



Editorial

Ergonomics in Interventional Radiology: The Need of the Hour

Naveen Kalra¹ Sanjeeva P. Kalva²¹ Department of Radiodiagnosis, Postgraduate Institute of Medical Education and Research, Chandigarh, India² Division of Interventional Radiology, Department of Radiology, Massachusetts General Hospital, Boston, Massachusetts, United States

J Clin Interv Radiol ISVIR 2024;8:71.

Ergonomics, the science of designing a workplace that accommodates the worker's needs, is crucial in reducing the risk of musculoskeletal disorders, particularly in fields like interventional radiology (IR). Despite its importance, ergonomics has not been a primary focus in IR, leading to a significant number of work-related injuries. These injuries are not only detrimental to the health of the radiologists but also impact the efficiency and productivity of the medical services they provide. The limited awareness and scientific data on ergonomics in IR further exacerbate the issue.

The survey by Machan, highlighting that over 60% of interventional radiologists suffer from work-related pain, underscores the urgent need for ergonomic interventions.¹ The Society of Interventional Radiology's publication on occupational back and neck pain is a step forward, but more comprehensive measures are necessary.² Optimizing IR suites according to the specific modalities used for image guidance is essential. For instance, in ultrasound-guided procedures, maintaining neutral postures and avoiding forceful gripping of the transducer can mitigate the risk of back and wrist pain. Proper placement of monitors and indirect lighting can also help reduce visual fatigue. In procedures involving angiography or computed tomography guidance, the ergonomics of viewing monitors, table height, room flooring, and radiation protection devices become even more critical. Avoiding cervical spine extension and rotation, positioning ceiling-mounted monitors correctly (for example, in front of the viewer, but just below the eye level with a caudal viewing angle of 10–15 degrees), and ensuring the table height that allows for a neutral elbow position (for example, the table just 5 cm above the elbow height) are all vital considerations.³ Additionally, softer floor surfaces can provide comfort during longstanding procedures, and well-designed radiation protection aprons (for example, a lumbar support belt for one-piece apron or two-piece apron that distributes weight from shoulders to waist) can safeguard the health of the radiologist without compromising their ability to perform procedures effectively.

Magnetic resonance (MR)-guided interventions call for specific considerations, including noise-canceling two-way communication devices, MR imaging-compatible displays and procedure tables, in-room image acquisition feasibility, and compatible conduits for anesthesia equipment.

In the future, prioritizing ergonomics in IR should be a key focus for administrators when establishing IR suites in hospitals. Introducing hybrid interventional suites equipped with robotic facilities and fusion imaging enabled by artificial intelligence will be essential to enhance the ergonomics of IR procedures. Embracing a sitting posture, particularly during prolonged IR procedures conducted at the head end of patients, is recommended as it offers improved ergonomics. Trilaminar lead aprons are specifically designed to provide protection and support for practitioners performing procedures in a seated position, further enhancing comfort and safety during IR interventions.

In conclusion, there is a pressing need to enhance ergonomic practices in IR. This involves not only better planning and design of IR suites but also increased education and awareness among interventional radiologists. By addressing these ergonomic challenges, we can improve the well-being of interventional radiologists and the quality of care they provide to their patients. Implementing ergonomic solutions is not just about comfort, it is about fostering a sustainable and healthy work environment that can lead to better patient outcomes and a more efficient health care system.

References

- 1 Machan L. Risks of back injury. *J Vasc Interv Radiol* 2002;13:130–131
- 2 Dixon RG, Khiatani V, Statler JD, et al; Society of Interventional Radiology Safety and Health Committee. Society of Interventional Radiology: occupational back and neck pain and the interventional radiologist. *J Vasc Interv Radiol* 2017;28(02):195–199
- 3 Cornelis FH, Razakamanantsoa L, Ben Ammar M, et al. Ergonomics in interventional radiology: awareness is mandatory. *Medicina (Kaunas)* 2021;57(05):500

Address for correspondence
Naveen Kalra, MD, Department of Radiodiagnosis, Postgraduate Institute of Medical Education, and Research, Chandigarh 160012, India (e-mail: navkal2004@yahoo.com).

DOI <https://doi.org/10.1055/s-0044-1788047>.
ISSN 2457-0214.

© 2024. The Author(s).

This is an open access article published by Thieme under the terms of the Creative Commons Attribution License, permitting unrestricted use, distribution, and reproduction so long as the original work is properly cited. (<https://creativecommons.org/licenses/by/4.0/>)

Thieme Medical and Scientific Publishers Pvt. Ltd., A-12, 2nd Floor, Sector 2, Noida-201301 UP, India