Lengthwise (LW).
Tube Angle	None.
CR	Center to the level of C4.
Collimation	Tight collimation to the neck.
Patient Positioning	Mid coronal plane is perpendicular; Slightly elevate the chin to avoid superimposition on the cervical spine; Use weights to lower the shoulders.
Breathing Instructions	Deep expiration to lower the shoulders.
Additional Comments	Place a marker within the light field.

Neutral Lateral Cervical Spine

Question #19:

An esophagram requires that the patient be turned into a _____ oblique position.

- a. 30 to 35°
- b. 35 to 40°
- c. 40 to 45°
- d. 60°

Question #19: Review

SID	40"
kVp	100
IR Size & Placement	35 x 43 cm; Lengthwise (LW).
Tube Angle	None.
CR	Center to the level of T5-T6 (3-4" inferior to the jugular notch) and to the left of the patient's spine.
Collimation	Tight collimation to the esophagus.
Patient Positioning	Place the patient into a 35-40° right anterior oblique position; Their right arm is at their side and their left hand is holding a cup of barium.

RAO Esophagram

Question #20:

Which of the following is used to describe the path that the x-ray beam travels?

- a. projection
- b. position
- c. medial
- d. coronal

Question #20: Review

- Projection is a term that is used to describe the path of the primary x-ray beam or central ray.
- The following is a list of terms that are examples of a projection.

Anteroposterior (AP)

- The CR will pass through the anterior aspect of the patient and exit the posterior aspect.

Posteroanterior (PA)

- The CR will pass through the posterior aspect of the patient and exit the anterior aspect.

Tangential

- The CR will skim the surface of the patient.

Axial

- Refers to a tube angle that directed along the long axis of a body part.

Question #21:

Which of the following wrist projections/positions would best demonstrate the navicular/scaphoid free from bony superimposition?

- a. PA
- b. ulnar deviation
- c. PA oblique
- d. lateral

Question #21: Review

SID	40"
kVp	55
IR Size & Placement	24 x 30 cm; LW.
Tube Angle	10 to 15° along the long axis of the forearm and towards the elbow.
CR	Mid Carpal Area.
Collimation	Tight collimation to the carpal area.
Patient Positioning	Lateromedial Projection.
Breathing Instructions	None.
Additional Comments	This method is primarily done to demonstrate the navicular/scaphoid bone (arrow) free from bony superimposition.

Ulnar Deviation or Stetcher Wrist

Question #22:

The intermalleolar line will be parallel to the IR for which of the following ankle projections/positions?

- a. AP
- b. oblique
- c. lateral
- d. AP mortise

Question #22: Review

SID	40"
kVp	60
IR Size & Placement	24 x 30 or 35 x 43 cm; LW.
Tube Angle	None.
CR	Center to a point midway between the medial and lateral malleoli.
Collimation	Include the proximal half of the metatarsals and the distal tibia/fibula.
Patient Positioning	Patient is supine with their leg internally rotated 15 to 20° from AP; The intermalleolar line will be parallel to the IR.

AP Mortise Ankle

Question #23:

The post evacuation image taken for a standard barium enema is routinely taken with the patient in which of the following projections/positions?

- a. PA
- b. AP
- c. upright
- d. lateral

Question #23: Review

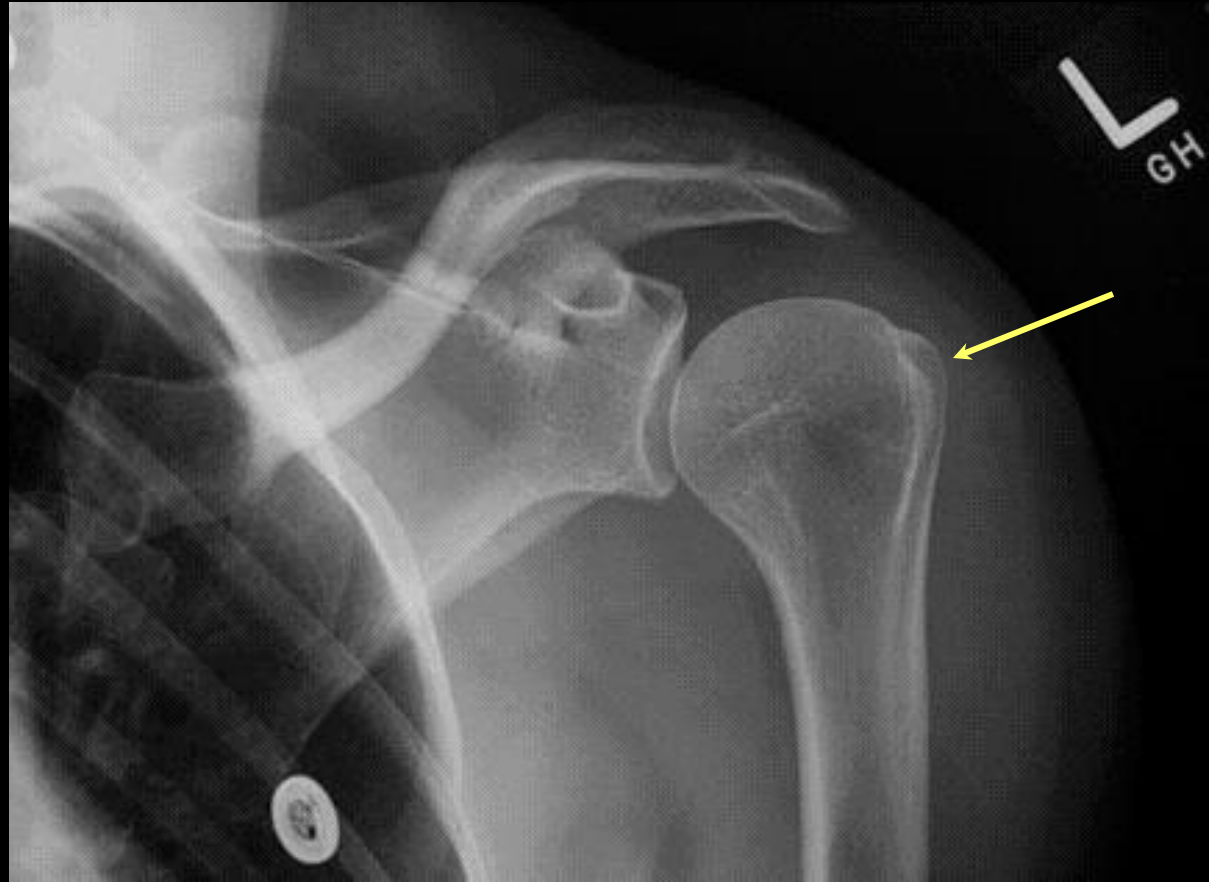
SID	40"
kVp	100 to 110
IR Size & Placement	35 x 43 cm; LW.
Tube Angle	None.
CR	Center to the top of the iliac crests and to the midline of the body.
Collimation	Collimate to the size of the IR.
Patient Positioning	The patient is recumbent and prone.
Breathing Instructions	Expose on expiration.
Additional Comments	Mark the lower left-hand corner of either the IR or the patient.

PA Post Evacuation BE

Question #24:

The arrow on this image is pointing to the:

- a. head of the humerus.
- b. neck of the humerus.
- c. greater tuberosity.
- d. lesser tuberosity.



Question #24: Review

SID	40"
kVp	75 to 80
IR Size & Placement	24 x 30 cm; CW.
Tube Angle	None.
CR	1" inferior to the coracoid process.
Collimation	Show collimation on all four borders.
Patient Positioning	Externally rotate the arm until the epicondyles are parallel to the IR.
Breathing Instructions	Suspend.
Additional Comments	The greater tuberosity (arrow) is seen in profile on this position.

AP External Rotation

Question #25:

Which of the following terms would be used to describe when a patient is lying on their back and in an AP projection?

- a. supine
- b. prone
- c. decubitus
- d. lateral

Question #25: Review

- Position is a term used to describe the how the patient's body has been physically placed.
- The following is a list of terms that are examples of a position.

Anatomical Position

- The body is upright with the arms at the side and the hands facing forward.

Recumbent

- This term is used to describe the body anytime it is lying down.

Supine

- The body is recumbent and in an AP projection.

Prone

- The body is recumbent and in a PA projection.

Question #26:

The carpal canal method of the wrist requires that the tube be angled _____ along the long axis of the forearm and towards the elbow.

- a. 20 to 25°
- b. 25 to 30°
- c. 30 to 35°
- d. 35 to 40°

Question #26: Review

SID	40"
kVp	55
IR Size & Placement	24 x 30 cm; LW.
Tube Angle	25 to 30° along the long axis of the forearm and towards the elbow.
CR	Center 1" distal to the base of the third metacarpal.
Collimation	Tight collimation to the carpal area.
Patient Positioning	Extend the forearm in PA projection and hyperextend the hand.

Carpal Canal or Gaynor-Hart Wrist

Question #27:

The RPO position for a standard barium enema will best demonstrate which of the following portions of the colon?

- a. right colic (hepatic) flexure
- b. left colic (splenic) flexure
- c. transverse colon
- d. ascending colon

Question #27: Review

SID	40"
kVp	100 to 110
IR Size & Placement	35 x 43 cm; LW.
Tube Angle	None.
CR	Center to the top of the iliac crests and to the mid abdomen.
Collimation	Collimate to the size of the IR.
Patient Positioning	Place the patient into a 45° posterior oblique position.
Breathing Instructions	Expose on expiration.
Additional Comments	The RPO position will best demonstrate the left colic or splenic flexure

RPO Standard BE

Question #28:

The exact centering point for an AP projection of a lumbar spine is the midline of the body and to which of the following?

- a. top of the iliac crests
- b. 2" above the top of the iliac crests
- c. 2" below the top of the iliac crests
- d. ASIS

Question #28: Review

SID	40"
kVp	85
IR Size & Placement	35 x 43 cm; Lengthwise (LW).
Tube Angle	None.
CR	Center to the midline at the level of the top of the iliac crests.
Collimation	Tight collimation to the lateral border of the spine.
Patient Positioning	Place the patient in a supine position with a sponge under their knees.
Breathing Instructions	Expose on expiration.
Additional Comments	Place a marker within the light field.

AP Lumbar Spine

Question #29:

For a standard barium enema, which of the following is the correct range for the tube angle required for an AP axial projection of the sigmoid colon?

- a. 10 to 20°
- b. 20 to 30°
- c. 30 to 40°
- d. 40 to 50°

Question #29: Review

SID	40"
kVp	100 to 110
IR Size & Placement	35 x 43 cm; LW.
Tube Angle	Angle the tube 30 to 40° cephalic.
CR	Center to the level of the ASIS and the midline of the body.
Collimation	Collimate to the size of the IR.
Patient Positioning	Place the patient into a supine position with their arms at their side.
Breathing Instructions	Expose on expiration.
Additional Comments	Mark the lower right-hand corner of either the IR or the patient.

AP Axial Sigmoid

Question #30:

The term caudad refers to which of the following?

- a. In a direction towards the feet.
- b. Refers to a structure that is further from a source.
- c. Refers to a structure that is closer to the midline.
- d. In a direction towards the head.

Question #30: Review

- Medial
 - Refers to a structure that is closer to the midline.
- Lateral
 - Refers to a structure that is further from the midline.
- Proximal
 - Refers to a structure that is closer to a source.
- Distal
 - Refers to a structure that is further from a source.
- Cephalic or Cephalad
 - In a direction towards the head.
- Caudal or Caudad
 - In a direction towards the feet.

Question #31:

For a standard barium enema, the centering point for a lateral rectum is to the midcoronal plane of the body and at the level of the:

- a. symphysis pubis.
- b. ASIS.
- c. top of the iliac crest.
- d. greater trochanter.

Question #31: Review

SID	40"
kVp	110
IR Size & Placement	24 x 30 cm; LW.
Tube Angle	None.
CR	Center to the level of the ASIS and the midcoronal plane of the body.
Collimation	Collimate to the size of the IR.
Patient Positioning	Place the patient into a left lateral recumbent position; Flex their knees to provide support.
Breathing Instructions	Expose on expiration.
Additional Comments	Place a marker within the light field.

Left Lateral Rectum

Question #32:

An AP projection of the L5/S1 joint space will require a _____ tube angle for a female patient.

- a. 15°
- b. 30°
- c. 35°
- d. 45°

Question #32: Review

SID	40"
kVp	85 to 90
IR Size & Placement	24 x 30 cm; LW.
Tube Angle	Angle the CR 30° cephalic for a male and 35° cephalic for a female patients.
CR	Direct the CR to the midline of the body at the level of the ASIS.
Collimation	Collimate to a 5 x 5" square.
Patient Positioning	Place the patient in a supine position with a sponge under their knees.
Breathing	Suspend Respirations.
Additional Comments	Place a marker within the light field.

AP L5/S1 Lumbar Spine

Question #33:

Which of the following is the correct CR location for a frog-leg lateral position of the hip?

- a. neck of the femur
- b. greater trochanter
- c. lesser trochanter
- d. head of the femur

Question #33: Review

SID	40"
kVp	85
IR Size & Placement	24 x 30 cm; CW.
Tube Angle	None.
CR	Mid Femoral Neck.
Collimation	Tight collimation to the hip.
Patient Positioning	Instruct the patient to bend their knee and then abduct their femur 45°.
Breathing Instructions	Suspend respirations.
Additional Comments	Place a marker within the light field & along the lateral margin of the hip.

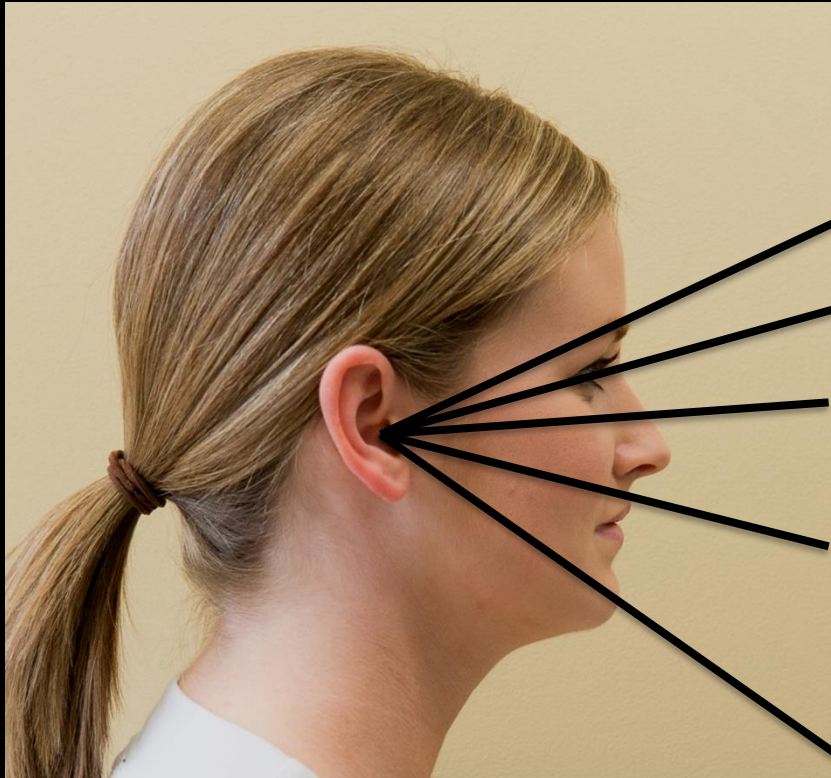
Frog-Leg Lateral Hip

Question #34:

A base line used in skull radiography that is located between the outer canthus of the eye and the external auditory meatus (EAM) is known as the:

- a. glabellomeatal line (GML).
- b. orbitomeatal line (OML).
- c. acanthiomeatal line (AML).
- d. mentomeatal line (MML).

Question #34: Review



Glabellomeatal Line (GML)

Orbitomeatal Line (OML)

Infraorbitomeatal Line (IOML)

Acanthiomeatal Line (AML)

Mentomeatal Line or (MML)

These base lines are used to tuck and raise the skull into various positions for skull radiography.

Skull Base Lines

Question #35:

Which of the following terms would be used to describe the use of a horizontal tube combined with a patient in a recumbent position?

- a. lateral
- b. prone
- c. axial
- d. decubitus

Question #35: Review

- The term position is used to describe the how the patient's body has been physically placed.
- The following is a list of terms that are examples of a position.
 - Anatomical Position- The body is upright with the arms at the side and the hands facing forward.
 - Recumbent- This term is used to describe the body anytime it is lying down.
 - Lateral- When the body has been turned on its side.
 - Decubitus- Refers to when the patient is recumbent and a horizontal x-ray tube is employed.**

Question #36:

The condyles of the mandible must be anterior to which of the following structures for a properly positioned submentovertex projection of the facial bones?

- a. petrous ridges
- b. sphenoid sinus
- c. maxillary sinus
- d. foramen magnum

Question #36: Review

CR	The CR must be perpendicular to the IOML and enters between the gonias.
Collimation	Tight collimation to the facial bones.
Patient Positioning	With the patient seated and in the AP projection, raise their chin so that their IOML is parallel to the IR; The midsagittal plane must be perpendicular to the IR.
Breathing Instructions	Suspend Respirations.
Additional Comments	The condyles of the mandible must be anterior to the petrous ridges.

SubmentoverteX (SMV) Projection

Question #37:

What is the name of this projection/position of the mandible?

- a. Townes method
- b. Caldwell method
- c. Haas method
- d. PA



Question #37: Review

SID	40''
kVp	85
IR Size & Placement	24 x 30 cm; Lengthwise (LW).
Tube Angle	None.
CR	The CR will exit between the lips.
Collimation	Tight collimation to the border of the mandible.
Patient Positioning	With the patient seated and in the PA projection, place the patient's forehead and nose against the IR; The OML and midsagittal plane must be perpendicular to the IR.

PA Projection of the Mandible

Question #38:

Any combination of mA and time (ms) that results in the same mAs is the definition of which of the following?

- a. inverse square law
- b. reciprocity law
- c. 30% rule
- d. none of the above

Question #38: Review

The Reciprocity Law

mA	Time in ms	mAs	S#	Dose in mR
200	500	100	250	45
100	1000	100	250	45
50	2000*	100	250	45

Any combination of mA and time that produce the same mAs will produce the same sensitivity number (S#) and dose. For this position, the 2000 ms time station would be optimal in order to produce the desired effect of a breathing technique.

Question #39:

Which of the following base lines is perpendicular to the IR for the Waters method of the facial bones?

- a. glabellomeatal line (GML)
- b. orbitomeatal line (OML)
- c. acanthiomeatal line (AML)
- d. mentomeatal line (MML)

Question #39: Review

SID	40''
kVp	85
IR Size & Placement	24 x 30 cm; Lengthwise (LW).
Tube Angle	None.
CR	The CR will exit at the acanthion.
Collimation	Tight collimation to the lateral borders of the facial bones.
Patient Positioning	With the patient seated and in the PA projection, place the patient's chin against the IR; The MML and midsagittal plane must be perpendicular to the IR.

Parietoacanthial Projection: Waters Method

Question #40:

Which of the following terms would be used to describe a structure that is closer to a source?

- a. proximal
- b. medial
- c. caudal
- d. distal

Question #40: Review

- Medial
 - Refers to a structure that is closer to the midline.
- Lateral
 - Refers to a structure that is further from the midline.
- Proximal
 - Refers to a structure that is closer to a source.
- Distal
 - Refers to a structure that is further from a source.
- Cephalic or Cephalad
 - In a direction towards the head.
- Caudal or Caudad
 - In a direction towards the feet.

Question #41:

Delay images taken for a small bowel series (SBS) are routinely taken with the patient in which of the following positions?

- a. supine
- b. prone
- c. upright
- d. oblique

Question #41: Review

This position will be repeated every 15 to 20 minutes until the barium reaches the ileocecal valve. This typically takes 2 hours to complete but can take up to 24 hours or more in some cases.

SID	40"
kVp	100
IR Size & Placement	35 x 43 cm; LW.
Tube Angle	None.
CR	Center to the top of the iliac crests and to the midline of the body.
Collimation	Collimate to the size of the IR.
Patient Positioning	The patient is recumbent and prone.
Breathing Instructions	Expose on expiration.

SBS: Delay Prone Abdomen

Question #42:

The parieto-orbital projection (Rhesse method) of the orbits will project the optic foramen into the _____ quadrant of the orbit.

- a. lower, outer
- b. lower, inner
- c. upper, outer
- d. upper, inner

Question #42: Review

CR	Midpoint between both orbits.
Collimation	Tight collimation to the orbits.
Patient Positioning	Rotate the head 37° from true PA and gently place the patient's chin, nose, and check against the IR; The midsagittal plane will form a 53° to the IR and the AML will be perpendicular to the IR.
Breathing Instructions	Suspend Respirations.
Additional Comments	If positioned properly, the optic foramina (arrow) should be projected into the lower, outer quadrant of the orbit.

Parieto-orbital Projection

Question #43:

The arrow on this image is pointing to which of the following?

- a. carpal sulcus
- b. navicular
- c. hamulus process of the hamate
- d. pisiform



Question #43: Review

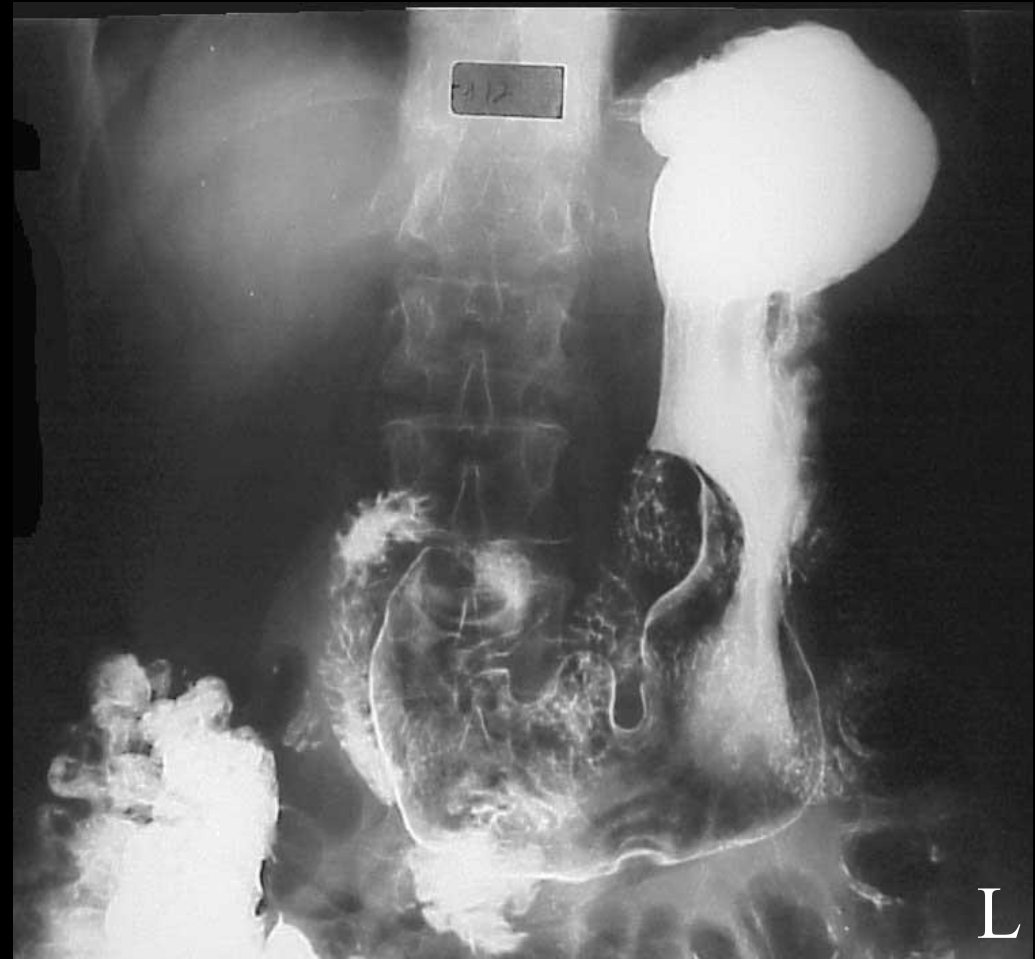
Tube Angle	25 to 30° along the long axis of the forearm and towards the elbow.
CR	Center 1" distal to the base of the third metacarpal.
Collimation	Tight collimation to the carpal area.
Patient Positioning	Extend the forearm in PA projection and hyperextend the hand.
Breathing Instructions	None.
Additional Comments	This method will best demonstrate the hamulus process (arrow) of the hamate and the carpal sulcus (canal).

Carpal Canal or Gaynor-Hart Wrist

Question #44:

What is the name of this stomach projection/position for an UGI?

- a. right lateral
- b. AP
- c. LPO
- d. RAO



Question #44: Review

SID	40"
kVp	100
IR Size & Placement	Either a 24 x 30 or 35 x 43 cm; LW.
Tube Angle	None.
CR	For a sthenic (average) patient, center to the level of L1 and midway between the left lateral margin of the abdomen and the midline of the body; Center 2" lower and closer to the midline for an asthenic (below average) patient; Center 2" higher for a hypersthenic (above average size) patient.

AP Stomach

Question #45:

Which of the following terms would be used to describe dividing the body into equal front (anterior) and back (posterior) portions.

- a. midsagittal
- b. transverse
- c. midcoronal
- d. tangential

Question #45: Review

- Sagittal Plane
 - Divides the body into right and left portions.
- Midsagittal Plane or Midline
 - Divides the body into equal right and left portions.
- Coronal Plane
 - Divides the body into front and back portions.
- Midcoronal Plane
 - Divides the body into equal front and back portions.
- Axial or Transverse Plane
 - Divides the body into top and bottom portions.

Question #46:

For a properly positioned AP projection of the sacrum, the tube must be angled _____ cephalic.

- a. 10°
- b. 15°
- c. 20°
- d. 45°

Question #46: Review

SID	40"
kVp	85 to 90
IR Size & Placement	24 x 30 cm; LW.
Tube Angle	Angle the tube 15° cephalic.
CR	Center to the midline and a point 2" above the symphysis.
Collimation	Tight collimation to the sacrum.
Patient Positioning	The patient is recumbent with their arms at their side.
Breathing Instructions	Suspend Respirations.
Additional Comments	Place a marker within the light field.

AP Sacrum

Question #47:

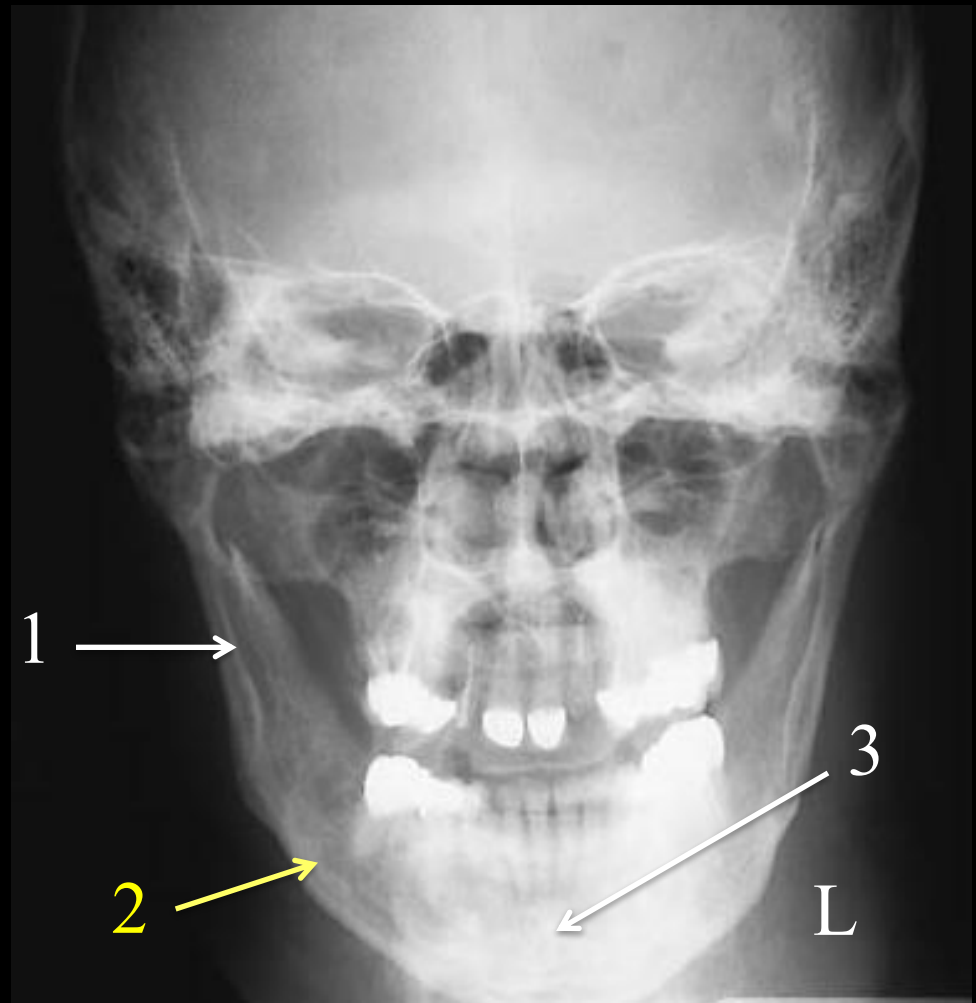
The arrow on this PA projection of the mandible is pointing to the _____ of the mandible.

- a. ramus
- b. body
- c. mentum
- d. alveolar process



Question #47: Review

This position will best demonstrate the ramus (1) and body (2) of the mandible. The mentum (3) is not demonstrated due it being superimposed over the cervical spine.



PA Projection of the Mandible

Question #48:

Which of the following exams would be completed in the upright position, using a 72" SID, and with the use of weights for at least one image?

- a. shoulder
- b. AC joints
- c. scapula
- d. clavicle

Question #48: Review

SID	72"
kVp	70
IR Size & Placement	Two 24 x 30 cm; CW; One 35 x 43 cm; CW.
Tube Angle	None.
CR	Perpendicular and to mid clavicle.
Collimation	Tight collimation to the AC joints.
Patient Positioning	The patient is standing while holding a 5-pound weight in each hand.
Breathing Instructions	Suspend.
Additional Comments	Place the marker on the bucky and just lateral to the humerus.

Weight-Bearing AC Joints

Question #49:

For an AP axiolateral oblique position of the mandible, the head tilt and tube angle must equal _____ cephalic.

- a. 15°
- b. 25°
- c. 35°
- d. 45°

Question #49: Review

For this projection, **the total head tilt and tube angle must equal 25° cephalic**. For example, if the patient can tilt their head 15° towards the IR, then the tube must be angle 10° cephalic.

SID	40"
kVp	85
IR Size & Placement	24 x 30 cm; LW.
Tube Angle	Any combination of head tilt and tube angle that will equal 25° cephalic.
CR	Midpoint of the side down mandibular body.
Collimation	Tight collimation to the borders of the mandible.

Axiolateral Oblique Mandible

Question #50:

What is another term that can be used to describe the midsagittal plane?

- a. coronal
- b. axial
- c. midline
- d. transverse

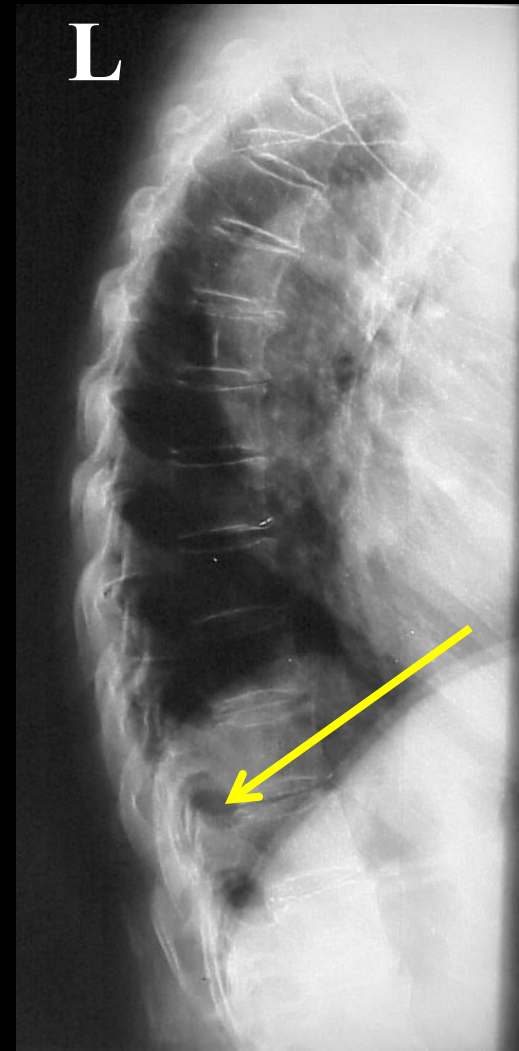
Question #50: Review

- Sagittal Plane
 - Divides the body into right and left portions.
- Midsagittal Plane or Midline
 - Divides the body into equal right and left portions.
- Coronal Plane
 - Divides the body into front and back portions.
- Midcoronal Plane
 - Divides the body into equal front and back portions.
- Axial or Transverse Plane
 - Divides the body into top and bottom portions.

Question #51:

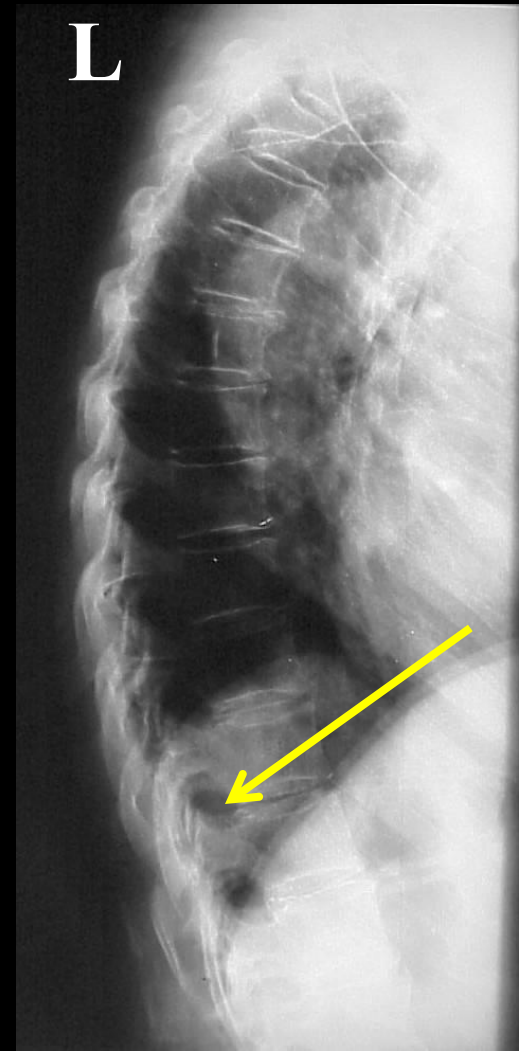
The arrow on this lateral position of the thoracic spine is pointing to what anatomy?

- a. vertebral body
- b. zygapophyseal joint
- c. intervertebral foramen
- d. spinous process



Question #51: Review

A lateral will best demonstrate the intervertebral foramen (arrow) of the thoracic spine.



Left Lateral Thoracic Spine

Question #52:

The plantodorsal (axial) projection of the calcaneus requires a _____ cephalic tube angle.

- a. 25°
- b. 30°
- c. 40°
- d. 60°

Question #52: Review

SID	40"
kVp	60
IR Size & Placement	24 x 30 cm; LW.
Tube Angle	40° Cephalic.
CR	Third MP Joint.
Collimation	Tight collimation to the calcaneus.
Patient Positioning	The patient is supine or seated on the table with their leg fully extended; Their foot must be dorsiflexed.
Breathing Instructions	None.
Additional Comments	Place the marker on the lateral aspect of the calcaneus.

Plantodorsal or Axial Projection

Question #53:

The open mouth Waters method will best demonstrate which of the following sinuses?

- a. frontal
- b. ethmoid
- c. maxillary
- d. sphenoid

Question #53: Review

Tube Angle	None.
CR	The CR will exit at the acanthion.
Collimation	Tight collimation to the lateral borders of the sinuses.
Patient Positioning	With the patient seated and in the PA projection, place the patient's chin and the tip of their nose against the IR; Ensure that the midsagittal plane is perpendicular to the IR.
Breathing Instructions	Suspend Respirations.
Additional Comments	This position is used to best demonstrate the sphenoid sinus in a PA projection.

Open Mouth Parietoacanthial Projection

Question #54:

Which of the following projections/positions would best demonstrate the intervertebral foramen of the lumbar spine?

- a. AP
- b. RPO
- c. LPO
- d. lateral

Question #54: Review

Tube Angle	None.
CR	Center just posterior to the midcoronal plane at the level of the top of the iliac crests.
Collimation	Tight collimation to the lateral border of the spine.
Patient Positioning	Place the patient into a left lateral recumbent position; Flex their knees to provide support.
Additional Comments	A lateral will best demonstrate the intervertebral foramen of the lumbar spine.

Left Lateral Lumbar Spine

Question #55:

Which of the following terms would be used to describe when the patient's body has been turned on its side so that the midcoronal plane is perpendicular to the IR?

- a. anteroposterior
- b. lateral
- c. prone
- d. posteroanterior

Question #55: Review

- This term position is used to describe the how the patient's body has been physically placed.
- The following is a list of terms that are examples of a position.

Anatomical Position

- The body is upright with the arms at the side and the hands facing forward.

Recumbent

- This term is used to describe the body anytime it is lying down.

Lateral

- When the body has been turned on its side.

Decubitus

- Refers to when the patient is recumbent and a horizontal x-ray tube is employed.

Question #56:

The epicondyles are parallel to the IR for which of the following elbow projections/positions?

- a. AP
- b. internal oblique
- c. external oblique
- d. lateral

Question #56: Review

SID	40"
kVp	60
IR Size & Placement	24 x 30 cm; LW.
Tube Angle	None.
CR	Mid Elbow.
Collimation	Four sides and to area of interest.
Patient Positioning	Place forearm in a true AP projection; Humerus flat and at level of the table; Ensure epicondyles are parallel to IR.
Breathing Instructions	None.
Additional Comments	Mark the lateral aspect of the elbow.

AP Elbow

Question #57:

Which of the following is the optimum kVp for an esophagram?

- a. 70
- b. 80
- c. 100
- d. 120

Question #57: Review

SID	40"
kVp	100
IR Size & Placement	35 x 43 cm; Lengthwise (LW).
Tube Angle	None.
CR	Center to the level of T5-T6 (3-4" inferior to the jugular notch) and to the left of the patient's spine.
Collimation	Tight collimation to the esophagus.
Patient Positioning	Place the patient into a 35-40° right anterior oblique position; Their right arm is at their side and their left hand is holding a cup of barium.

RAO Esophagram

Question #58:

The arrow on this neutral lateral position of the cervical spine image is pointing to which of the following?

- a. spinous process
- b. zygapophyseal joint
- c. vertebral body
- d. intervertebral foramen



Question #58: Review

A lateral will best demonstrate the zygapophyseal joints of the cervical spine. The arrow on this image is pointing to the zygapophyseal joint found between C4-C5.



Neutral Lateral Cervical Spine

Question #59:

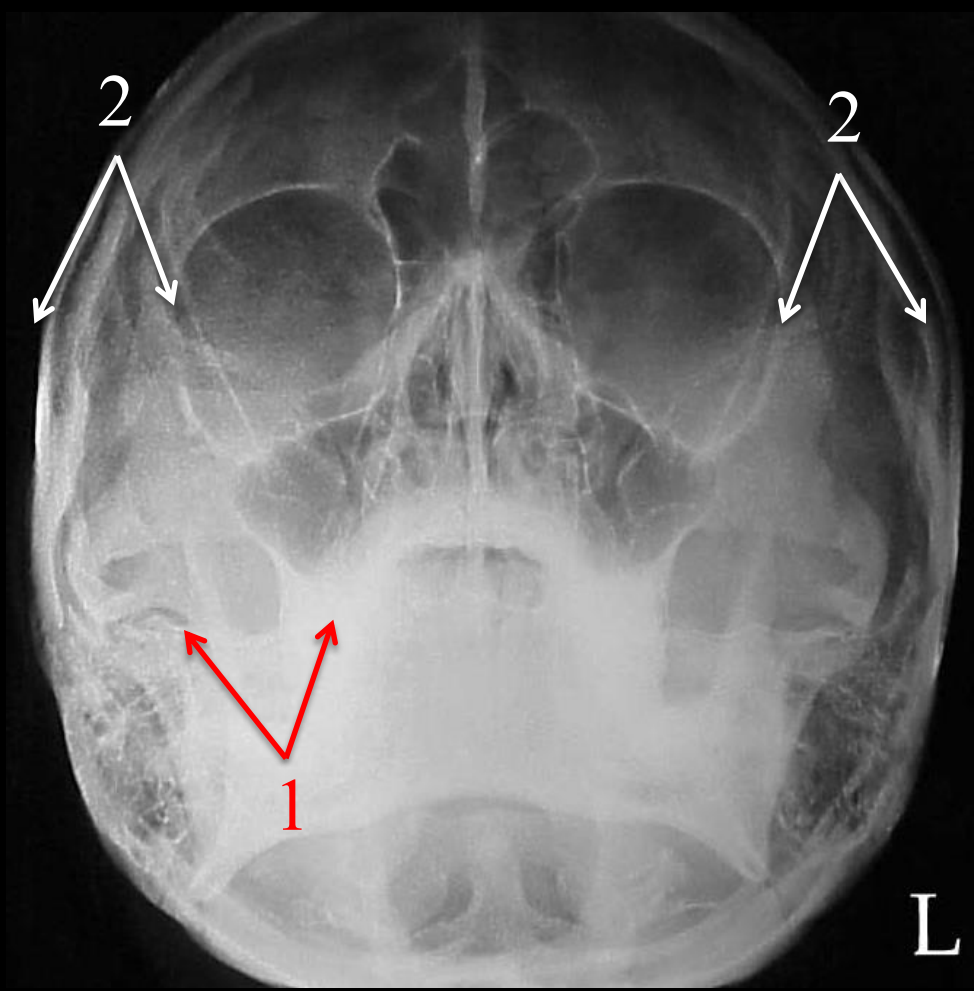
For a Waters method of the skull, the petrous ridges should:

- a. completely fill the maxillary sinuses.
- b. fill $\frac{2}{3}$ of the maxillary sinuses.
- c. fill the lower $\frac{1}{3}$ of the maxillary sinuses.
- d. be projected below the maxillary sinuses.

Question #59: Review

Positioning Accuracy:

- The petrous ridges must be below the maxillary sinuses (1);
- The distance from the outer canthus to the lateral margin of the skull must be equal on both sides (2).



Parietoacanthial Projection: Waters Method

Question #60:

A patient lying on their abdomen and in a PA projection is described as being in which of the following positions?

- a. supine
- b. decubitus
- c. lateral
- d. prone

Question #60: Review

- The term position is used to describe the how the patient's body has been physically placed.
- The following is a list of terms that are examples of a position.

Anatomical Position

- The body is upright with the arms at the side and the hands facing forward.

Recumbent

- This term is used to describe the body anytime it is lying down.

Supine

- The body is recumbent and in an AP projection.

Prone

- The body is recumbent and in a PA projection.

Question #61:

Which of the following elbow projections/positions would best demonstrate the coronoid process in profile?

- a. AP
- b. internal oblique
- c. external oblique
- d. lateral

Question #61: Review

This position is used to demonstrate the coronoid process (arrow) in profile.



Internal Oblique Elbow

Question #62:

For a PA projection of the mandible, the CR should exit at the:

- a. acanthion.
- b. mentum.
- c. anterior nasal spine.
- d. lips.

Question #62: Review

SID	40"
kVp	85
IR Size & Placement	24 x 30 cm; Lengthwise (LW).
Tube Angle	None.
CR	The CR will exit between the lips.
Collimation	Tight collimation to the border of the mandible.
Patient Positioning	With the patient seated and in the PA projection, place the patient's forehead and nose against the IR; The OML and midsagittal plane must be perpendicular to the IR.

PA Projection of the Mandible

Question #63:

The Grashey method of the shoulder requires that the patient be rotated _____ towards the affected side.

- a. 25 to 30°
- b. 30 to 35°
- c. 35 to 40°
- d. 40 to 45°

Question #63: Review

SID	40"
kVp	75 to 80
IR Size & Placement	24 x 30 cm; CW.
Tube Angle	None.
CR	Glenohumeral joint space.
Collimation	Show collimation on all four borders.
Patient Positioning	Rotate the body 35 to 40° towards the affected side; Place the arm in a neutral position.
Breathing Instructions	Suspend.
Additional Comments	Place the marker on the bucky and just lateral to the humerus.

Grashey Method

Question #64:

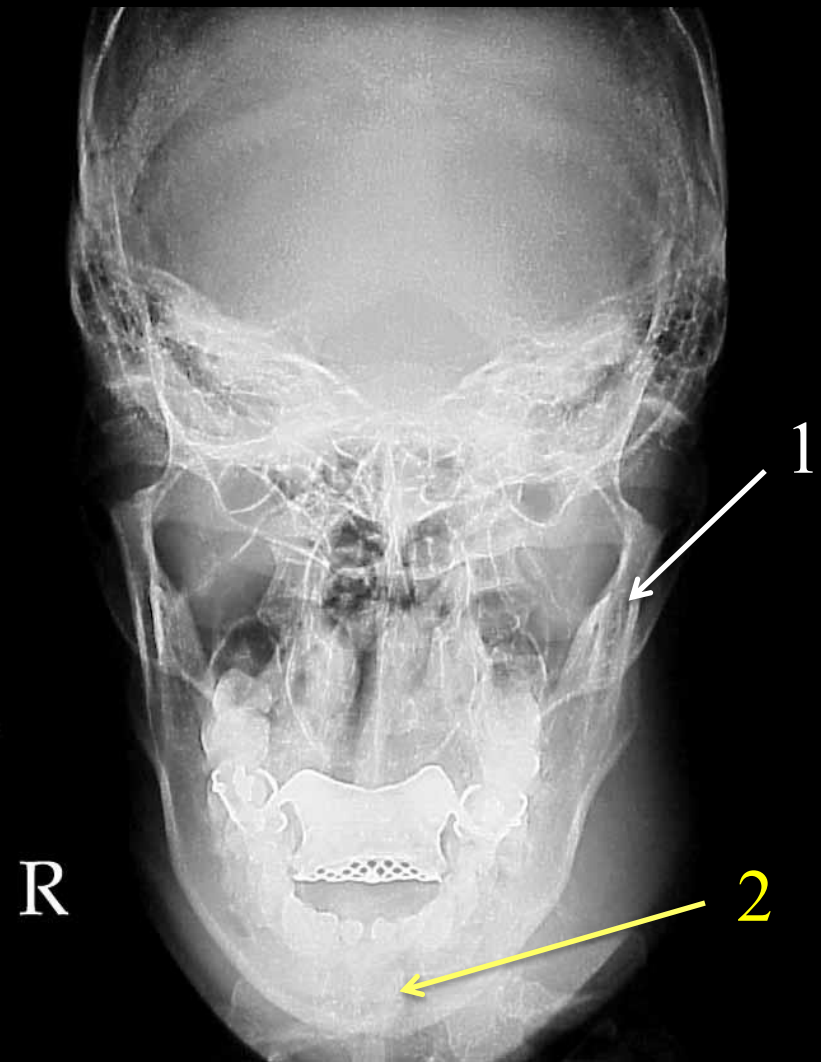
The Towne method will not demonstrate which of the following structures?

- a. mentum
- b. foramen magnum
- c. condyle of the mandible
- d. occipital bone

Question #64: Review

This position will best demonstrate the mandibular condyles (1).

The mentum (2) is not well demonstrated due it being superimposed over the cervical spine.



Towne Method (AP Axial Projection)

Question #65:

Which of the following terms would be used to describe when the x-ray tube has been angled towards the head of the patient?

- a. caudal
- b. lateral
- c. distal
- d. cephalic

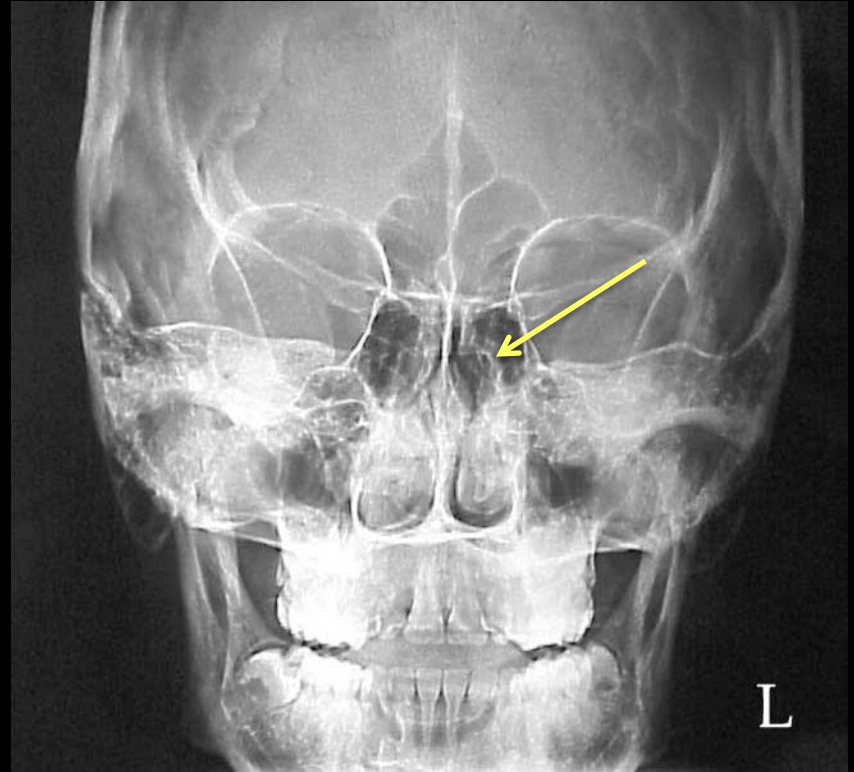
Question #65: Review

- Medial
 - Refers to a structure that is closer to the midline.
- Lateral
 - Refers to a structure that is further from the midline.
- Proximal
 - Refers to a structure that is closer to a source.
- Distal
 - Refers to a structure that is further from a source.
- Cephalic or Cephalad
 - In a direction towards the head.
- Caudal or Caudad
 - In a direction towards the feet.

Question #66:

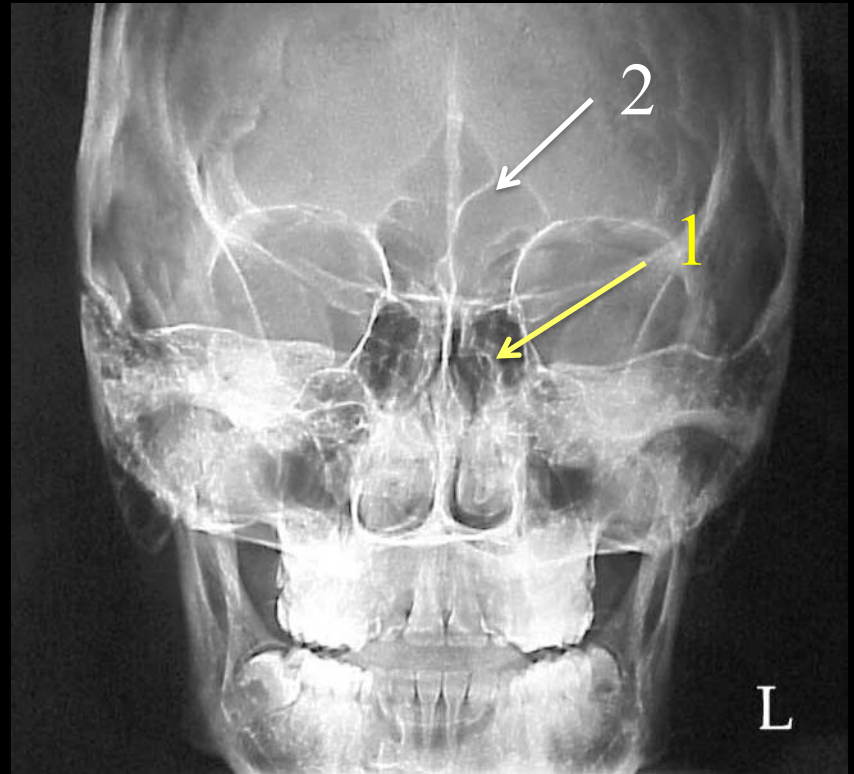
The arrow on this Caldwell method is pointing to which of the following?

- a. ethmoid sinuses
- b. crista gali
- c. anterior nasal spine
- d. petrous ridge



Question #66: Review

This position will best demonstrate the ethmoid sinuses (1) and frontal (2) sinuses.



Caldwell Method (PA Axial Projection)

Question #67:

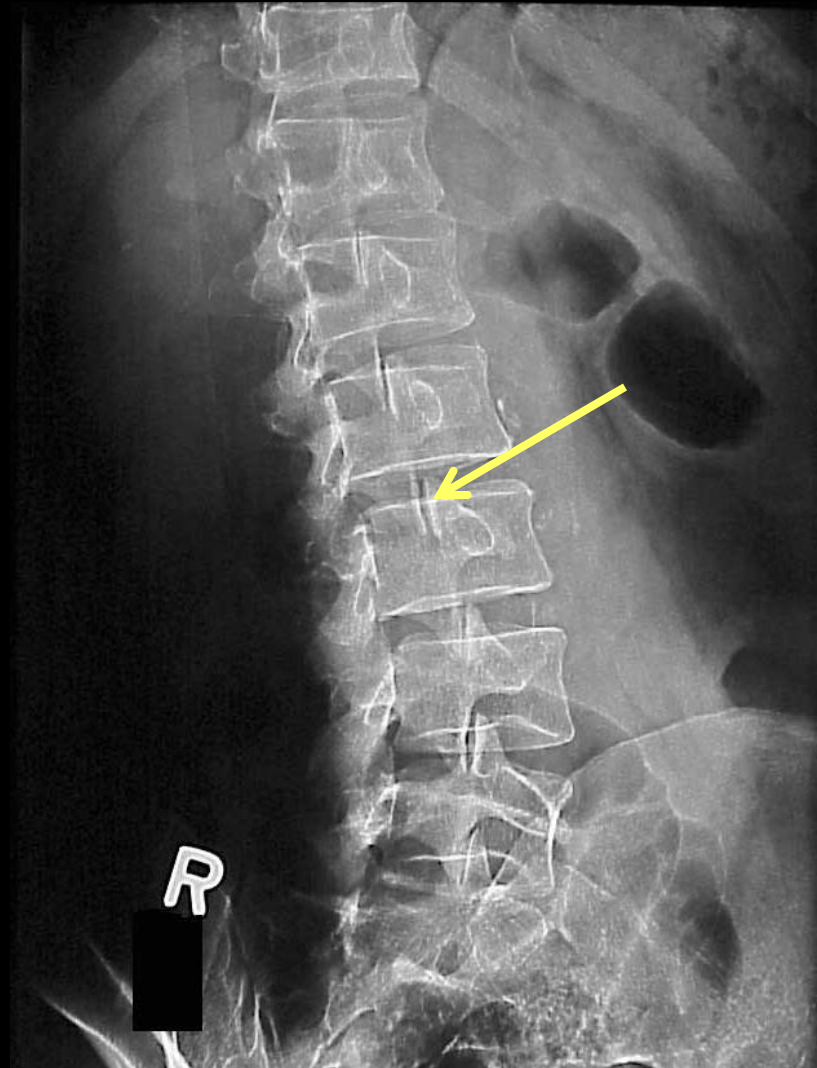
A posterior oblique lumbar spine will demonstrate which of the following structures?

- a. side down zygapophyseal joints
- b. side up zygapophyseal joints
- c. side down intervertebral foramen
- d. side up intervertebral foramen

Question #67: Review

A posterior oblique position of the lumbar spine will best demonstrate the side down zygapophyseal joints.

The arrow is therefore pointing to the left zygapophyseal joint of L3-L4.

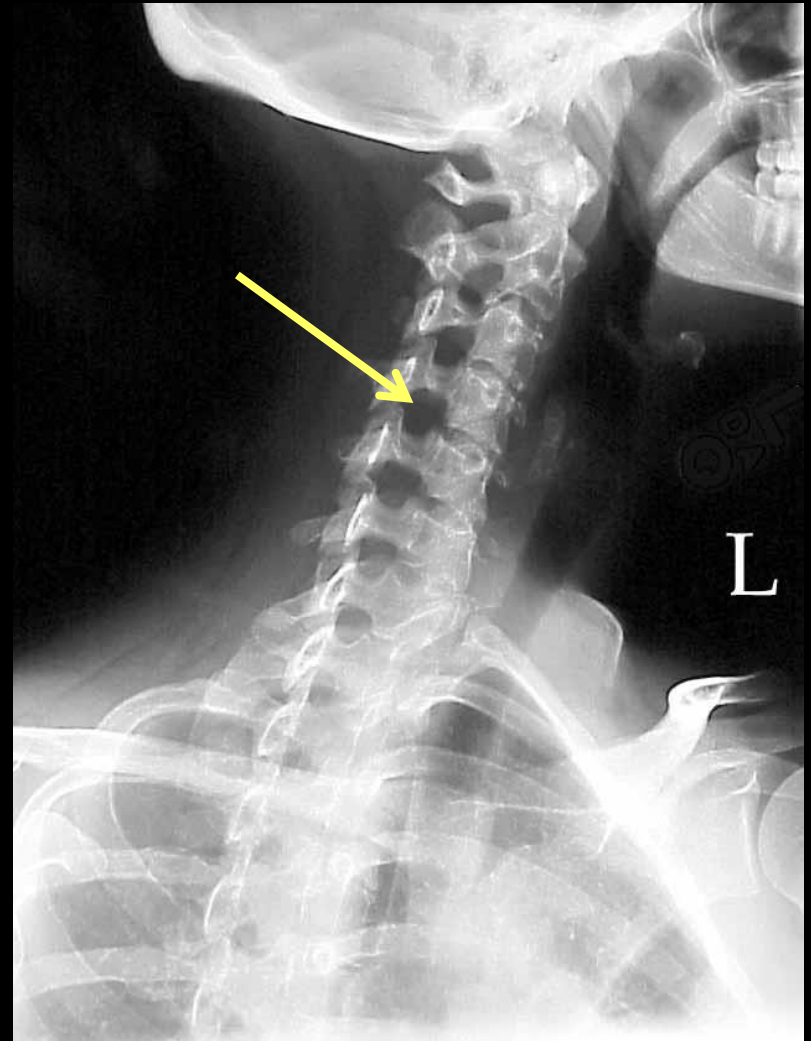


LPO Lumbar Spine

Question #68:

The arrow on this oblique cervical spine image is pointing to which of the following?

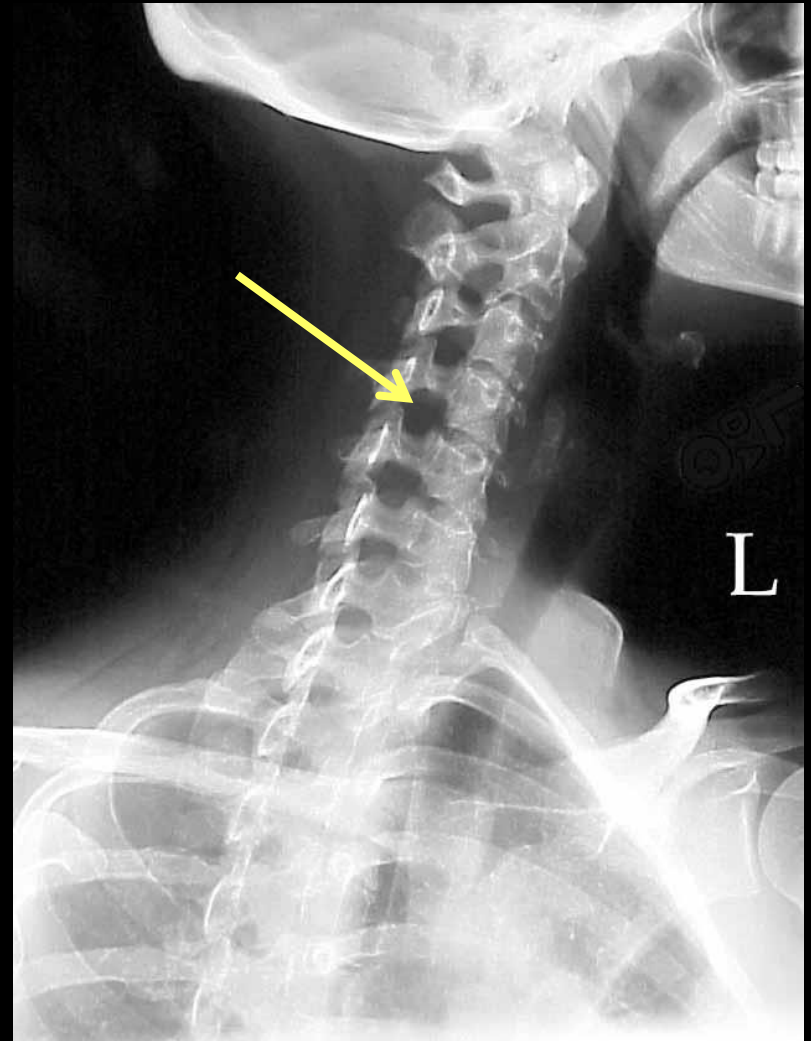
- a. zygapophyseal joint
- b. spinous process
- c. intervertebral foramen
- d. vertebral body



Question #68: Review

An oblique position will best demonstrate the side up intervertebral foramen of the cervical spine.

The arrow is therefore pointing to the right C4-C5 intervertebral foramen on this LPO position of the cervical spine.



LPO Cervical Spine

Question #69:

For a properly positioned AP projection of the coccyx, the tube must be angled _____ caudal.

- a. 5°
- b. 10°
- c. 15°
- d. 20°

Question #69: Review

SID	40"
kVp	85 to 90
IR Size & Placement	24 x 30 cm; LW.
Tube Angle	Angle the tube 10° caudal.
CR	Center to the midline and a point 2" above the symphysis.
Collimation	Tight collimation to the coccyx.
Patient Positioning	The patient is recumbent with their arms at their side.
Breathing Instructions	Suspend Respirations.
Additional Comments	Place a marker within the light field.

AP Coccyx

Question #70:

Which term below is used to describe a structure that is located furthest from the source?

- a. distal
- b. proximal
- c. medial
- d. lateral

Question #70: Review

- Medial
 - Refers to a structure that is closer to the midline.
- Lateral
 - Refers to a structure that is further from the midline.
- Proximal
 - Refers to a structure that is closer to a source.
- Distal
 - Refers to a structure that is further from a source.
- Cephalic or Cephalad
 - In a direction towards the head.
- Caudal or Caudad
 - In a direction towards the feet.

Question #71:

For any tunnel view of the knee, the CR must be perpendicular to what structure?

- a. patella
- b. femur
- c. lower leg
- d. none of the above

Question #71: Review

SID	40''
kVp	75
IR Size & Placement	24 x 30 cm; LW.
Tube Angle	40 to 50° Caudal.
CR	Perpendicular to the lower leg (tibia).
Collimation	Tight collimation to the knee.
Patient Positioning	The patient is prone with their femur flat and their knee flexed 40 to 50°; Place a support under their ankle.
Breathing Instructions	Suspend Respirations.
Additional Comments	Mark the lateral aspect of the knee.

Tunnel Knee: Camp Coventry

Question #72:

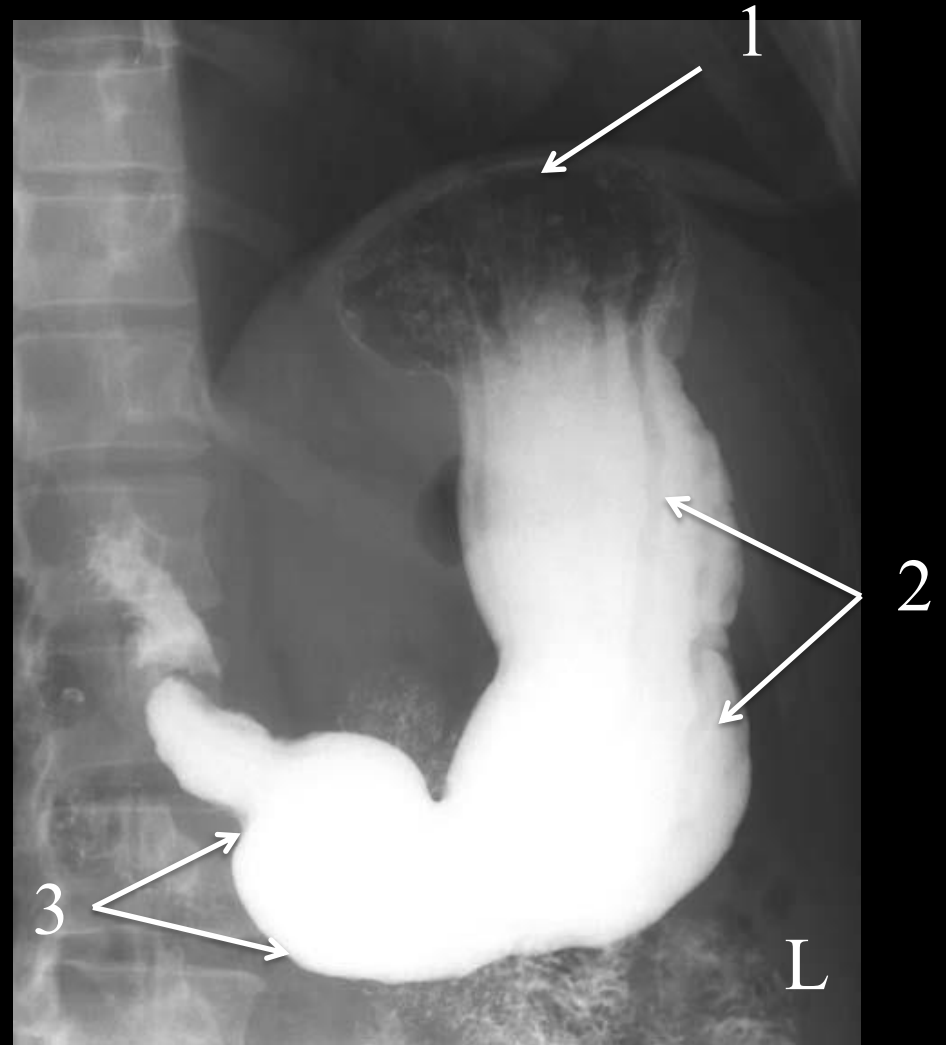
What is the name of this stomach projection/position for an UGI?

- a. right lateral
- b. PA
- c. LAO
- d. RAO



Question #72: Review

For this position, air will be found in the fundus of the stomach (1) and gravity will shift the barium into the body (2) and pylorus (3) of the stomach.



RAO Stomach

Question #73:

For a properly positioned submentovertex projection of the sinuses, the CR must be perpendicular to which of the following base lines?

- a. IOML
- b. OML
- c. MML
- d. GML

Question #73: Review

SID	40"
kVp	85
IR Size & Placement	24 x 30 cm; LW.
Tube Angle	None.
CR	The CR must be perpendicular to the IOML and enters between the gonias.
Collimation	Tight collimation to the facial bones.
Patient Positioning	With the patient seated and in the AP projection, raise their chin so that their IOML is parallel to the IR; The midsagittal plane must be perpendicular to the IR.

Submentovertebral (SMV) Projection

Question #74:

The centering point for an AP pelvis is located at the midline of the body and halfway between the _____ and the symphysis pubis.

- a. ASIS
- b. top of the iliac crest
- c. greater trochanter
- d. belly button

Question #74: Review

SID	40"
kVp	85
IR Size & Placement	35 x 43 cm; Crosswise (CW).
Tube Angle	None.
CR	Midline and halfway between the ASIS and the symphysis pubis.
Collimation	Tight collimation to the pelvis.
Patient Positioning	The patient is supine with their legs internally rotated 15 to 20°.
Breathing Instructions	Suspend respirations.
Additional Comments	Place a marker within the light field & along the lateral margin of the pelvis.

AP Pelvis

Question #75:

Which of the following terms is used to describe the body anytime that the patient is in a position where they are lying down?

- a. recumbent
- b. anteroposterior
- c. decubitus
- d. posteroanterior

Question #75: Review

- The term position is used to describe the how the patient's body has been physically placed.
- The following is a list of terms that are examples of a position.

Anatomical Position

- The body is upright with the arms at the side and the hands facing forward.

Recumbent

- This term is used to describe the body anytime it is lying down.

Supine

- The body is recumbent and in an AP projection.

Prone

- The body is recumbent and in a PA projection.

Question #76:

Which of the following requires the patient to be placed into a 15 to 20° oblique position?

- a. RAO sternum
- b. LPO lumbar spine
- c. LPO stomach for an UGI
- d. internal oblique of the elbow

Question #76: Review

SID	40"
kVp	80
IR Size & Placement	24 x 30 cm; LW.
Tube Angle	None.
CR	Mid-sternum and 1" to the left of the vertebral column.
Collimation	Tight collimation to the sternum.
Patient Positioning	Place the patient in either an upright or recumbent 15 to 20° RAO position.
Breathing Instructions	Employ a breathing technique.
Additional Comments	Place the marker on the bucky within the light field & lateral to the sternum.

RAO Sternum

Question #77:

Which of the following will best demonstrate the longitudinal arches of the foot?

- a. AP foot
- b. oblique foot
- c. lateral weight bearing foot
- d. lateral foot

Question #77: Review

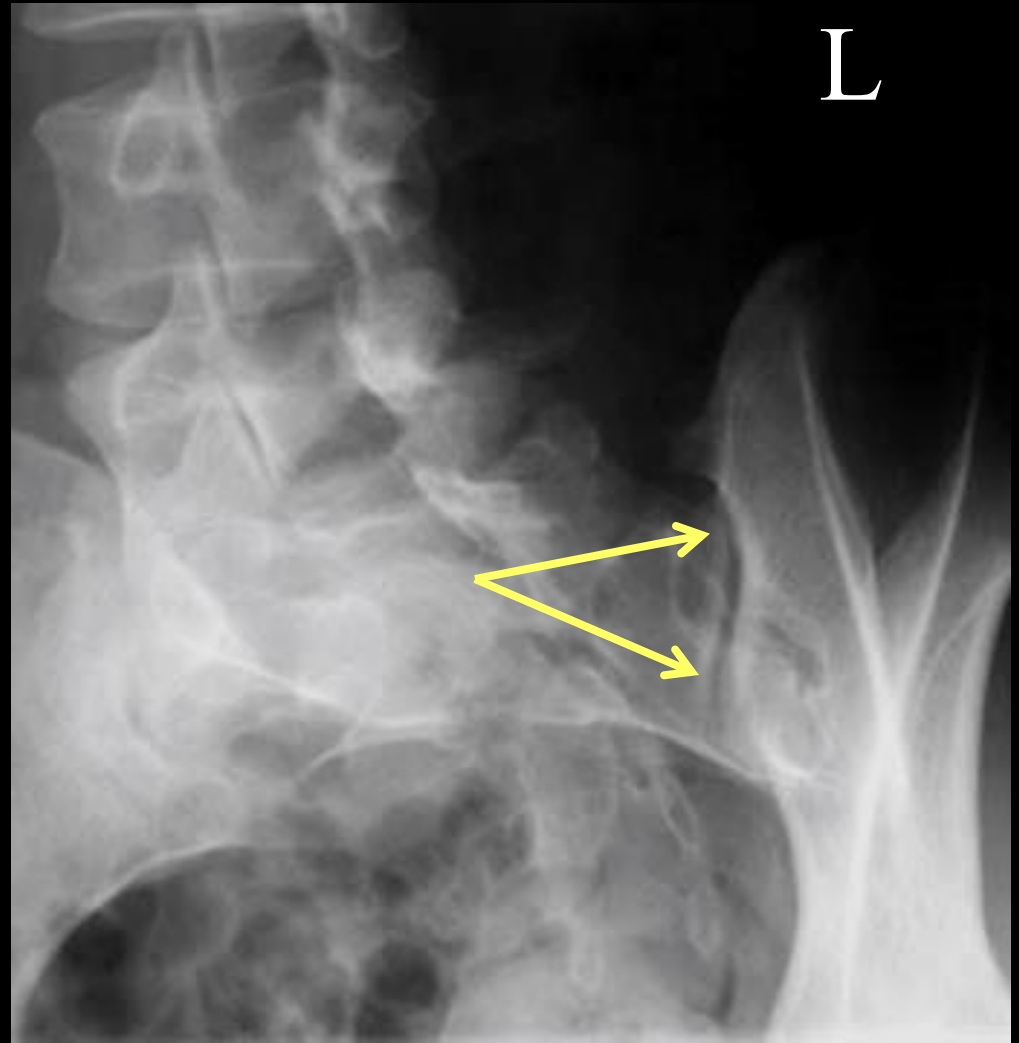
SID	40"
kVp	60
IR Size & Placement	24 x 30 cm; Crosswise (CW).
Tube Angle	None.
CR	Mid Carpal Area.
Collimation	Tight collimation to the outer margin of the foot.
Patient Positioning	The patient is standing on a radiolucent bolster with a horizontal tube.
Breathing Instructions	None.
Additional Comments	Place the marker within the light field; Demonstrates the longitudinal arches.

Lateral Weight-bearing Foot

Question #78:

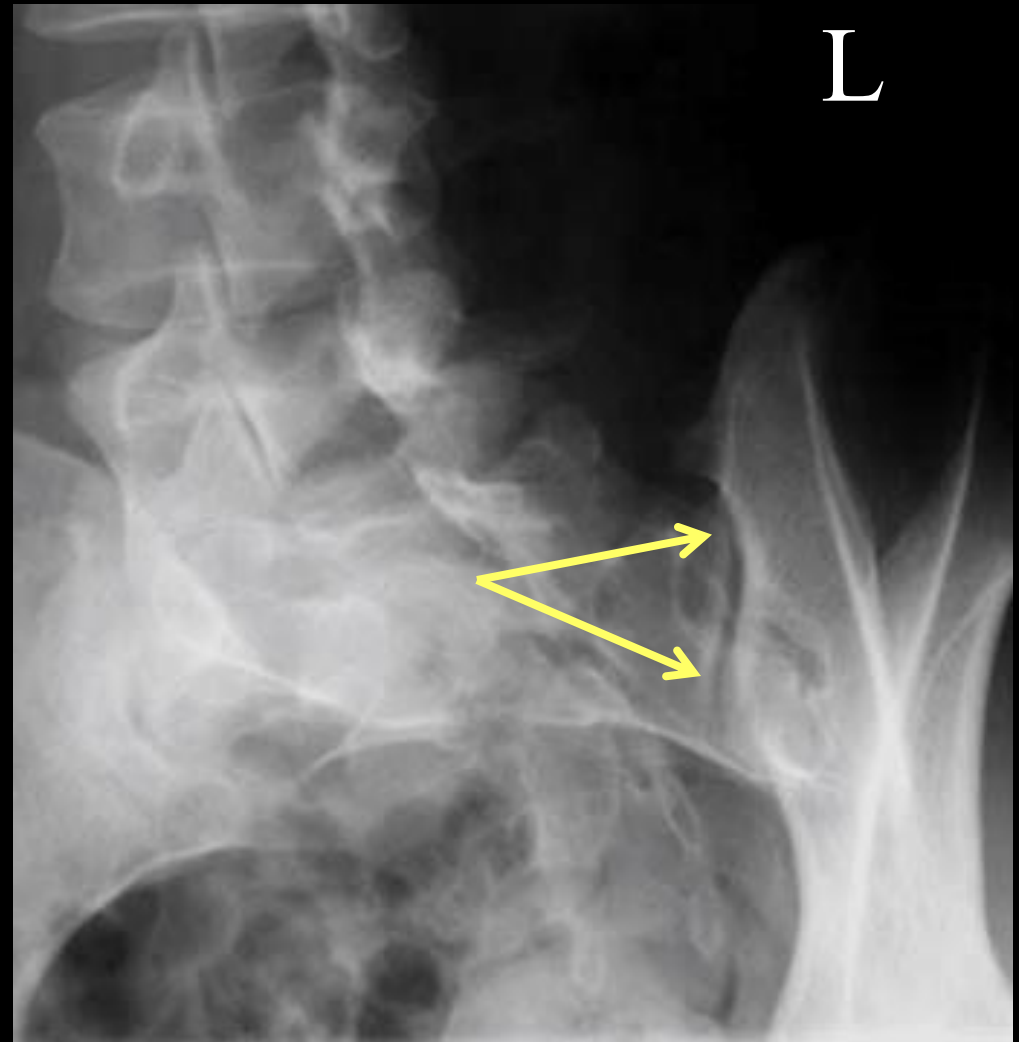
The arrows on this image are pointing to what structure?

- a. SI joints
- b. zygapophyseal joints
- c. sacral canal
- d. obturator foramen



Question #78: Review

Posterior oblique positioning for SI joints will demonstrate the side up joint space. In this example, an RPO will demonstrate the **left SI joint (arrows)**.



RPO SI Joints

Question #79:

To safely insert the enema tip for a double contrast barium enema the patient must be placed into which of the following positions?

- a. Sims
- b. Trendelenburg
- c. Fowler
- d. none of the above

Question #79: Review

- Double Contrast BE Routine:

Take a scout supine abdomen and clear it with the radiologist.

Ensure that the room has been properly prepared for fluoroscopy.

Place the patient into the Sims position and carefully insert a double lumen catheter tip into their rectum.

Under the supervision of a radiologist, instill a small amount of barium under fluoroscopic guidance.

This barium is used to coat the lining of the intestine.

The excess barium is removed and followed by the insertion of air through the double lumen catheter.

Question #80:

Which of the following terms is used to describe the body when it has been divided into top and bottom portions?

- a. axial or transverse
- b. sagittal
- c. coronal
- d. superior

Question #80: Review

- Sagittal Plane
 - Divides the body into right and left portions.
- Midsagittal Plane or Midline
 - Divides the body into equal right and left portions.
- Coronal Plane
 - Divides the body into front and back portions.
- Midcoronal Plane
 - Divides the body into equal front and back portions.
- Axial or Transverse Plane
 - Divides the body into top and bottom portions.

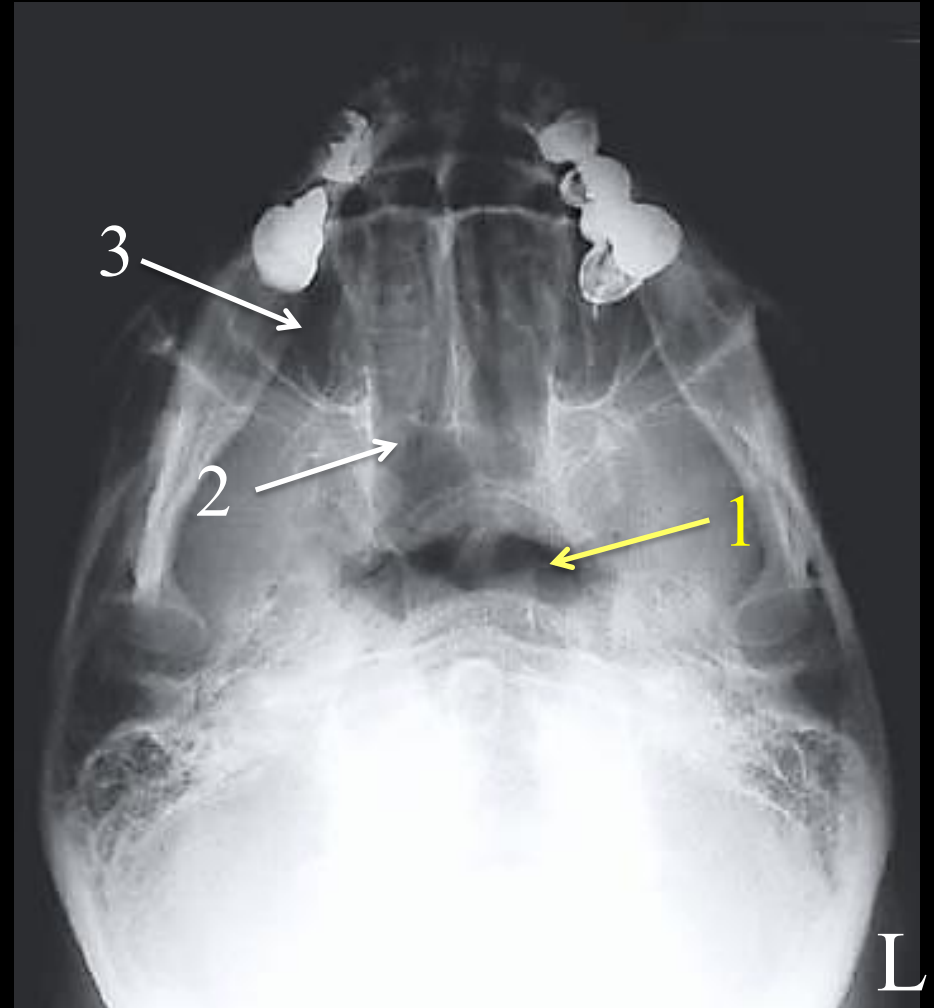
Question #81:

A submentovertex projection will best demonstrate which of the following sinuses?

- a. frontal
- b. ethmoid
- c. maxillary
- d. sphenoid

Question #81: Review

This projection will best demonstrate the sphenoid sinuses (1). The ethmoid (2), and maxillary (3) sinuses are demonstrated to a lesser degree.



Submentovertex (SMV) Projection

Question #82:

The arm is abducted 90° from the thorax for which of the following?

- a. AP internal shoulder
- b. Grashy method of the shoulder
- c. tangential clavicle
- d. AP scapula

Question #82: Review

SID	40"
kVp	75 to 80
IR Size & Placement	24 x 30 cm; CW.
Tube Angle	None.
CR	Mid scapula which is located 2" below the coracoid process.
Collimation	Show collimation on all four borders.
Patient Positioning	Abduct arm 90° from the thorax.
Breathing Instructions	Use a breathing technique if possible; otherwise, suspend respirations.
Additional Comments	Place the marker on the bucky and just lateral to the torso.

AP Scapula

Question #83:

For an AP oblique position of the cervical spine, the patient is placed into a 45° posterior oblique position and the CR is angled _____ cephalic.

- a. 5°
- b. 10°
- c. 15°
- d. 20°

Question #83: Review

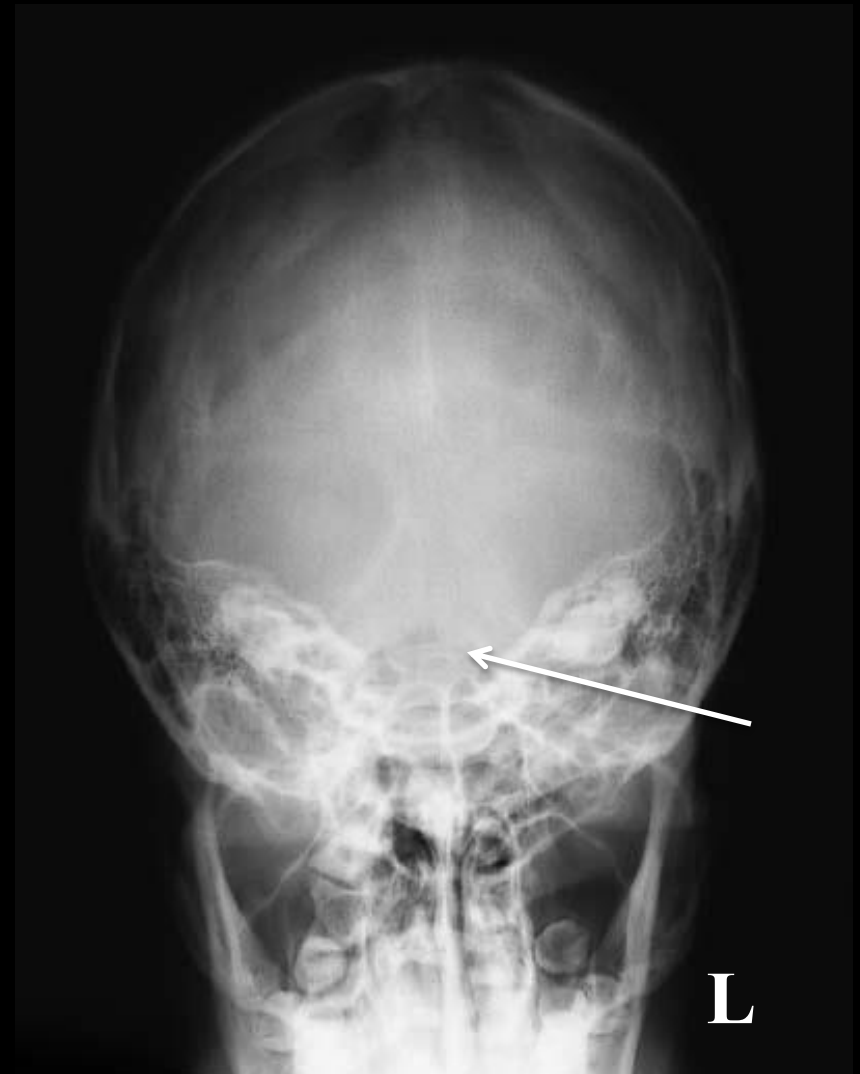
SID	72"
kVp	80
IR Size & Placement	24 x 30 cm; LW.
Tube Angle	15° Cephalic for an AP Oblique.
CR	Center to the level of C4.
Collimation	Tight collimation to the neck.
Patient Positioning	Place the patient's body into a 45° oblique but turn their head lateral; Slightly elevate the chin to avoid superimposition on the cervical spine.
Breathing Instructions	Suspend.
Additional Comments	Place a marker within the light field.

45° AP Oblique Cervical Spine

Question #84:

For the Towne method of the skull, what structure must be found within the foramen magnum (arrow)?

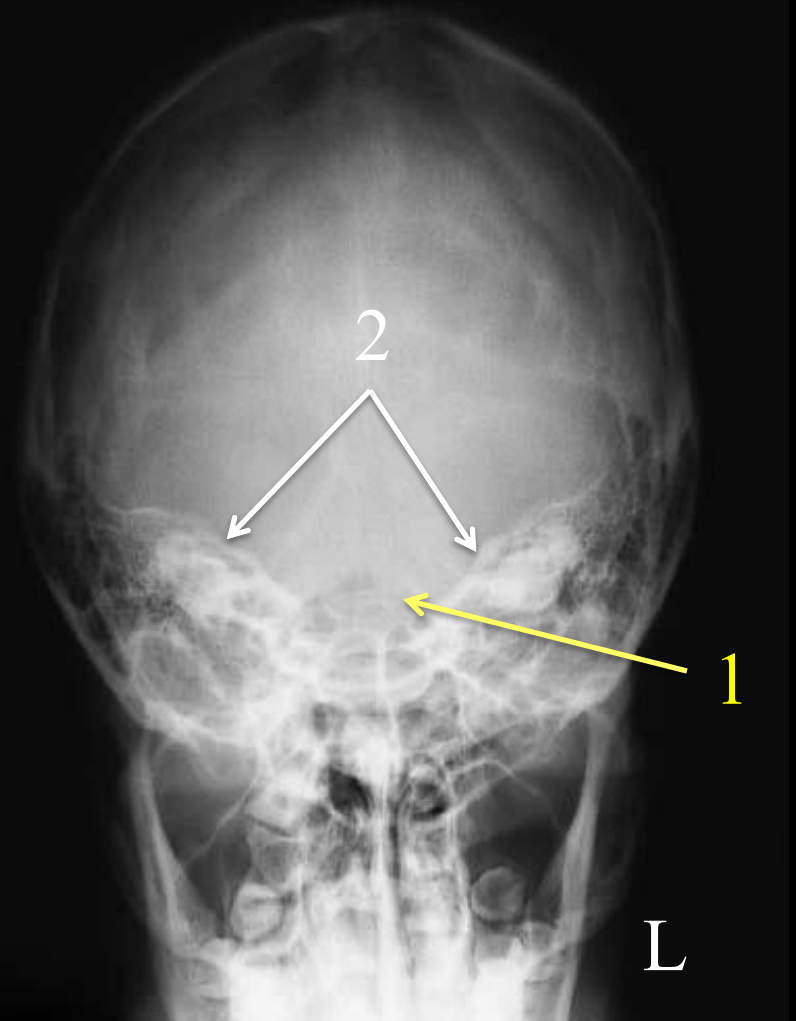
- a. dorsum sellae
- b. anterior clinoid processes
- c. styloid process
- d. petrous ridges



Question #84: Review

Positioning Accuracy:

- The dorsum sellae must be found within the foramen magnum (1);
- The petrous ridges must be symmetrical (2).



Towne Method (AP Axial Projection)

Question #85:

For a properly positioned PA projection of the chest, at a minimum, how many posterior ribs must be demonstrated within the lung fields?

- a. 9
- b. 10
- c. 11
- d. 12

Question #85: Review

Positioning Accuracy:

- Minimum of 10 posterior ribs seen must be demonstrated;
- Faint outline of upper thoracic vertebrae must be visible;
- Scapulae should not superimpose the lung fields;
- Symmetry of SC joints to spine;
- Distance from mid-vertebral bodies to outer margin of the ribs must be equal;
- Chin must be out of the lung fields.



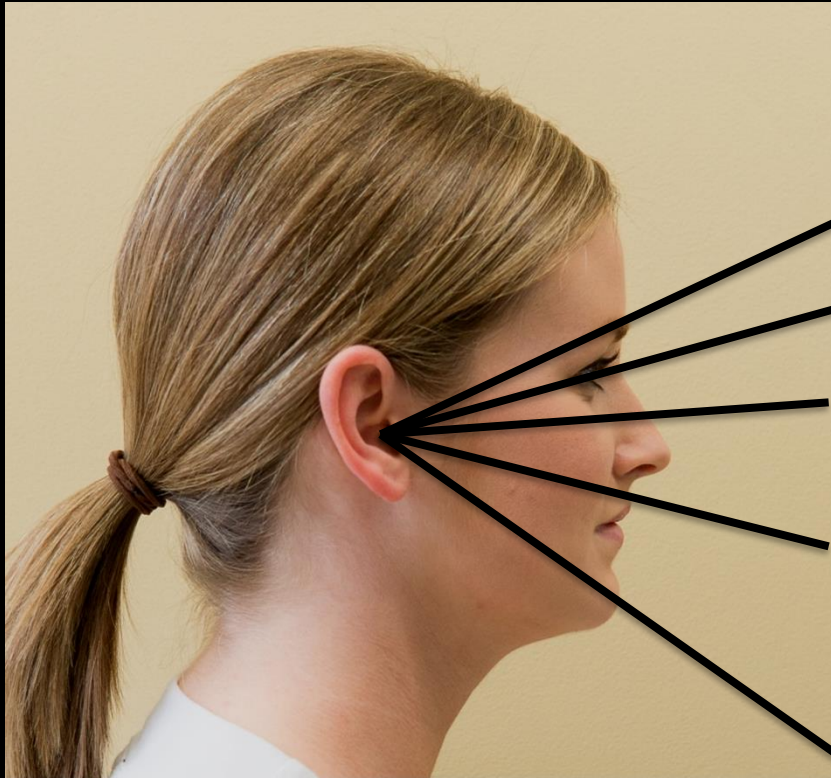
Routine PA Chest

Question #86:

The base line used in skull radiography that is located between the mentum, and the external auditory meatus (EAM) is known as the:

- a. glabellomeatal line (GML).
- b. orbitomeatal line (OML).
- c. acanthiomeatal line (AML).
- d. mentomeatal line (MML).

Question #86: Review



Glabellomeatal Line (GML)

Orbitomeatal Line (OML)

Infraorbitomeatal Line (IOML)

Acanthiomeatal Line (AML)

Mentomeatal Line or (MML)

These base lines are used to tuck and raise the skull into various positions for skull radiography.

Skull Base Lines

Question #87:

An AP projection of the foot requires a _____ cephalic tube angle.

- a. 5°
- b. 10°
- c. 20°
- d. 30°

Question #87: Review

SID	40"
kVp	60
IR Size & Placement	24 x 30 cm; LW.
Tube Angle	10° towards the calcaneus (cephalic).
CR	Center to the base of the 3 rd metatarsal.
Collimation	Tight collimation to the outer margin of the foot.
Patient Positioning	Flex knee and place the plantar surface of the foot in the IR.
Breathing Instructions	None.
Additional Comments	Place the marker on the lateral aspect of the foot.

AP Foot

Question #88:

An AP tangential projection of the clavicle requires a tube angle of:

- a. 15 to 30 ° cephalic.
- b. 15 to 30° caudal.
- c. 25 to 35° cephalic.
- d. 25 to 35° caudal.

Question #88: Review

SID	40"
kVp	75 to 80
IR Size & Placement	24 x 30 cm; CW.
Tube Angle	AP: 15 to 30° cephalic; PA: 15 to 30° caudal.
CR	Perpendicular to mid clavicle.
Collimation	Tight collimation to clavicle.
Patient Positioning	Place the arms in a neutral position and raise chin out of the light field.
Breathing Instructions	Suspend.
Additional Comments	Place the marker on the bucky and just lateral to the humerus.

Tangential Clavicle

Question #89:

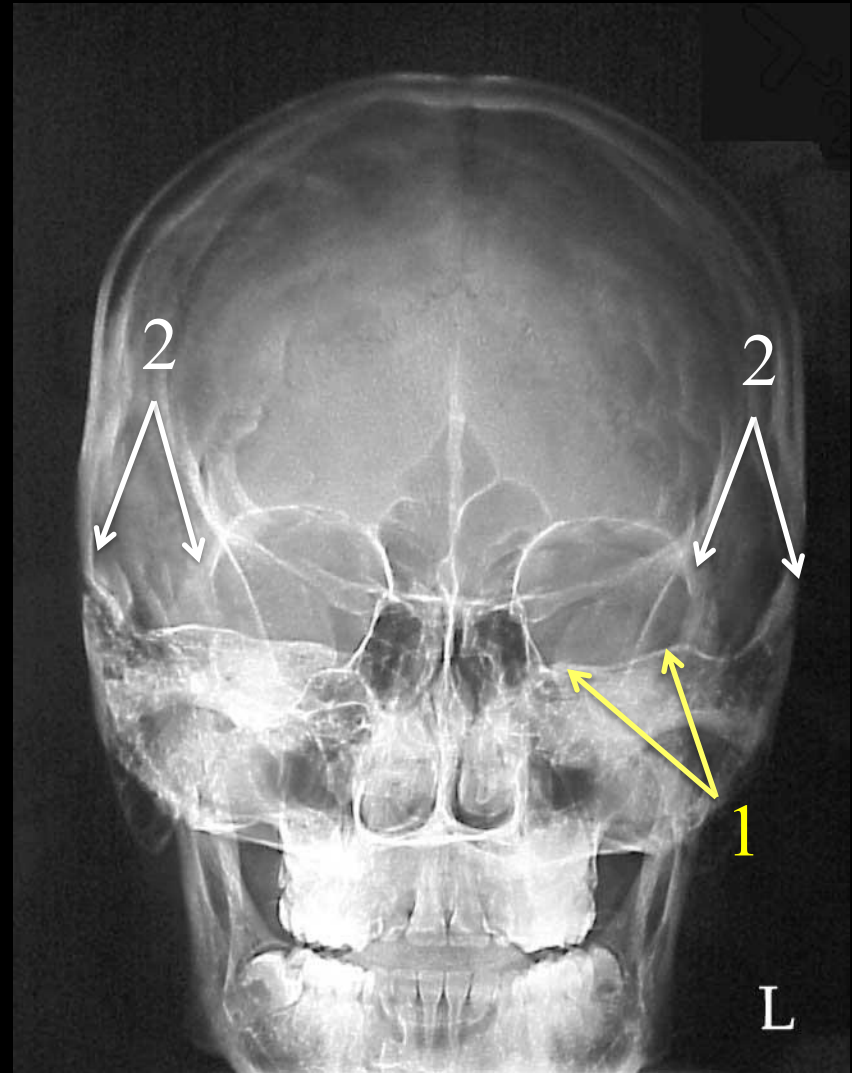
For a Caldwell method of the skull, the petrous ridges should:

- a. completely fill the orbits.
- b. fill $2/3$ of the orbits.
- c. fill the lower $1/3$ of the orbits.
- d. be projected below the orbits.

Question #89: Review

Positioning Accuracy:

- The petrous ridges must fill the lower 1/3 of the orbits (1).
- The distance from the outer canthus to the lateral margin of the skull must be equal on both sides (1);



Caldwell Method (PA Axial Projection)

Question #90:

What is the exact centering point for a routine PA chest?

- a. T7 and the midcoronal plane
- b. T7 and the midsagittal plane
- c. T10 and the midcoronal plane
- d. T10 and the midsagittal plane

Question #90: Review

Source Image Receptor Distance (SID)	72"
kVp	110-130
Image Receptor (IR) Size & Placement	35 x 43 cm; Crosswise (CW) for most male patients; Lengthwise (LW) for most female patients.
Tube Angle	None.
Central Ray (CR)	T7 and mid-sagittal plane; CW place IR 1" above shoulders; LW place IR 1.5" above shoulders.

Routine PA Chest

Question #91:

What is the name of this position of the facial bones?

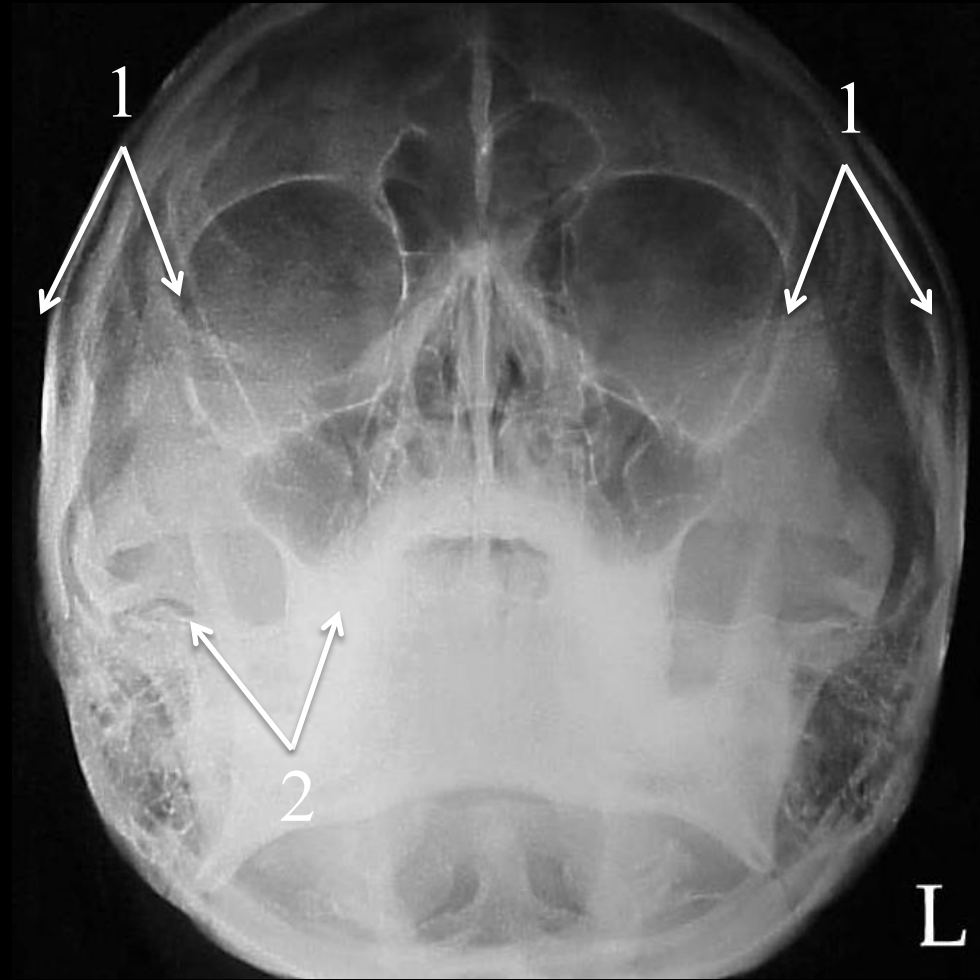
- a. Towne method
- b. Haas method
- c. Waters method
- d. Caldwell method



Question #91: Review

Positioning Accuracy:

- The distance from the outer canthus to the lateral margin of the skull must be equal on both sides (1);
- The petrous ridges must be below the maxillary sinuses (2).



Waters Method (Parietoacanthial Projection)

Question #92:

An AP projection of the pelvis will require that the legs be internally rotated _____.

- a. 10 to 15°
- b. 15 to 20°
- c. 25 to 30°
- d. 30 to 35°

Question #92: Review

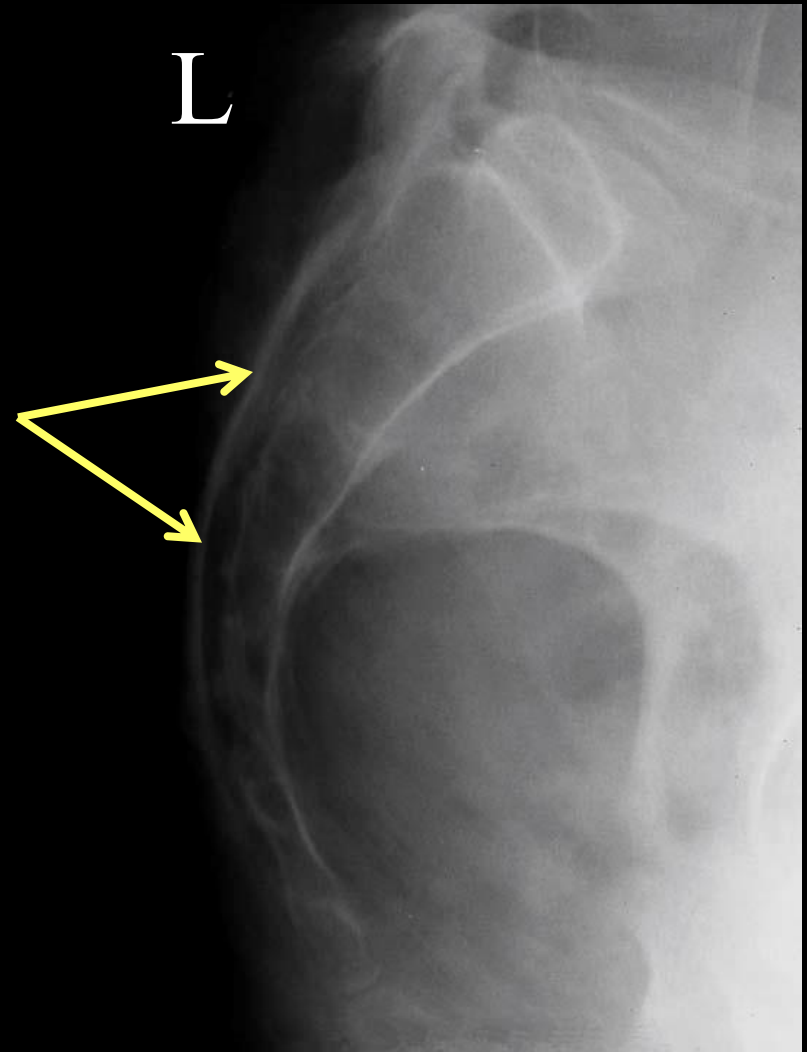
SID	40"
kVp	85
IR Size & Placement	35 x 43 cm; Crosswise (CW).
Tube Angle	None.
CR	Midline and halfway between the ASIS and the symphysis pubis.
Collimation	Tight collimation to the pelvis.
Patient Positioning	The patient is supine with their legs internally rotated 15 to 20°.
Breathing Instructions	Suspend respirations.
Additional Comments	Place a marker within the light field & along the lateral margin of the pelvis.

Routine AP Pelvis

Question #93:

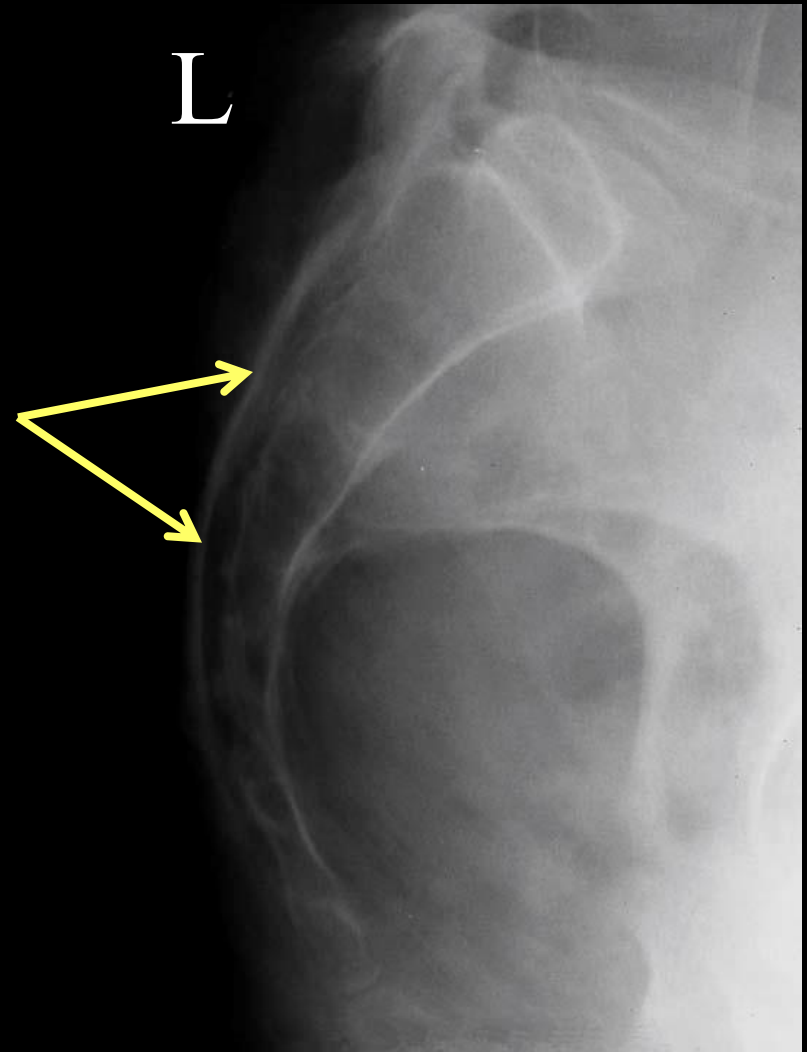
The arrows on this image are pointing to which of the following structures?

- a. sacral canal
- b. sacral promontory
- c. spinous process
- d. ischial spine



Question #93: Review

The sacral canal (arrows) is well demonstrated on a lateral position of the sacrum.

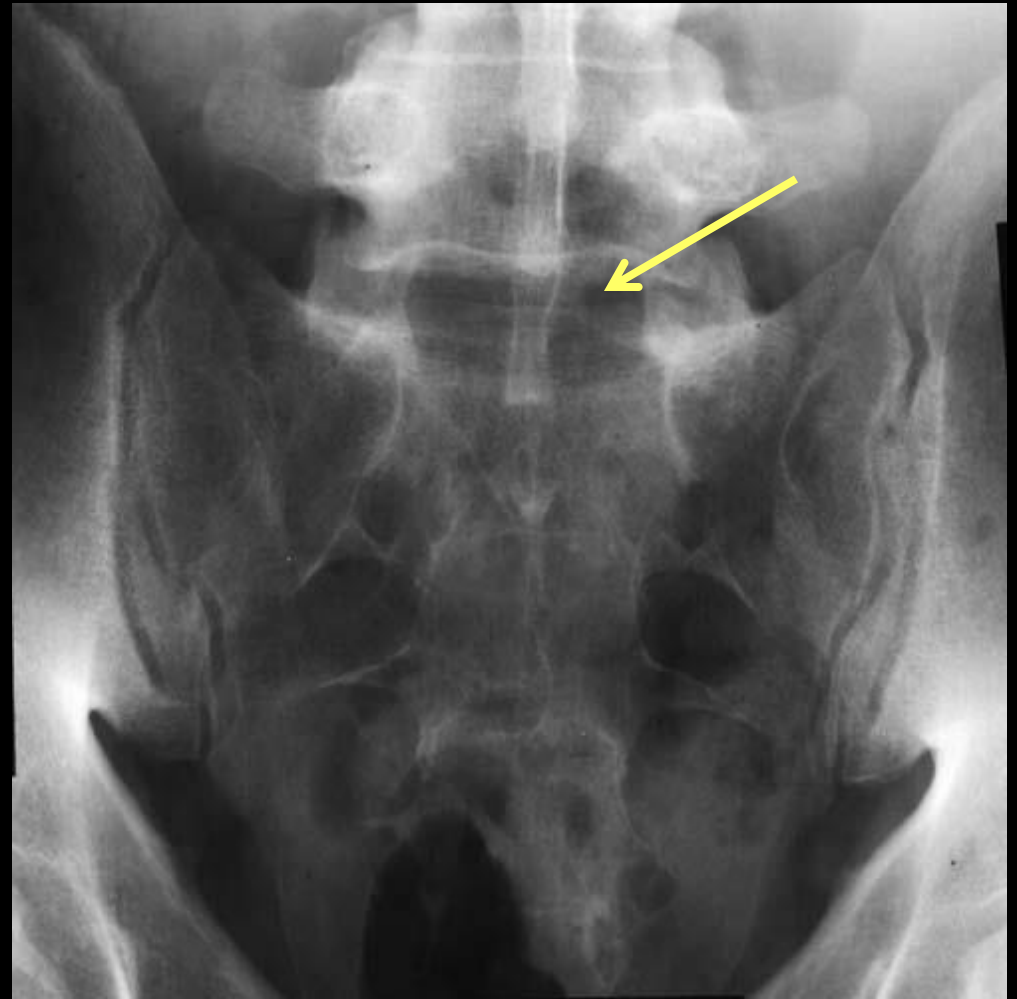


Left Lateral Sacrum

Question #94:

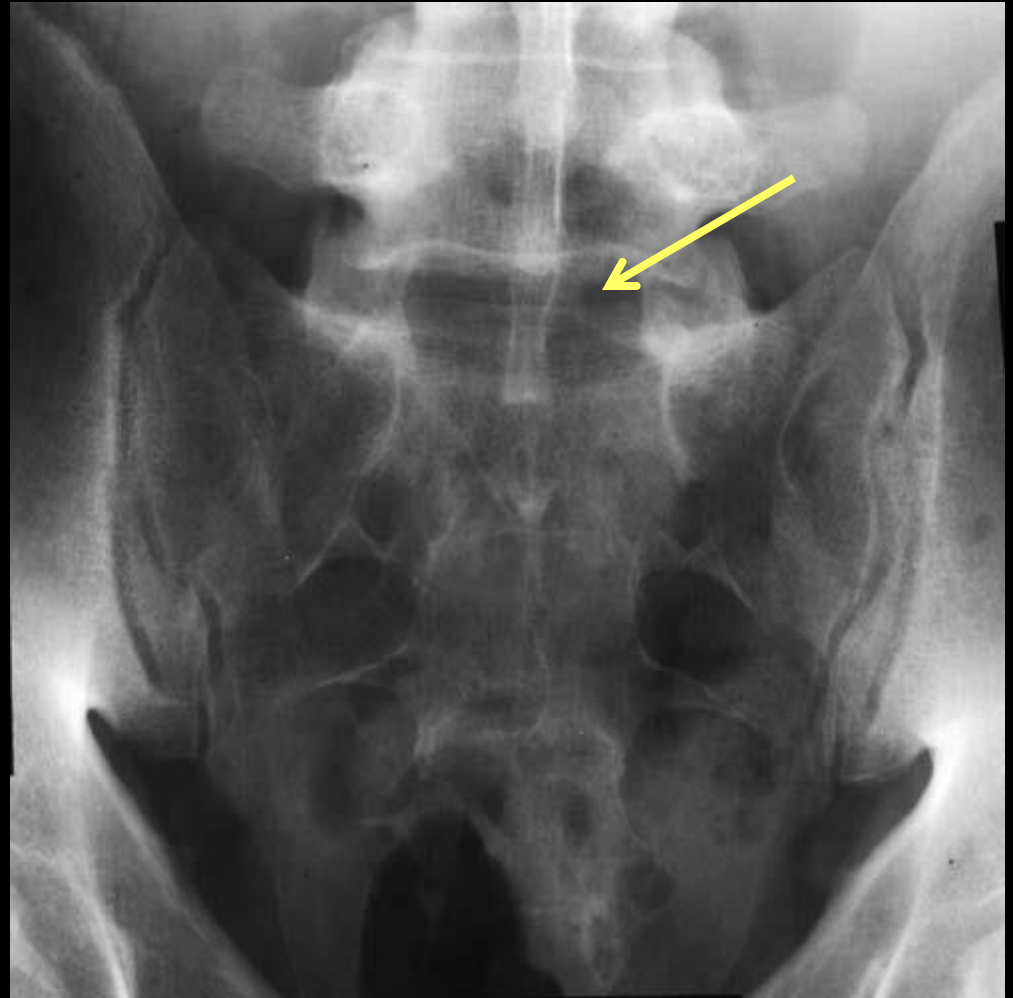
The arrow on this image is pointing to which of the following structures?

- a. L5/S1 joint space
- b. sacral foramen
- c. sacral canal
- d. sacral promontory



Question #94: Review

The 30 to 35° tube angle employed for this image will produce a **true AP projection of the L5/S1 joint space** (arrow).



AP L5/S1 Lumbar Spine

Question #95:

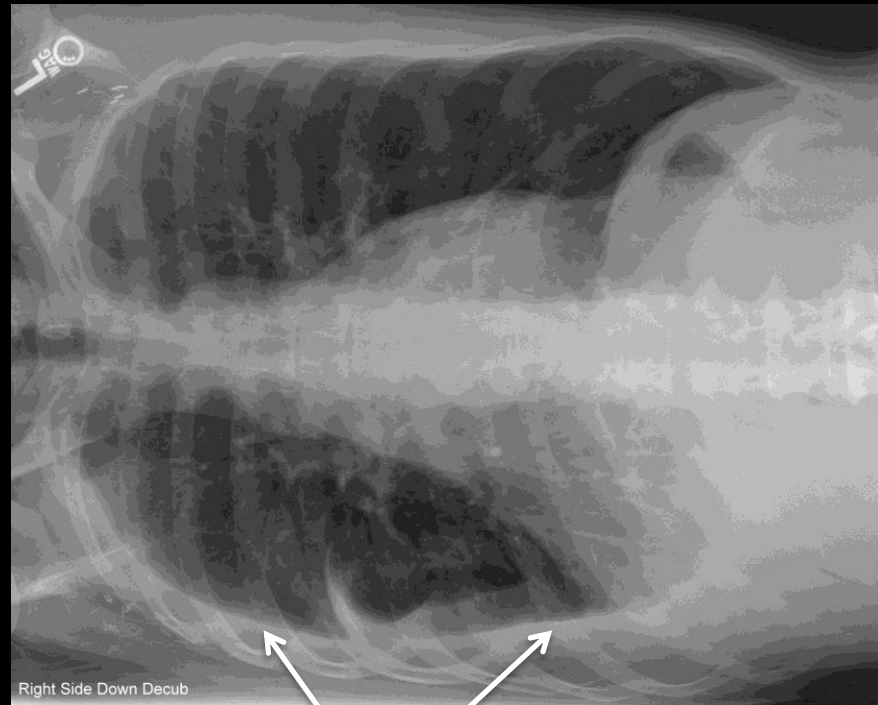
At a minimum, how many minutes must the patient remain in a lateral decubitus chest position prior to making the exposure?

- a. 1
- b. 3
- c. 5
- d. 10

Question #95: Review

Both decubitus positions are performed for comparison and ensure that the patient lies in this position for 5 minutes prior to making each exposure.

This patient has a pleural effusion present in the right lung field.

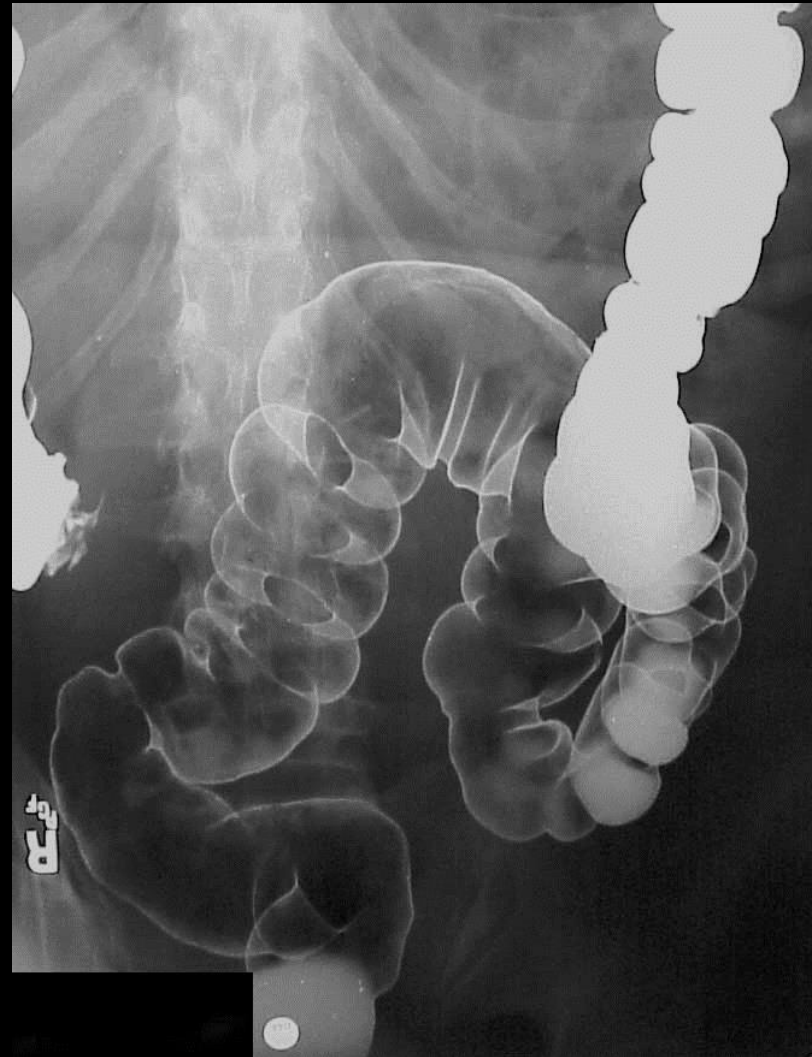


Left Lateral Decubitus Chest

Question #96:

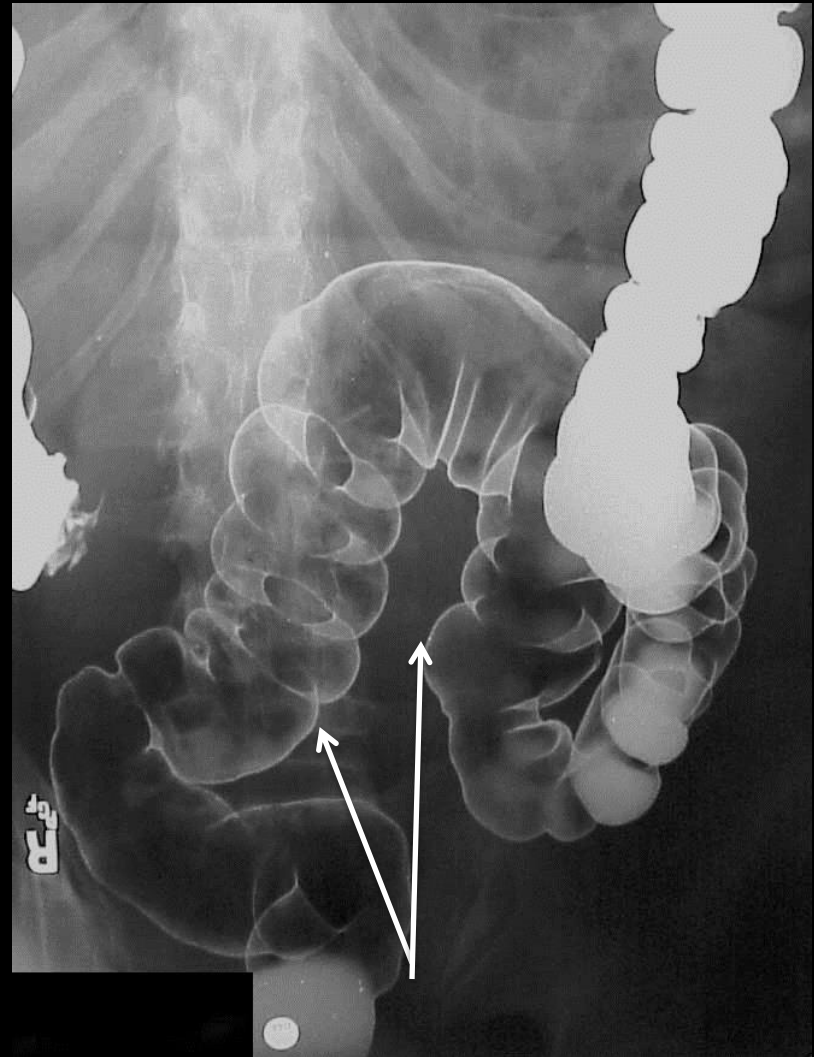
What is the name of this barium enema projection/position?

- a. axial sigmoid
- b. lateral rectum
- c. RPO
- d. LPO



Question #96: Review

This projection will best demonstrate the rectosigmoid area (arrows) of the colon.



Axial Sigmoid BE

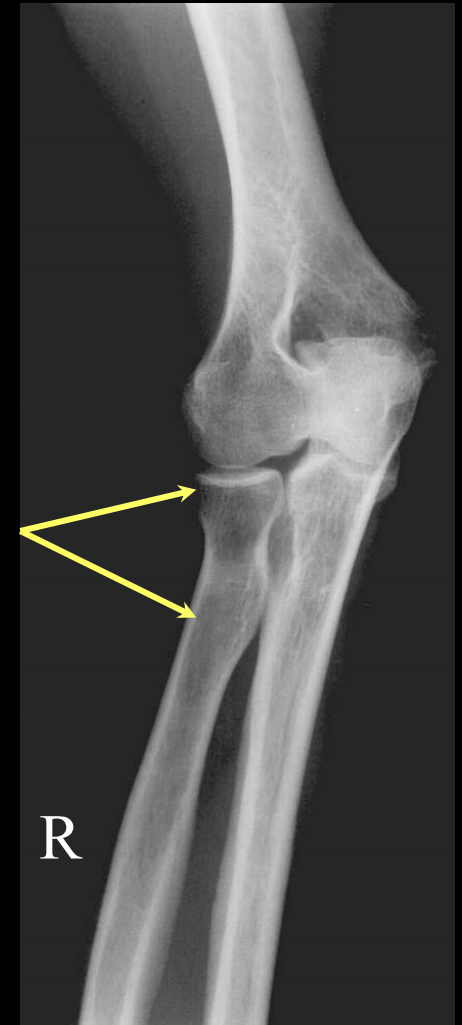
Question #97:

Which of the following elbow projections/positions would best demonstrate the radial head, neck, and tuberosity in profile?

- a. AP
- b. external oblique
- c. internal oblique
- d. lateral

Question #97: Review

This position is used to demonstrate the radial head, neck, and tuberosity (arrows) free from bony superimposition.

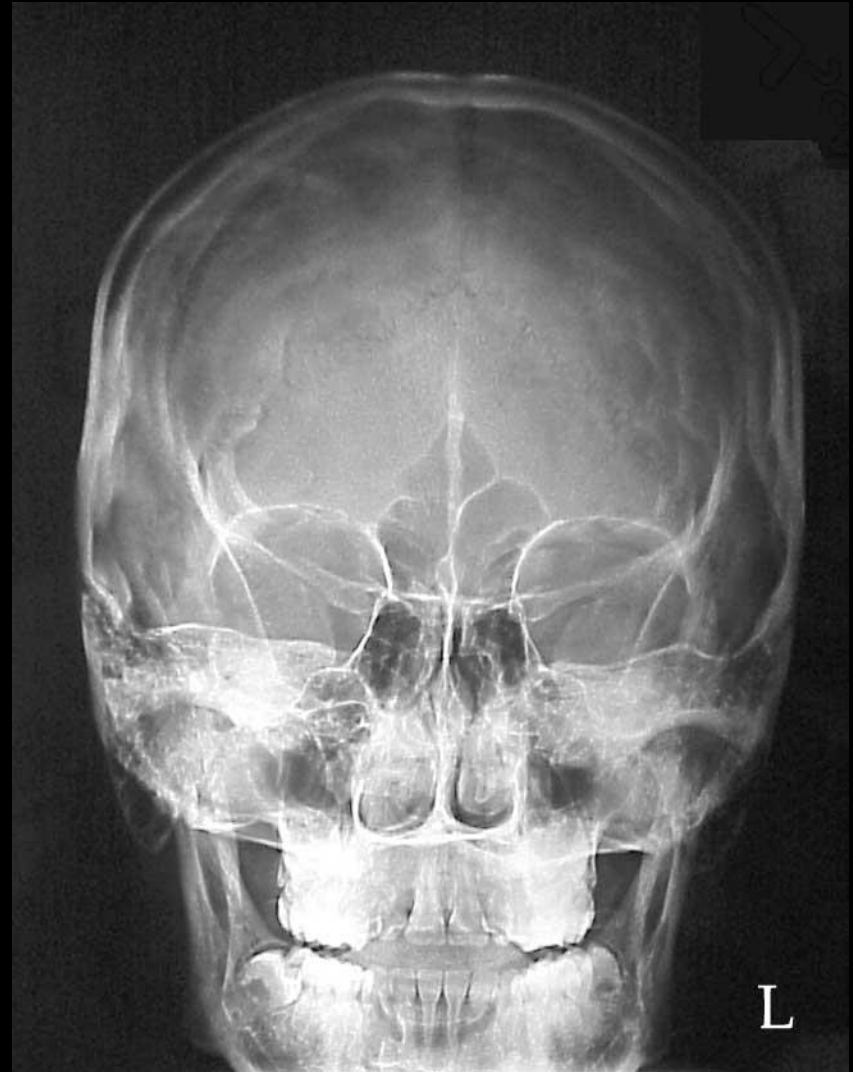


External Oblique Elbow

Question #98:

What is the name of this position of the skull?

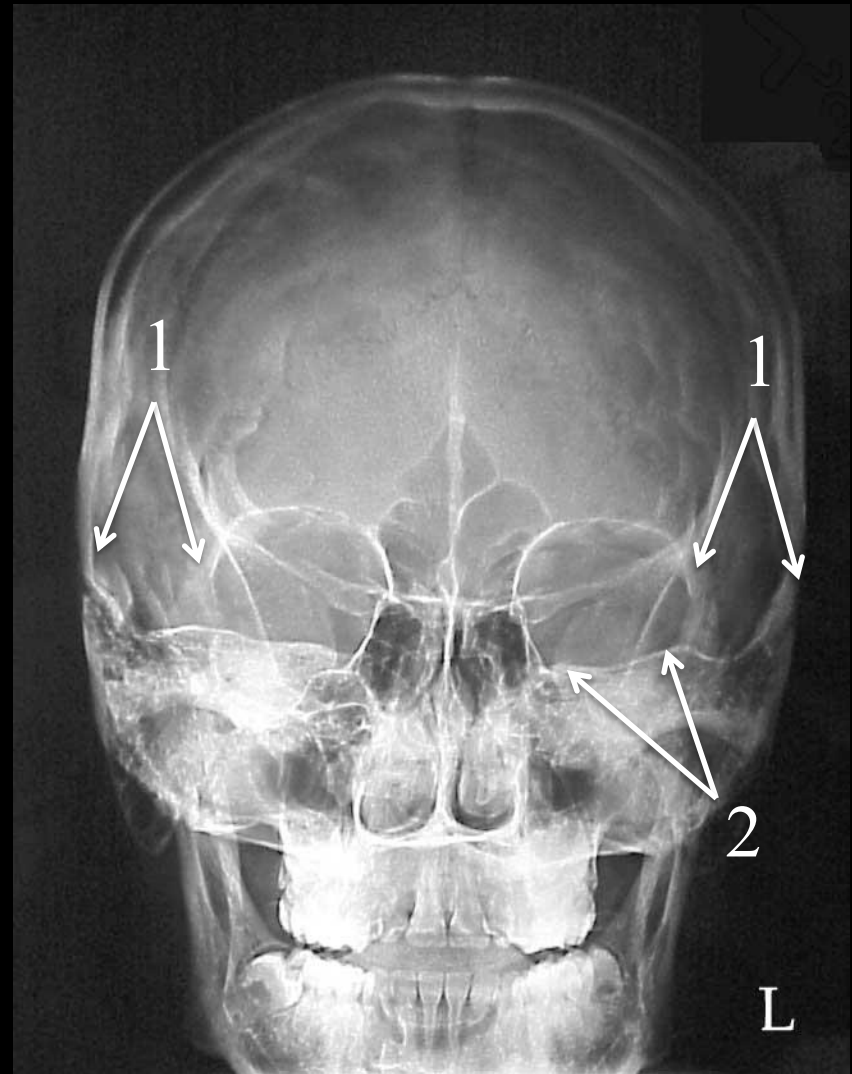
- a. Towne method
- b. Waters method
- c. Haas method
- d. Caldwell method



Question #98: Review

Positioning Accuracy:

- The distance from the outer canthus to the lateral margin of the skull must be equal on both sides (1);
- The petrous ridges must fill the lower 1/3 of the orbits (2).



Caldwell Method (PA Axial Projection)

Question #99:

Which of the following would best demonstrate the floor of the orbits if a blow-out fracture were suspected?

- a. modified Waters method
- b. routine Waters method
- c. Caldwell method
- d. Townes method

Question #99: Review

This position is used to best demonstrate the floor of the orbits (arrows) if a blow-out fracture of the orbits is suspected.



Modified Waters Method

Question #100:

How much of a cephalic tube angle is required in order to properly position an apical lordotic chest.

- a. 5 to 10°
- b. 10 to 15°
- c. 15 to 20°
- d. 25 to 30°

Question #100: Review

- An **AP axial or apical lordotic chest** is often indicated for patients suspected of having a lesion or artifact under or around the clavicle.
- The idea is to project the clavicles above the apices of the lung in order to identify the exact location of the lesion.
- Follow routine PA chest positioning guidelines in addition to the following:

Stand patient one foot in front of the upright bucky;

Have the patient lean back so that their shoulders press against the bucky to form a 15 to 20° angle;

An alternate method is to have the patient stand upright and angle the tube 15 to 20° cephalic.

Congratulations, you have just completed the Mastery Test!!

Now, just snap a picture of your completed answer sheet and text it to John Fleming at (727) 744-7946. If you score a 75% or higher, your certificate of completion will be emailed back to you within one week of us receiving your completed answer sheet and payment. *You will be allowed no more than three attempts to achieve a passing score on the mastery test.*

I hope that you have enjoyed this format for earning your continuing education and thanks for your support.

Contact Information:

Mailing Address: Three Phase CEUs
c/o John Fleming
80 Bay Woods Drive
Safety Harbor, FL 34695

Cell Phone: (727) 744-7946 (please send a text)

Website: <http://www.ceuarmy.com/>

Email: threephaseceus@tampabay.rr.com

About the Author:

John Fleming graduated from the St. Petersburg College (SPC) Radiography Program in Pinellas Park, Florida in December of 1985. He has been employed by SPC since May of 1987 and is currently the Radiography Program Director.

John completed a Master of Education Degree from the University of South Florida in December of 1998, and he has passed the American Registry of Radiologic Technology's Computed Tomography and Magnetic Resonance Imaging certification examinations.

References:

Seeram, Euclid; Computed Tomography: Physical Principles, clinical Applications, and Quality Control, Third Edition, Elsevier Education, St. Louis, MO, 2009.

Romans, Lois; Computed Tomography for Technologists, A Comprehensive Text; Wolters Kluwer Health/Lippincott, Williams, & Wilkins Publishing Company, 2010

Kelly, Lorrie L. & Petersen, Connie M.; Sectional Anatomy for Imaging Professionals, Second Edition; Elsevier Publishing Company, 2007.

Applegate, Judith K.; The Sectional Anatomy Learning System: Concepts & Applications 2-Volume Set, Third Edition; Saunders Publishing Company, 2010

Lazo, Denise L.; Fundamentals of Sectional Anatomy: An Imaging Approach; Thompson-Delmar Learning, 2005.

Madden, Michael E.; Introduction to Sectional Anatomy, Second Edition; Wolters Kluwer Health/Lippincott, Williams, & Wilkins Publishing Company, 2008.

References:

Mace, James D. and Kowalczyk, Nina; Radiographic Pathology for Technologists, Sixth Edition, Elsevier Education, St. Louis, MO., 2014.

Eisenberg, Ronald L. and Johnson, Nancy M.; Comprehensive Radiographic Pathology, Fifth Edition, Elsevier Education, St. Louis, MO, 2012.

Wicke, Lothar; Atlas of Radiologic Anatomy, Sixth Edition, Williams & Wilkins, 1998

Bontrager, Kenneth and Lampignano, John P.; Textbook of Radiographic Positioning and Related Anatomy, Eighth Edition, Elsevier Education, St. Louis, MO, 2014

Mission Statement:

Provide high quality, affordable home study courses in a prompt and courteous manner for all health care professionals.
