COMPTON vs PHOTOELECTRIC – REVIEW

Compton Interaction

- Incoming photon hits outer shell electron.
- Photon is partially absorbed + changes direction = scatter created.
- Major contributor to occupational dose.
- Reduces contrast (scatter fog).
- Occurs more at high kVp.

STATE WORD TRIGGERS:
outer shell / scatter / occupational dose / high kVp / fog

Photoelectric Effect

- Incoming photon hits inner shell electron.
- Photon is completely absorbed.
- Major contributor to patient dose.
- Increases contrast (bone vs soft tissue).
- Occurs more at low kVp and higher atomic # structures (bone, contrast).

STATE WORD TRIGGERS:
inner shell / absorption / patient dose / high contrast / low kVp / bone

FAST DIFFERENCE TABLE

Feature	Compton	Photoelectric
Shell involved	Outer shell	Inner shell
Photon result	Scatter (part absorbed)	Completely absorbed
Dose impact	Occupational dose ↑	Patient dose ↑
Contrast effect	Lower contrast (fog)	Higher contrast
kVp relationship	↑ at high kVp	↑ at low kVp

1 line state memory line:

Compton = outer shell scatter
Photoelectric = inner shell absorption

1. Which interaction is the major contributor to occupational exposure?
   A) Compton
   B) Photoelectric
   C) Bremsstrahlung
   D) Characteristic

2. Photoelectric effect occurs when the photon interacts with:
   A) Outer shell electron
   B) Inner shell electron
   C) Shielding
   D) Grid lines

3. Compton effect results in:
   A) Absorption of photon
   B) Production of scatter
   C) Increased patient dose
   D) Reduced occupational dose

4. Which interaction contributes most to patient dose?
   A) Compton
   B) Photoelectric
   C) Bremsstrahlung
   D) Characteristic

5. Which interaction increases at low kVp?
   A) Compton
   B) Photoelectric
   C) Bremsstrahlung
   D) Characteristic

6. Which interaction decreases image contrast by fog?
   A) Characteristic
   B) Photoelectric
   C) Compton
   D) Bremsstrahlung

7. Photoelectric effect increases with:
   A) High kVp
   B) Low kVp & High atomic number
   C) Low atomic number
   D) High SID

8. Compton interaction occurs more with:
   A) High kVp

B) Low kVp
C) Both equally
D) Only with grids

9. Photoelectric creates:
   A) Scatter
   B) Absorption
   C) Transmission
   D) Underexposure

10. Compton interaction results in:
    A) Full absorption
    B) Partial absorption + scatter
    C) No interaction
    D) K-shell vacancy in tungsten