

Patient Safety in MRI

Getting Changed for Your Scan

SMRT

A WORLD
OF KNOWLEDGE
FOR MAGNETIC RESONANCE
PROFESSIONALS

I'm here for my scan. Why do I need to get changed?

The MRI machine has a large magnet inside, and any metallic items may interact with it and become a hazard¹. This includes loose metal items such as keys and other items often carried in pockets. Clothing with zips and studs or underwear with hooks can also heat up in the MRI scanner and cause burns to your skin.

But I don't have any zips or metal anywhere on my clothes...

There are also some types of clothing fabrics that have anti-microbial or antiperspirant properties to reduce body odour. These can be made from microfibres that can heat up, such as silver, resulting in burns to patients.

What kind of burns?

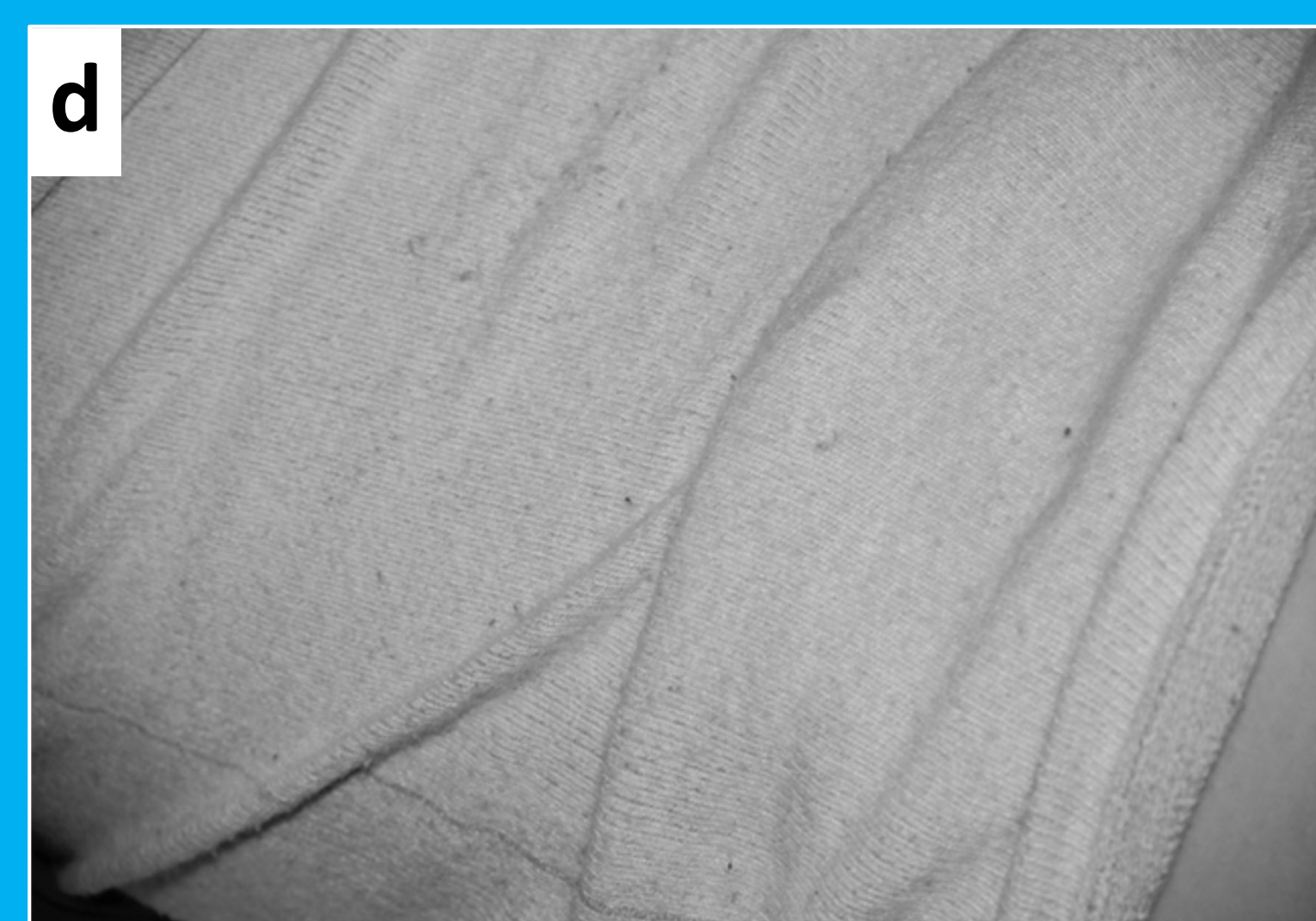
Several patients have had second-degree burns while wearing clothing containing these fibres. One patient even had third-degree burns to her forearm when the fabric of the blouse she was wearing caught fire².



(a) Second-degree burn on leg
(b) One week later³



(c) Second-degree burn on flank
(d) T-shirt containing silver microfibres⁴



(e) Second-degree burn on chest from brassiere⁵

I don't think my clothes are made out of those kinds of fibres...

Metallic microfibres are incorporated into fabrics in many new lines of clothing and athletic wear now being sold. This may not be mentioned on the labelling. Microfibres are not visible to the naked eye, so this clothing can look identical to clothing without these fibres.

But I really don't want to get changed...

Our facility is concerned about these risks and has implemented this policy to keep all our patients safe by asking them to change out of street clothes and into an MRI-safe gown.

So the policy is that I must wear a gown for my MRI scan?

Yes. We follow all procedures that minimise any risks, no matter how small, to our patients. Your safety while having your scan is very important to us. Thank you for your cooperation!

REFERENCES

1. Delfino et al. (2019). 'MRI-related FDA adverse event reports: A 10-yr review'. *Medical Physics*, 46, (12), 5562-5571.
2. MAUDE Adverse Event Report: https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfMAUDE/detail.cfm?mdrfoi__id=1962852&pc=LNH
3. Tokue et al.(2019). 'Unexpected magnetic resonance imaging burn injuries from jogging pants'. *Radiology Case Reports*, 14, 1348-1351.
4. Pietryga et al. (2013). 'Metallic Microfiber in Clothing Presents Unrecognised MRI Risk for Cutaneous Burn'. *American Journal of Neuroradiology*, 34, E47-E50.
5. van der Brink (2018). 'MRI Safety: Bio-effects and Hazards from Static Field, Gradient and RF Exposures'. ISMRM Annual Meeting, Paris 2018.

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