

SMRT

SOCIETY FOR MR
RADIOGRAPHERS & TECHNOLOGISTS
A Section of the ISMRM

A WORLD
OF KNOWLEDGE
FOR MAGNETIC RESONANCE
PROFESSIONALS

MRI Safety Week

Quiz Question 5

Wearable technology such as the device shown here are becoming more prevalent!

Question: If a patient presents wearing such a device which of the following options would you do to avoid a potential MR safety accident?

- a) Ensure the patient removes the device as it carries electric current and has potential to cause RF burns
- b) Ensure the patient removes the device as electronics within it may be altered by the static magnetic field
- c) Cover the device with a damp dressing before entering the MRI scanner room (Zone 4)
- d) Ensure the patient removes the device as it may contain ferromagnetic components that are risk for projectile accidents



The electric current from a flexible battery placed near the knuckle flows through the conductor and powers the LED just below the fingernail. All images courtesy of Someya Laboratory.

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Learning points:

- Wearable technology should be removed (where possible) prior to an MRI scan
- If the device is not removable, only proceed with the scan as per the manufacturer's MRI safety guidelines
- Electronic devices, such as the one pictured here, present a risk for burns caused by RF heating. The metallic components of any device may present a risk for projectile accidents & the normal operation of such devices may be affected by the static magnetic field
- Note: Any metal within the imaging area has the potential to cause artifacts that compromise the diagnostic value of the MRI scan
- **Correct Answer: a,b & d**

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Contributors: The SMRT Safety Committee (2018)

Disclaimer: This program was developed by the SMRT Safety Committee to provide education to promote safety in the MRI environment. The information presented does not replace any MRI guidelines or site specific policies & procedures.

MRI Safety Resource List

- **ISMRM & SMRT MR Safety Resources: www.ismrm.org/mr-safety-links**
- ACR White paper on MR Safety (2013)
- IEC MRI Safety Recommendations (2014)
- MHRA Safety Guidelines for MRI Equipment in Clinical Use (2015)
- EU Directives on MR safety (2013)
- RANZCR MRI Safety Guidelines
- www.fda.gov: Magnetic Resonance Imaging (MRI Safety)
- www.mrisafety.com