

Diagnostic Imaging Final Review

Landmarks and positioning question group

What are the landmarks for thorax radiographs? matching

1. **Center**- Heart
2. **Caudal**- Curve of last rib T13/L1-
3. **Cranial**- Manubrium sterni

What two views are made when radiographing the thorax?

Mediolateral

Ventrodorsal

Lateral

Cranicaudal

What would your landmarks be when radiographing the metatarsus?

Hock to the digits

Carpus to the digits

Hock to the stifle

None of the above

What would the landmarks be when radiographing the stifle?

pelvis to the digits, centering on the joint

coxofemoral joint to the hock

mid femur to metatarsus, centering close to the joint

mid femur to mid tibia, centering on the joint

What are the landmarks for a radiograph of the radius and ulna?

carpus to shoulder

carpus to elbow

hock to stifle

shoulder to stifle

When radiographing the thorax, the exposure should be made at peak:

Expiration

Inspiration

it does not matter

What would your landmarks be when radiographing the femur?

stifle to the hock

coxofemoral joint to the stifle

carpus to the scapula

coxofemoral joint to the digits

What landmarks would you use when radiographing the humerus?

hock to the stifle

carpus to the elbow

shoulder to the elbow

carpus to the stifle

The veterinarian has made a lateral projection of the shoulder. What other view should you do to complete the study?

Lateromedial

Dorsoventral

Caudocranial

Dorsopalmar

Before pushing the exposure button, you must make sure that _____?

image receptor/technique, grid/tray, is in position

the image is centered

all the above

The main principle of PennHip is to:

subjectively measure canine hip joint laxity

quantitatively measure canine hip joint irregularities.

quantitatively measure canine hip joint laxity.

subjectively measure canine hip joint irregularities.

DXI general question group

_____ is defined as the amount of time it takes the radioisotope to spontaneously/randomly decay.

half-life

gamma REMS

ALARA

The isotope that is most highly attracted to bone is:

iodine I 131

technetium Tc 99m

Uranium U 133

X-rays are generated when fast-moving _____ collide with any form of matter.

Photons

Electrons

Anode

Grays

What is used to produce the high voltage necessary on the anode side when accelerating electrons from the cathode to the anode?

Transformer

Filament

Generator

Rectifier

A focal film distance of how many inches is adequate to minimize the penumbra effect?

30-35 inches

12-15 inches

25-30 inches

36-40 inches

_____ Occurs when an object is not parallel to the recording surface.

Distortion

Foreshortening

Foreshadowing

Penumbra

MRI question group

What part of the MRI machine is considered the most dangerous to anyone walking into the room?

the radio antenna

the magnet

the shim coils

the surface coils

What happens to atoms when they are placed in a magnet?

they move randomly

they reposition themselves with regard to their magnetic polarity

they shift to the north pole of the magnet

For which atoms are MRI radio frequencies tuned to in order to create images?

Helium

Carbon

Hydrogen

Oxygen

Contrast agents are most often used in CT for head, chest, abdominal and pelvic exams.

True/false

Radiology question group

When radiographing the cervical vertebra, the area must be padded correctly to prevent what type of distortion?

Magnification

Foreshortening

False narrowing

Compression

What does OFA stand for?

Orthopedic Foundation of America

Organizational Followers of Arachnoids

Orthopedic Foundation of Arthritis

Orthopedic Foundation for Animals

What two views are standard for a skull series?

Left 30 degrees - right ventral oblique

Lateral

Frontal 90 degrees

Ventrodorsal

When looking at the finished radiograph, what criteria is used to show proper positioning for OFA?
There may be more than one answer.

The femurs must be parallel to the table and one another.

There must be no overlap of the tuber ischii over the femurs.

The patellae need to be positioned slightly lateral on the distal femur.

The widths of the iliac shaft must be equal.

Where do you measure for the kVp setting when radiographing the ventrodorsal thoracic vertebra?

Ilium

Xiphoid process

Highest point

Manubrium sterni

What is the cranial landmark for a ventrodorsal view of the pelvis that will be sent for OFA certification?

Wings of the atlas

Wings of the ilium

Stifle joints

T-13/L-1

When positioning for a frontal 90 degrees view of the skull, what area will be isolated?

Calvarium

Sagittal crest

Frontal sinuses

Coronoid process of the mandible

Ultrasound question group

During the recording of an abdominal ultrasound image, which side of the monitor should the cranial quadrant be displayed on a sagittal view?

the far field of the image screen

the left side of the screen

the near field of the image screen

the right side of the screen

How does the waveform of ultrasound compare to audible sound?

Ultrasound has a shorter wavelength.

Ultrasound has a longer wavelength.

Ultrasound has the same wavelength.

What frequency of sound does ultrasound utilize?

High frequency sound waves

Low frequency sound waves

Mid frequency sound waves

Horse talk 😊

What is the importance of elevating the contralateral limb of a horse when radiographing the distal phalanx?

So there will be more weight on the limbs not being elevated.

To help prevent the horse from striking.

To insure proper weight distribution.

To make it easier to visualize the position of the foot.

For a Dorsoproximal-Palmarodistal oblique view (Upright pedal) of a horse you want to center the primary beam over the distal phalanx.

True/false (you want to center the primary beam over the coronary band.)

What is the purpose of angling the beam 20 degrees when radiographing the metacarpophalangeal joint for a Dorsopalmar view of a horse?

Enables the technician to see the limb easier when positioning the x-ray tube.

More even weight distributes of the x-ray tube.

Projects the sesamoids above the metacarpophalangeal joint space.

Positions the sesamoids over the joint space.

Which view allows the medial sesamoid to be visualized without the lateral sesamoid bone superimposed on a horse?

Dorsolateral-Palmaromedial oblique view

Lateromedial view

Dorsomedial-Palmarolateral oblique view

Dorsopalmar view

Which view allows the palmar surface of the navicular bone to be visualized on a horse?

Palmaroproximal-Dorsodistal oblique view (Caudal Tangential)

Lateromedial view

Dorsoproximal-Palmarodistal oblique view (Upright Pedal)

Dorsopalmar view

It is not important to label fetlock radiographs with both left and right markers as well as front and rear markers on horses.

True/false (Since there is no way to distinguish the front fetlock from the rear, it is important that the radiograph be labeled with both left and right and well as front and rear markers.)

A true Lateromedial view of a horse:

Displays the metacarpal condyles and superimposed sesamoids with a visible joint space.

Allows the lateral sesamoid to be visualized without the medial sesamoid bone superimposed.

Allows the medial sesamoid to be visualized without the lateral sesamoid bone superimposed.

Projects the sesamoids above the metacarpophalangeal joint space.

Which of the following would not cause an artifact on the finished radiograph?

Horseshoes

Untrimmed/uncleaned hoof

Air in the sulcus

Modeling clay in the sulcus

Which view allows a clear view of the Dorsolateral and Palmaromedial surfaces of the carpal bones on a horse?

Dorsolateral-Palmaromedial oblique view

Flexed Lateromedial view

Lateromedial view

Dorsomedial-Palmarolateral oblique view

How would you describe the caudal aspect of the right rear limb of a horse's foot?

Palmar

Plantar

Distal

Rostral

Film and Screen

What is film latitude?

The film's ability to be displayed.

The film's ability to produce many shades of gray

the film's size

the film's speed

The gelatin that suspends the silver halide crystals in the emulsion liquefies in warm temperatures. Why is this important?

Because it allows the processing chemistry to interact with all the suspended silver halide crystals in the emulsion.

Because it allows the silver halide crystals to be exposed to the x-ray energies.

Because it allows the emulsion to be removed from the film.

Because it keeps the processing chemistry from damaging the silver halide crystals.

How should film be stored?

in a cool dry place

in a place with low humidity

set the boxes end on and not flat on their sides

all of the above

none of the above

When the silver halide crystals are exposed to electromagnetic radiation they become susceptible to chemical change. What is the image called at this time?

Radiograph

image want to be

latent image

early image

What kind of artifact is caused from periodically removing the film from the developer tank to see if it has enough radiographic density?

emulsion slippage

periodic development

total development

sight development

When do scratches usually occur?

before processing

during processing

after processing when it is dry

in the film box

Why does poor film-screen contact decrease the detail in that area?

Because the mAs should have been increased.

Because the decrease distance between the film and screen does not allow the light from the intensifying screen to diverge before hitting the film.

Because the increased distance between the film and screen allows the light from the intensifying screen to diverge before hitting the film.

Poor film-screen contact increases the detail of the image.

How does the developer affect the silver halide crystals in the films emulsion?

It causes the silver halide crystals to fluoresce.

It changes the sensitized silver halide crystals into black metallic silver.

It changes the unsensitized silver halide crystals into black metallic silver.

It changes all the silver halide crystals into black metallic silver.

Why is it important to wash a film completely after fixing?

Because the fixer remaining on the film will oxidize over time and turn brown.

Because the developer remaining on the film will oxidize and turn brown over time.

Because the fixer remaining on the film will solidify over time.

none of the above

What can be caused from leaving a film in the wash water too long?

brown films

emulsion slippage

dark spots

fogged film

How will a radiograph look that has been processed in chemicals that are colder than the manufacturer recommends?

increased radiographic density and decreased contrast

overall gray appearance, gray swirly background

brownish color

too dark

What does a radiograph that has been fogged look like?

background will be swirly

many white spots in the background

overall gray appearance

just fine

The film has been in the developer. What happens to the film when it is placed in the fixer?

The fixer changes the sensitized silver halide crystals into black metallic silver.

The fixer removes all the remaining silver halide crystals.

The fixer changes all the desensitized silver halide crystals into black metallic silver.

The fixer turns the film different colors.

Rough handling of the film can cause:

an overall gray appearance

black crescents

brown films

nothing

PPE

Lead gloves should be worn to protect the hands from primary beam exposure.

True/false- from all scatter radiation

Which of the cumulative effects of radiation cause damage to the body within the lifetime of the individual?

genetic effects

carcinogenic effects

stomatomatic effects

somatic effects

It is a good idea to drape the lead gloves over your hands instead of wearing them when dealing with difficult patients.

True/false

Lead gowns and gloves should be radiographed to check for:

proper lead thickness

damage to the vinyl

check to see if the seams have been torn

cracks in the lead

Lead gloves and aprons should contain at least:

.05 mm lead equivalent

.5 mm lead equivalent

.65 mm lead equivalent

1 mm lead equivalent

Which of the following is the maximum permissible dose;

500 mREM

50 REM

5 REM

.5 mREM

Why should the film badge be worn at the collar level?

monitor primary beam exposure

monitor exposure to the thyroid and lenses of the eyes

monitor radiation collected in the room

monitor scatter radiation that bounces off the table

Which terminology would be used when trying to keep exposure as low as reasonably achievable.

RAD

MPD

ALARA

MRLM

mAs and Kvp question group

Film fogging (increases/decreases) the radiographic contrast?

Increases

Decrease radiographic contrast by decrease differences in densities between two adjacent shadows.

Decreases

Decrease radiographic contrast by decrease differences in densities between two adjacent shadows.

Define radiographic density.

many greys

degree of blackness

object not parallel to the film

degree of whiteness

A blurring at the tissue interfaces can be caused by:

false narrowing

increased radiographic density

penumbra effect

short scale of contrast

How does mAs effect the scale of contrast?

increased mAs = long scale of contrast

decreased mAs = long scale of contrast

increased mAs = short scale of contrast

no effect

How does kVp effect the scale of contrast?

increased kVp = long scale of contrast

decreased kVp = long scale of contrast

increased kVp = short scale of contrast

no effect

Changing the mAs will affect the (quality/quantity) of the x-rays generated?

Quality

Quantity

An exposure made with 15:1 ratio grid would require a higher mAs than an exposure made with a 8:1 ratio grid.

True/false

What makes up the latent image?

Sensitized silver halide crystals

Combination of Rare Earth screen plus KVP setting

Fixer

Developer

If a radiograph was taken first at 10 mAs and 100 kVp, and a second was taken at 12 mAs and 50 kVp, will the second radiograph have an increased, decreased, or the same radiographic density as the first?

Decreased

Increased

What is the purpose of a moving grid?

To create gridlines

To erase gridlines

What happens to the x-ray tube if the mAs and kVp are both set too high?

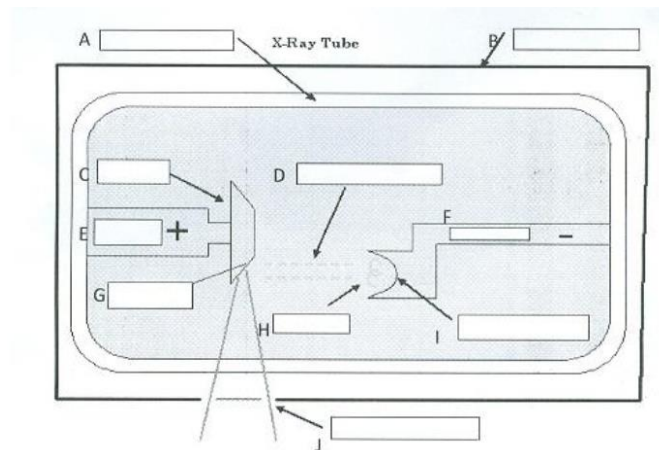
Glass envelope shatters

Tube overload, causing too much heat which causes a crack in the anode

Tube saturation, causing too many electrons to scatter

Nothing

Identify parts of the X-ray Tube



Name the different parts of the Xray Tube

A. Glass Envelope

B. Metal Housing

C. Rotating Anode

D. Accelerating Electrons

E. Anode

F. Cathode

G. Tungsten Target

H. Filament

I. Focusing cup

J. Beryllium Window or Primary Beam



Utilizing correct directional and anatomical terminology identify the view

Ventrodorsal abdomen

Identify the labeled anatomical structures.

(Image) I could not get this image to copy over but here are the answers to it.

1. Liver

2. Stomach

3. Spleen

4. Small intestine

5. Colon



Identify the radiographic view in the image below using correct directional and anatomical terminology.

Right Dorsoplantar tarsus/hock

Identify the following contrast study.



Positive Contrast Cystography

Upper Gastrointestinal Series

Excretory Urography

Myelography

Identify the dental arcade being isolated in this image.



Left maxilla

Right maxilla

Right mandible

Left mandible

Identify the following radiographic view.



Dorsopalmar view of the metacarpus

Lateromedial view of the metacarpophalangeal joint

Dorsopalmar view of the metacarpophalangeal joint

Dorsoplantar view of the tarsal joint

Radiolucent appears black on a radiograph

True/false

Abdominal radiographs are exposed during:

Inspiration

Expiration

half way between inspiration and expiration

does not matter

What are the landmarks for the abdomen?

1. Last rib-- center
2. 3 rib spaces cranial to the xyphoid-- cranial
3. Greater trochanter—caudal

Collimation allows for for: (select all the correct answers)

enhanced radiation safety

professional images

improved image quality

maximum electron voltage

speedy radiographs

Match the following contrast studies with the appropriate organ system.

1. Pneumocystography-- Urinary bladder
2. Upper gastrointestinal series—Jejunum
3. Excretory urography-- Kidneys
4. Myelography-- Subarachnoid space
5. Urethrography-- Urethra

Match one of the list below with the statements.

1. Neither slow nor high—loner scale of contrast
2. High speed screens—larger crystals, less detail
3. Slow speed screens—higher detail, smaller crystals+requires more radiation/density

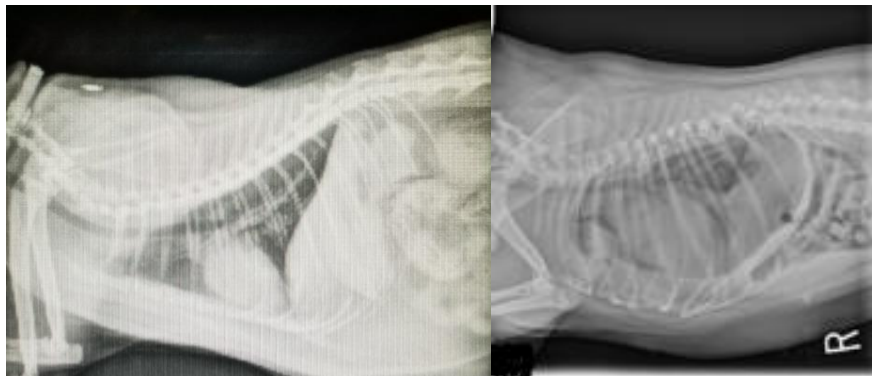
List three ways to reduce exposure to radiation.

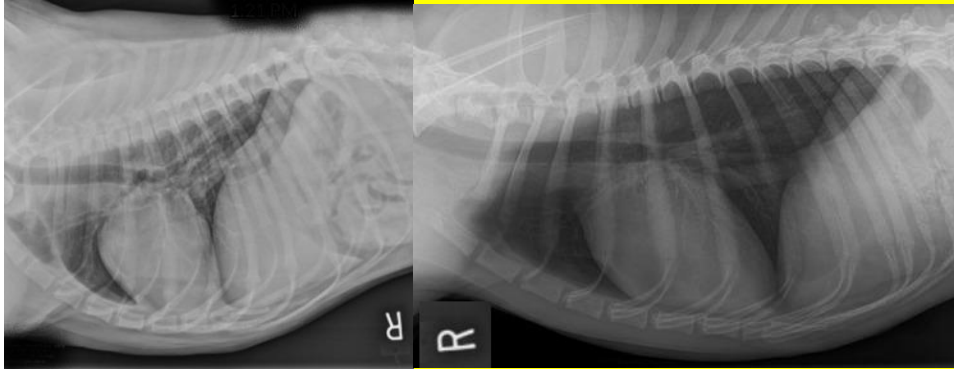
Decrease time

Increase distance

PPE

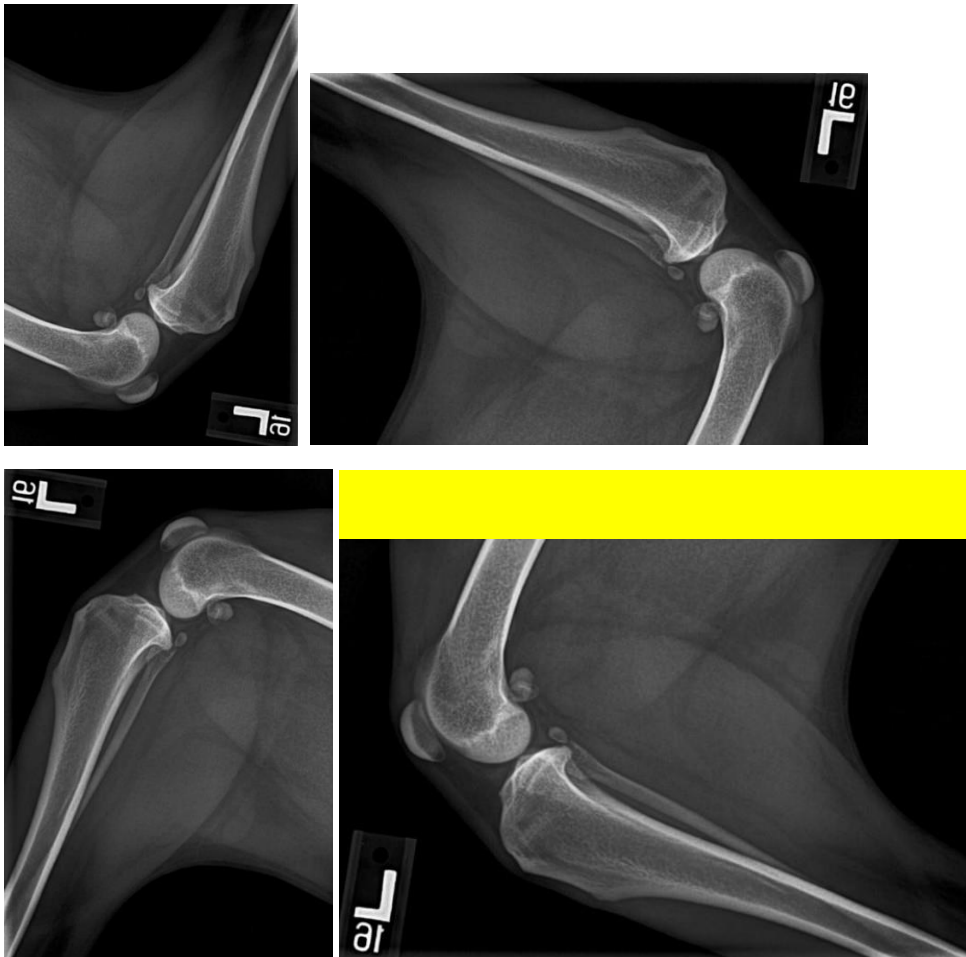
Using the CALIPER acronym choose the thoracic radiograph of best diagnostic quality.





Last image is of best quality

Which radiograph is properly hung or presented



Choose the extremity radiograph that is properly hung or presented.



this one- lateral/cranial to the left and proximal up ,
distal down

