

Technique Compensation

Multiple Choice

Identify the choice that best completes the statement or answers the question.

- ____ 1. In order to reduce patient exposure, _____ kVp and _____ mAs should be used when possible.
 - a. Lower, higher
 - b. Higher, higher
 - c. Higher, lower
 - d. It makes no difference.

- ____ 2. With film-screen imaging, what would be the appropriate change in mAs if the kVp were decreased by 15% and the exposure needed to be maintained?
 - a. Double the mAs
 - b. Halve the mAs
 - c. Use one fourth of the mAs
 - d. No change would be necessary.

- ____ 3. Assuming all produce appropriate density images, which of the following would be the best exposure technique choice when performing a chest radiograph on an infant?
 - a. Use 40 ms exposure time.
 - b. Use 60 ms exposure time.
 - c. Use 200 ms exposure time.
 - d. Use at least 80 kVp.

- ____ 4. Generally speaking, what is the kVp value for a pediatric (less than 6 years old) skull compared with the adult skull?
 - a. 5% less
 - b. 15% less
 - c. 50% less
 - d. 50% more

- ____ 5. Which one of the following immobilizing devices requires an increase in the exposure technique?
 - a. Fiberglass cast
 - b. Plaster cast
 - c. Air splint
 - d. B and C

- ____ 6. With all other factors remaining the same, a patient with which body habitus would require the highest exposure factors?
 - a. Asthenic
 - b. Sthenic
 - c. Hypersthenic
 - d. Hyposthenic

- ____ 7. Generally speaking, what do additive pathologic conditions require?
 - a. Increased focal spot size
 - b. Increased mA
 - c. Increased kVp
 - d. Increased SID

- ____ 8. Which of the following is a destructive pathology?

- a. Pneumonia
 - b. Edema
 - c. Pleural effusion
 - d. Emphysema
- ____ 9. The digital imaging exposure indicator reflects the amount of radiation:
 - a. Leaving the tube
 - b. Entering the patient
 - c. Exiting the patient
 - d. Reaching the IR
- ____ 10. As compared to a patient with a 24 cm thick abdomen, imaging a patient with a 20 cm thick abdomen will result in _____ scatter being produced and _____ image contrast.
 - a. Less; lower
 - b. More; lower
 - c. Less; higher
 - d. More; higher

True/False

Indicate whether the statement is true or false.

- ____ 1. Changes in kVp do not affect the digital exposure indicator.
 - A. True
 - B. False
- ____ 2. In order to see the effect of changing kVp, a greater change is needed when operating at low kVp as compared to high kVp.
 - A. True
 - B. False
- ____ 3. As compared to a three-phase x-ray unit, a single phase unit requires higher exposure techniques to produce a comparable image.
 - A. True
 - B. False
- ____ 4. With digital imaging, the same mAs and kVp should be used for an AP lumbar spine and a lateral lumbar spine.
 - A. True
 - B. False
- ____ 5. With digital imaging, exposure factors do not need to be adjusted in order to visualize soft tissue.
 - A. True
 - B. False

Technique Compensation Answer Section

MULTIPLE CHOICE

1. ANS: C

Using a higher kVp and lower mAs is best, because the higher kVp provides more penetration, requiring less patient exposure.

PTS: 1 OBJ: 14

2. ANS: A

Decreasing the kVp by 15% would require two times the mAs in order to maintain film-screen image density.

PTS: 1 OBJ: 6

3. ANS: A

When imaging an infant for a chest radiograph, a short exposure time is critical in order to stop patient motion.

PTS: 1 OBJ: 15

4. ANS: B

Due to the lack of bone density, it is recommended that 15% less of the adult kVp be used for a pediatric skull.

PTS: 1 OBJ: 15

5. ANS: B

Only the plaster cast requires an increase in exposure technique.

PTS: 1 OBJ: 15

6. ANS: C

The hypersthenic patient has a large, stocky build and will require the highest exposure factors.

PTS: 1 OBJ: 15

7. ANS: C

Generally, additive conditions are harder to penetrate, requiring use of higher kVp.

PTS: 1 OBJ: 15

8. ANS: D

Emphysema results in over-aeration of the lungs, therefore requiring reduced exposure factors.

PTS: 1 OBJ: 15

9. ANS: D

The exposure indicator for digital images measures the amount of radiation reaching the IR.

PTS: 1 OBJ: 3

10. ANS: C

As compared to a patient with a 24 cm thick abdomen, imaging a patient with a 20 cm thick abdomen will result in less scatter being produced and therefore higher image contrast.

PTS: 1

OBJ: 13

TRUE/FALSE

1. ANS: F

Increasing kVp will increase beam transmission, resulting in more radiation reaching the IR and a change in the exposure indicator.

PTS: 1 OBJ: 7

2. ANS: F

In order to see the effect of changing kVp, a greater change is needed when operating at high kVp as compared to low kVp.

PTS: 1 OBJ: 7

3. ANS: T

A single phase x-ray unit operates less efficiently than does a three-phase, resulting in higher exposure factors being used to produce comparable images.

PTS: 1 OBJ: 15

4. ANS: F

The thickness of the part is significantly greater for the lateral lumbar spine as compared to the AP projection. Therefore, more radiation is needed in order to produce a quality image.

PTS: 1 OBJ: 15

5. ANS: T

Because computer postprocessing techniques can be used to adjust the digital image brightness and contrast, exposure factors do not need to be adjusted in order to visualize soft tissue.

PTS: 1 OBJ: 15