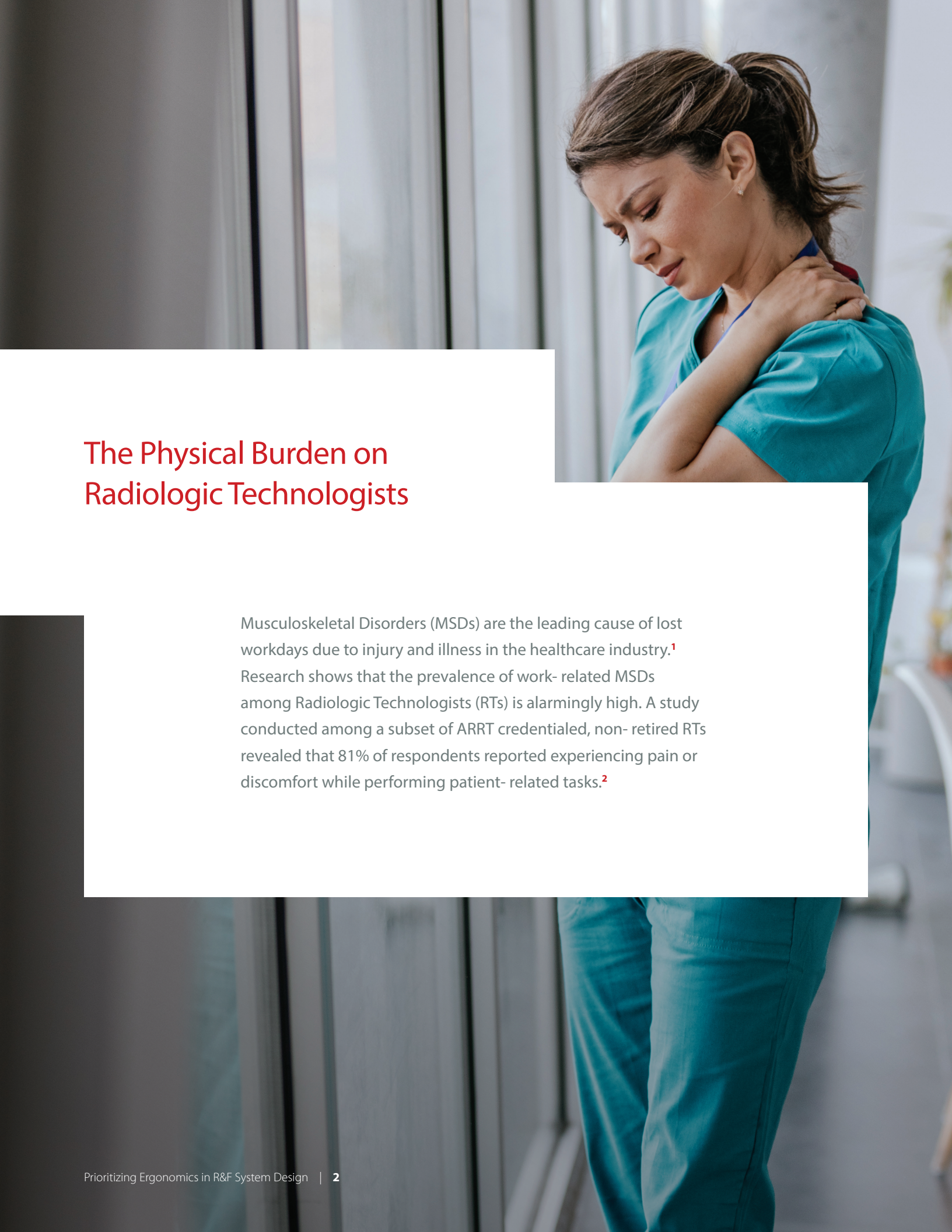
Prioritizing Ergonomics in R&F System Design





The Physical Burden on Radiologic Technologists

Musculoskeletal Disorders (MSDs) are the leading cause of lost workdays due to injury and illness in the healthcare industry.[1] Research shows that the prevalence of work- related MSDs among Radiologic Technologists (RTs) is alarmingly high. A study conducted among a subset of ARRT credentialed, non- retired RTs revealed that 81% of respondents reported experiencing pain or discomfort while performing patient- related tasks.[2]

The Hidden Strain of Patient Handling

RTs are among healthcare professionals with the highest prevalence of work- related MSD symptoms. These symptoms often result from overexertion during manual tasks such as lifting, moving and repositioning patients, tasks that RTs frequently perform with minimal or no assistance.[1,3]

A study conducted among a subset of ARRT credentialed, non- retired RTs revealed that 81% of respondents reported experiencing pain or discomfort while performing patient cases. This discomfort was most commonly reported in the lower back, neck and shoulder regions. The study also revealed that a notable portion of RTs regularly work while in pain. Among those who experience MSD symptoms, 50% reported that the pain interferes with their typical activities, and between 70% and 90% indicate that their work worsens their symptoms.[2]

RTs working in fluoroscopy are 2.2 times more likely to report pain

Compared to RTs who did not report working in fluoroscopy.[2]



Activities that aggravate MSDs[2]

Patient- handling activities are perceived to be the most aggravating for MSDs. 50% of RTs that experienced pain while performing patient cases reported that transferring, lifting or assisting patients aggravated their pain.

- **Lifting and assisting patients**
- **Patient transfer to table**
- **Patient positioning**
- **Sustained neck/ trunk twisting**
- **Manipulating imaging equipment**
- **Standing**

Factors that contribute to the physical workload of RTs[3]

- **Amount of assistance required by the patient**
- **Patient weight**

The Daily Challenge of Moab Regional's R&F Staff

Manual handling of elderly patients, especially those with limited mobility who are unable to assist, can significantly increase the risk of work-related MSDs. At Moab Regional Hospital, the majority of patients undergoing fluoroscopy-guided hip injections and barium swallows are 65 and older.

4 out of 5

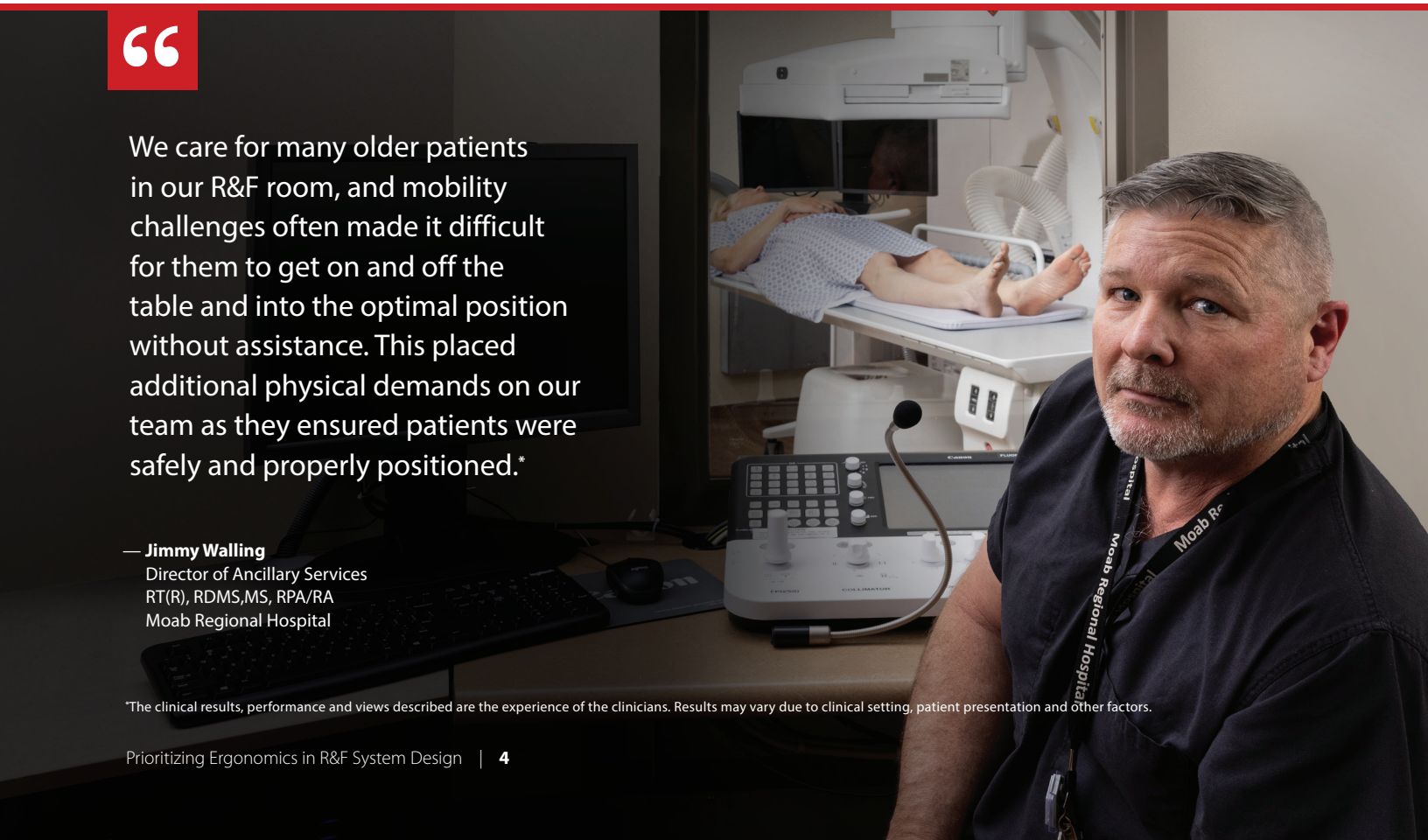
patients at Moab Regional who underwent a FG Hip injection in 2024 or 2025 were aged 65 or older

3 out of 5

patients at Moab Regional who underwent a Barium Swallow study in 2024 or 2025 were aged 65 or older

One of the main challenges the staff at Moab Regional Hospital faced with their older generation system was the physical strain involved in assisting patients on and off the table, and in repositioning them once on the table. This strain was largely due to the system's limited range of motion in both the table and imaging column.

The limited imaging column range allowed only a small, centered portion of the table to be used. Combined with the limited table movement, this made it difficult to properly position and iso-center patients. On multiple occasions, patients were placed too high or too low on the table, requiring staff to manually reposition them, sliding them up or down. In other cases, RTs had to push or pull patients laterally to iso-center body parts such as the hip.



> "We care for many older patients in our R&F room, and mobility challenges often made it difficult for them to get on and off the table and into the optimal position without assistance. This placed additional physical demands on our team as they ensured patients were safely and properly positioned.*

— **Jimmy Walling**
Director of Ancillary Services
RT(R), RDMS,MS, RPA/RA
Moab Regional Hospital

*The clinical results, performance and views described are the experience of the clinicians. Results may vary due to clinical setting, patient presentation and other factors.

Engineered to Prioritize Safety

Canon Medical's Ultimax-i multipurpose system expands the capabilities of the R&F room, enabling more complex procedures by integrating routine angiography capabilities within the same space. Its innovative multidirectional C-arm provides clinicians with the versatility to perform a wider range of procedures, helping to maximize the efficiency of your existing space.

Move the system, not the patient. The Ultimax-i's flexible design enables optimized patient and system positioning, streamlining workflow and helping reduce the risk of strain and injury to the operator.

Move the System, Not the Patient



A



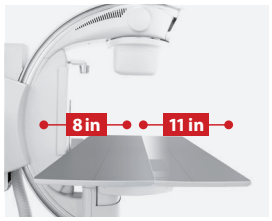
Facilitate easy and safe patient transfer, whether the patient is ambulatory, in a wheelchair, or on a gurney, thanks to an adjustable table height ranging from 20.5" to 51" from the ground.

B



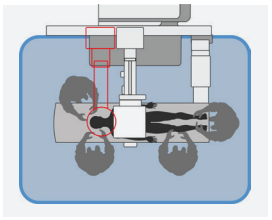
Enable easy and safe patient positioning and iso-centering with a C-arm that works around the patient's position and achieves angles only possible with a C-arm based system.

C



Support precise and strain-free patient positioning and iso-centering through the table's wide range of motion in the lateral and vertical directions.

D



Enhance patient access from all sides of the table, making it easier to assist with both patient transfer and positioning.

E Increased anatomical coverage with a large 17 in x 17 in flat panel detector.

F Control the system from multiple locations using identical controls in both the exam and control rooms.

G For added convenience, an optional table side control, mountable directly to the system table is also available.

From Strain to Comfort:
How Canon Helped Moab Regional Reduce Risk

At Moab Regional Hospital, patient and operator safety has always been a top priority. When asked about the Ultimax-i, the team consistently highlights how much easier and safer it is to assist patients on and off the table compared to their previous, older generation R&F system. They also note that achieving optimal patient positioning has become less physically straining.

The staff agrees that the risk of injury has significantly decreased thanks to the system's ergonomic design. They especially appreciate that once the patient is on the table, there's no need for manual repositioning, the table and C-arm do all the movement for them. Additionally, the system's open design, which allows staff to stand on all sides of the table, has also made it easier and less physically demanding to assist with patient transfers and positioning.

Moab's RTs frequently highlight the importance of the table's height adjustability. It can be lowered close to the ground to help reduce strain when assisting ambulatory or wheelchair patients and raised to the operator's ideal height for performing fluoroscopy- guided procedures.

Protect What Matters

System design that prioritizes operator and patient safety enables you to move the system, not the patient to support precise and strain-free positioning and iso-centering.

"The way you designed the system is awesome. Positioning patients has gotten way easier, we can move the system around them, which is extremely handy."*

— **Cole Phillips**
X-ray Tech
Moab Regional Hospital

Limited System Range Of Motion

Limitations in table and imaging column range require the operator to manually reposition the patient, increasing the risk of strain and injury.



Canon Medical Solutions

Canon's Ultimax-i minimizes strain and supports easy and safer patient positioning and iso-centering with a C-arm that works around the patient's position and a table with a wide range of motion.



*The clinical results, performance and views described are the experience of the clinicians. Results may vary due to clinical setting, patient presentation and other factors.

Elevating Safety and Ergonomics with Canon Medical's IR Solutions

Canon Medical's interventional radiology solutions are designed to address the ergonomic challenges faced by healthcare professionals while enabling superior patient care.

Each system is designed with the operator's need in mind, featuring:

- **Enhanced Patient Access:** Allowing for easy positioning and patient interaction
- **Intuitive Workflow Integration:** Streamlining procedures with accessible controls and monitors
- **Ergonomic Design:** Helping to minimize the need for awkward postures, which may help reduce the risk of MSD symptoms

Furthermore, Canon Medical's solutions prioritize efficiency and precision, helping improve safety and accuracy during procedures. They provide precise image guidance to support you at every step, helping to enhance your confidence and accuracy throughout each procedure.

By focusing on comfort, efficiency, and precision, Canon Medical ensures that healthcare providers can deliver exceptional care while safeguarding their long-term well-being.

Redefining Safety - Imaging Systems Designed to Prioritize Operator and Patient Safety



X-Ray
Ergonomic design that prioritizes operator and patient safety



Angiography
Ergonomic design with enhanced flexibility in monitor and control placement



Computed Tomography
Ergonomic design with easy patient access



Ultrasound
Ergonomic design to help optimize system setup to virtually any scanning position

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2. Kevin D. Evans, Carolyn M. Sommerich, A Nicole Stigall-Weikle, Allison D. Stokes, and Maryanna D. Klatt. "Work-related Musculoskeletal Disorders Among Radiographers: An Exploration of Self- reported Symptoms". Radiol Technol. 93, no. 2 (2021): 161-176.
3. Carolyn M. Sommerich, Steven A. Lavender, Kevin D. Evans, Elizabeth B.-N. Sanders, Sharon Joines, Sabrina Lamar, Radin Zaid Radin Umar, Wei-Ting Yen, and SangHyun Park. "Collaborating with radiographers to address their work-related musculoskeletal discomfort". Appl Ergon. 85 (2020): 103069 https://doi.org/10.1016/j.apergo.2020.103069

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