

Penn State

SLEIC 3T MRI Investigator Initial Safety Quiz

Name_____ Date_____ Score_____ PSU
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Lab group or SLEIC Project ID: (e.g., sjw42_sema, ase1_pilt):_____

You must pass the safety quiz to work in the control room or the scanner room. There are 18 questions. You may miss 3 and still pass. You may ask for clarification and retake the test.

1. The magnet is turned off
 - a. At the end of the work day
 - b. Between participants
 - c. On weekends
 - d. Never
2. Which of the following conditions should prevent a person from entering the scanner room?
 - a. Pregnancy
 - b. Hip replacement
 - c. Surgical clips
 - d. Cardiac pacemaker
3. Small ferrous objects in your pocket are
 - a. a danger only during a scan
 - b. at risk of becoming projectiles as you approach the magnet
 - c. shielded from the magnetic field
 - d. are not a problem because they are in your pocket
4. The characteristic banging noise during an MRI scan
 - a. is the result of rapidly expanding liquid helium
 - b. may distort time and space
 - c. results from the twisting force of the rapidly changing gradient fields
 - d. increases in frequency as patient weight increases
5. Rapidly changing magnetic fields during a scan
 - a. may induce electrical currents in coiled or crossed wires
 - b. increase the range of telemetry
 - c. routinely cause visual hallucinations
 - d. produce helium gas
6. What effects can the rapidly changing gradients have on patients during an EPI scan
 - a. diplopia

- b. magneto-hemodynamic effect
 - c. tissue heating
 - d. involuntary muscle contractions
7. The strength of the magnetic field
- a. is only important when the magnet is scanning
 - b. increases with little warning as you approach the magnet
 - c. repels most large metallic objects
 - d. is only important when dealing with nonferrous objects
8. Radio frequency waves in MRI
- a. are used in X-rays
 - b. maintain helium in a liquid state
 - c. are usually turned to a local station
 - d. are converted to heat in the participant's tissue
9. The term "quench" as used in an MRI setting describes
- a. the thirst a participant experiences from a contrast injection
 - b. a daily procedure used to tune the RF settings
 - c. a failure of the helium containment system
 - d. a procedure that happens at the end of the day
10. A participant lets you know they have been scanned many times so there is no reason to fill out the screening form.
- a. True
 - b. False
11. During an EPI sequence, what can you do to reduce the effects of peripheral nerve stimulation?
- a. Change the participant into scrubs
 - b. Using sandbags and/or immobilization pads
 - c. Have the participant remove their eye makeup
 - d. Have the participant uncross their extremities (arms & legs)
12. When would you need to push the quench button?
- a. There is a fire in the scanner
 - b. An OPP employee walked into the room with a tool belt and a hammer flew into the magnet and is stuck
 - c. A floor buffer was taken into the room and has pinned someone to the magnet
 - d. All of the above
13. Who needs to be screened before entering the scanner room?
- a. The participant
 - b. The researcher
 - c. The MRI technologist
 - d. All individuals must be screened prior to entering the scanner room

14. Which of the following could cause a participant to be burned?
- a. Tattoos
 - b. Skin touching the bore of the magnet
 - c. Conductive loop of wire on the body surface
 - d. All of the above
15. A bobby pin flies into the magnet. No one was injured, and the MRI technologist removed the bobby pin. You would
- a. Report this to the SLEIC Director and MRI Safety Officer
 - b. Since there were no injuries there is no need to report this
 - c. Assume the MRI technologist will report this to the MRI Safety Officer
16. Two OPP personnel have entered the control room with all of their tools. You would
- a. assume they must be safety trained if they are in the control room, so it must be fine
 - b. ask them if they are here to work on the magnet and let them in the scanner room
 - c. ask them to wait in the waiting area until you find a SLEIC staff member to handle the situation
 - d. The 3T door is closed so there is no danger
17. Which of the following objects could become projectiles in the scanner room?
- a. Hair pins
 - b. Scissors
 - c. Pens
 - d. Oxygen tanks
 - e. All of the above
18. If a participant has an object implanted that is deemed MR Safe at 1.5 T, but has not yet been tested in the 3T environment. You would
- a. Scan the participant since it is MR safe for a 1.5 T
 - b. Scan the participant but check in with them after each sequence to make sure they feel ok
 - c. Scan the participant only after verifying on www.mrisafety.com that the object is safe at 1.5T
 - d. Not scan the participant since the object has not been deemed safe at 3T