2026 SDMS Annual Conference



1

SPEAKER PRESENTATION DISCLAIMER

The content and views presented are made available for educational purposes only. The information presented are the opinions of the presenter and do not necessarily represent the views of the Society of Diagnostic Medical Sonography (SDMS) or its affiliated organizations, officers, Boards of Directors, or staff members.

The presenter is responsible for ensuring balance, independence, objectivity, scientific rigor, and avoiding commercial bias in their presentation. Before making the presentation, the presenter is required to disclose to the audience any relevant financial interests or relationships with manufacturers or providers of medical products, services, technologies, and programs.

The SDMS and its affiliated organizations, officers, Board of Directors, and staff members disclaim any and all liability for all claims that may arise out of the use of this educational activity.

2

© Copyright. Society of Diagnostic Medical Sonography. All Rights Reserved.

RESEARCH DISCLAIMER

The information presented in this presentation is based on research conducted to the best of the presenters' abilities and knowledge. Research involves uncertainty and is subject to limitations. The findings and conclusions presented herein may be influenced by various factors including but not limited to data quality, methodology, assumptions, and interpretation.

Research outcomes may not always accurately predict real-world scenarios or future events. While the presenter may make efforts to ensure the accuracy and reliability of the information presented, completeness or absolute correctness is not guaranteed. This presentation is intended for informational purposes only and should not be construed as professional advice. Participants are encouraged to independently verify any information provided and consult relevant experts or professionals where appropriate.

The SDMS and its affiliated organizations, officers, Board of Directors, and staff members disclaim any and all liability for all claims that may arise out of the use of this educational activity.

3

GENERATIVE AI DISCLAIMER

The presenter utilized the use of large language models (LLMs) and generative artificial intelligence (AI) as a productivity tool to assist in drafting and refining content in this presentation.

While these tools can aid in structuring ideas, summarizing, paraphrasing, and language polishing, they have inherent limitations and cannot replace human creativity, critical thinking, or expert judgment. AI-generated content may contain errors, biases, or gaps in knowledge.

This presentation is intended for informational purposes only and should not be construed as definitive or authoritative guidance. Participants are encouraged to critically evaluate the information presented and consult relevant experts as needed. The SDMS and its affiliated organizations, officers, Board of Directors, and staff members disclaim any and all liability for claims that may arise from the use or interpretation of this educational material.

4

© Copyright. Society of Diagnostic Medical Sonography. All Rights Reserved.

ABOUT THE PRESENTER

Colin Rigney, PT, DPT, RMSK

- Co-Founder, Advanced MSK Ultrasound Center
- Professor of Radiology and Imaging A.T. Still University (Mesa, AZ)
- Registered in Musculoskeletal Sonography (RMSK)
- Clinician and educator in point-of-care musculoskeletal ultrasound
- Committed to protecting the people behind the probe

ADVANCED MSK ULTRASOUND CENTER



5

5

ROADMAP

What We'll Cover

1. **The silent strain**
   The scope of the problem
2. **Self-awareness**
   Catching strain early
3. **Gentle stretching**
   Neck & upper trapezius
4. **Postural & ergonomic readiness**
   Building your room and body
5. **Strength**
   Conditioning for the job
6. **The mind-body connection**
   Stress, burnout, recovery

6

6

© Copyright. Society of Diagnostic Medical Sonography. All Rights Reserved.

SECTION 01

The Silent Strain

The scope of a career-long occupational risk

7

7

THE SCALE OF IT

Most Sonographers Are Scanning in Pain

90%

report work-related pain
or discomfort while scanning.

Evans, Roll & Baker. J Diagn Med Sonogr. 2009;25(6):287-299.

It is codified as a professional crisis

The SDMS Industry Standards describe WRMSDs affecting up to 90% of sonographers and users.

Formalized through a 2016 multi-organization Consensus Conference.

It develops silently

Injuries accrue gradually from repeated exposure, then hide behind presenteeism, working through pain.

That is why this talk names the problem out loud.

8

8

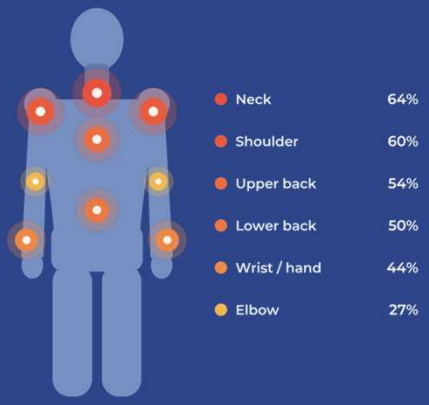
© Copyright. Society of Diagnostic Medical Sonography. All Rights Reserved.

THE BODY MAP OF THE JOB

Where It Hurts Most

~76%

Overall Work-Related MSK Disorders (WRMSD) prevalence reported across sonographers.



Pooled prevalence from a systematic review and meta-analysis. Zangiabadi et al. BMC Health Serv Res. 2024;24:1233.

9

9

WHY IT STAYS SILENT

A Career-Ending Injury, Rarely Reported

1 in 5

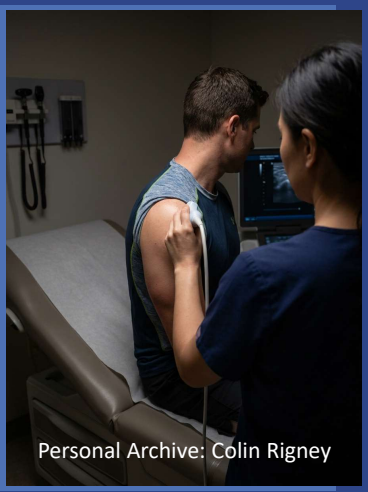
injured sonographers change careers or retire early.

Pike et al. J Diagn Med Sonogr. 1997;13(5):219-227.

57%

of injured sonographers never report the injury.

Hogan. J Diagn Med Sonogr. 2022;38(1):53-58.



10

10

© Copyright. Society of Diagnostic Medical Sonography. All Rights Reserved.

SECTION 02

Self-Awareness

Your Body Is Not A Rental Car

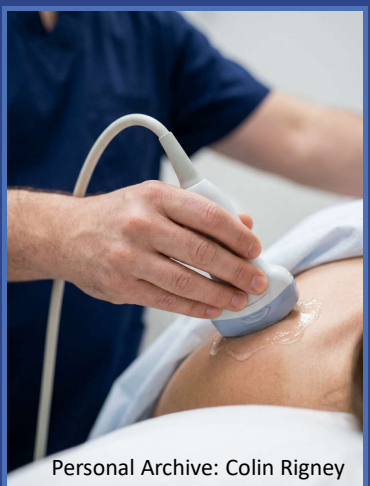
11

11

LISTEN TO THE EARLY SIGNALS

Know Your Warning Signs

- Aching or fatigue in the neck, shoulder, or upper traps?
- Headaches in base of the skull?
- Stiffness that greets you in the morning after a heavy scanning day?
- Grip fatigue, or the transducer hand tiring earlier than it used to?
- Tingling, numbness, or pins-and-needles into the hand or fingers?
- Pain that eases with rest but returns the moment you scan again?



Personal Archive: Colin Rigney

12

12

© Copyright. Society of Diagnostic Medical Sonography. All Rights Reserved.

A 30-SECOND HABIT

The Neutral-Posture Self-Check

1. Lower the table or raise the chair until the scanning arm sits below 30 degrees of abduction.
2. Bring the patient to your side of the bed; keep reach under ~30 cm.
3. Elbow near 90 degrees, forearm horizontal and supported; feet flat.
4. Monitor top at eye level, directly ahead, 20-40 inches away.

THE RULE OF 30!



Scanning-arm abduction is the single biggest posture red flag. Keep it under 30 degrees.

Personal Archive: Colin Rigney

13

13

WEAVE RECOVERY INTO THE EXAM

Mindfulness: Microbreaks & the Body-Scan Habit

In-exam microbreaks

Body-scan check-in

14

14

© Copyright. Society of Diagnostic Medical Sonography. All Rights Reserved.

SECTION 03

Gentle Stretching

Neck and upper trapezius, at the workstation

15

15

MAKE IT STICK

How Often, How Long

20-30

minutes: the interval between brief stretch breaks.

10-30s

hold per stretch, 2-4 times each side.

Stretching is one layer of the SDMS hierarchy of controls, not a substitute for ergonomic and administrative fixes. It works best paired with strengthening and regular microbreaks.

16

16

© Copyright. Society of Diagnostic Medical Sonography. All Rights Reserved.

YOUR STRETCH MENU

Mobility For Neck & Shoulders

1



Upper Trapezius

Tilt one ear toward that shoulder.
20-30s, 2-4x each side.

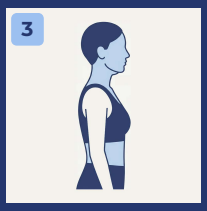
2



Levator Scapulae

Rotate the head 45° (nose to armpit), drop the chin.
20-30s, 2-4x each side.

3



Chin Tucks

Glide the chin straight back (double chin).
5-10s hold, 10 reps.

4



Scapular Squeeze

Draw the shoulder blades down and together.
5s hold, 10 reps.

17

17

YOUR STRETCH MENU

1



Upper Trapezius

Tilt one ear toward that shoulder.
20-30s, 2-4x each side.



Personal Archive: Colin Rigney



Personal Archive: Colin Rigney

18

© Copyright. Society of Diagnostic Medical Sonography. All Rights Reserved.

YOUR STRETCH MENU



Levator Scapulae

Rotate the head 45° (nose to armpit), drop the chin.
20-30s, 2-4x each side.



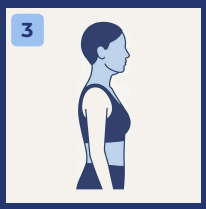
Personal Archive: Colin Rigney



Personal Archive: Colin Rigney

19

YOUR STRETCH MENU



Chin Tucks

Glide the chin straight back (double chin).
5-10s hold, 10 reps.



Personal Archive: Colin Rigney



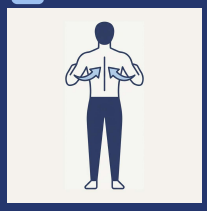
Personal Archive: Colin Rigney

20

© Copyright. Society of Diagnostic Medical Sonography. All Rights Reserved.

YOUR STRETCH MENU

4



Scapular Squeeze



Personal Archive: Colin Rigney



Personal Archive: Colin Rigney

21

DO NO HARM

Stretch Safely

- Move to gentle tension, never pain. The stretch should pull, not hurt.
- No bouncing or ballistic pulling; never yank on your head.
- Keep breathing normally; do not hold your breath.
- Stop and see a physical therapist or physician for sharp pain, dizziness, or numbness/tingling down the arm, which may signal nerve involvement.

18

22

© Copyright. Society of Diagnostic Medical Sonography. All Rights Reserved.

SECTION 04

Postural Awareness & Ergonomic Readiness

Bring the work to you

19

23

THE FOUNDATION

The Rule of 30, and Support the Arm

Keep the arm below 30 degrees

Shoulder abduction above 30 degrees is the single biggest posture red flag, yet sonographers spend most scanning time above it.

Reach is the twin problem: past ~30 cm the shoulder fatigues, but far-side scanning can force ~63 cm.

Support the scanning arm

Tuck a rolled towel, wedge, or arm cushion under the abducted upper arm.

Shear-wave elastography shows arm support cuts supraspinatus stiffness by ~42-58%, making a 60° load feel like 30°.

Wong et al. J Occup Health. 2021;63(1):e12306.

20

24

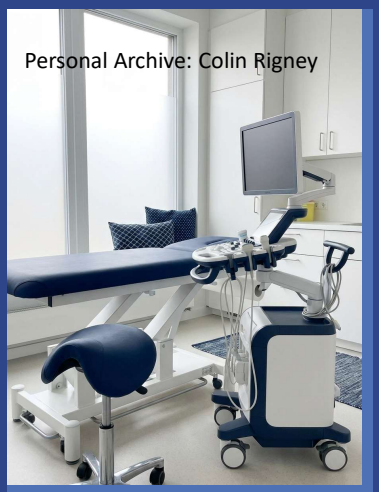
© Copyright. Society of Diagnostic Medical Sonography. All Rights Reserved.

SET THE STAGE

Personal Archive: Colin Rigney

- ✓ Table / chair: adjust until the scanning arm is below 30 degrees of abduction; feet flat, low back supported.
- ✓ Bring the patient to you: slide and, when safe, roll them toward your side to shorten the reach.
- ✓ Monitor: top at eye level, squarely ahead, 20-40 inches away; no neck twist.
- ✓ Console close: keep the non-scanning arm from reaching or resting past ~30 cm.
- ✓ Transducer: relaxed palmar grip, neutral wrist, lightest pressure that yields the image.

SDMS Industry Standards (2017); AIUM Practice Principles (2023).



21

25

SECTION 05

Strength & Conditioning

Build the capacity to tolerate the load

22

26

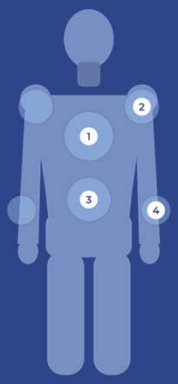
© Copyright. Society of Diagnostic Medical Sonography. All Rights Reserved.

WHY IT MATTERS

Strength Is a Shock Absorber

- Ergonomics reduces the load; strength builds the capacity to tolerate what remains.
- Train the muscles you injure most: scapular stabilizers, rotator cuff, postural back, grip and forearm.
- Personal conditioning is named in the SDMS Standards as a sonographer responsibility, yet only ~29% currently strength-train.

General conditioning, not treatment. Anyone currently scanning in pain should be evaluated by a clinician first.



1. **Scapular stabilizers** — lower / mid trap, serratus
2. **Rotator cuff** — shoulder centering
3. **Postural back** — erectors, endurance
4. **Grip & forearm** — counter the static grip

23

27

THE READINESS ROUTINE

Four Targets, 2-3x per Week

Scapular Stabilizers

Prone Y-T-W, band rows, serratus wall slides.
Trains lower/mid trap, spares upper trap.

Rotator Cuff

Standing or Side-lying external rotation, band ER/IR.
Centers the humeral head, resists impingement.

Postural Back

Prone cobra, band pull-aparts
Endurance for the long seated case.

Hands

Finger/hand expansions
Counters the static transducer grip.

Dosing: 2-3 sessions/week, ~2-3 sets of 10-15 reps; start light, progress every 2-3 weeks. Consistency over 4-16 weeks shifts capacity.

24

28

© Copyright. Society of Diagnostic Medical Sonography. All Rights Reserved.

THE READINESS ROUTINE

Four Targets, 2-3x per Week

Scapular Stabilizers



Rotator Cuff





Postural Back



Grip & Forearm



Dosing: 2-3 sessions/week, ~2-3 sets of 10-15 reps; start light, progress every 2-3 weeks. Consistency over 4-16 weeks shifts capacity.

24

29

SECTION 06

The Mind-Body Connection

Wellness is more than posture and probes

25

30

© Copyright. Society of Diagnostic Medical Sonography. All Rights Reserved.

THE MIND IS PART OF THE SYSTEM

Practice Consciousness

"Until you make the unconscious conscious, it will direct your life and you will call it fate."
– Carl Jung



26

31

EVIDENCE-BASED Daily Integration

Your Wellness Toolkit

Cyclic Sighing (5 min)

Double inhale through the nose, long exhale through the mouth.

Outperforms other breathwork for mood (Balban 2023).

Box Diaphragm Breathing

Inhale 4, hold 4, exhale 4, hold 4, between patients.

Downshifts the stress response in ~90 seconds.

Exercise: Move to Recover!

150 min/week activity + 2 resistance sessions.

Regular activity is linked to lower burnout risk.-walking binaural beats

Mindfulness

8-week MBSR or 10 min/day of breath-focus.

Associated with reduced burnout in clinical staff.

Peer Debrief

A brief same-day check-in after heavy scans.

Peer support helps process difficult cases.

Protect Sleep

Fixed sleep/wake, wind-down, 7-9 hours guarded.

Burnout travels with insomnia and anxiety.

27

32

© Copyright. Society of Diagnostic Medical Sonography. All Rights Reserved.

EVIDENCE-BASED Daily Integration

Discipline is a Strong Predictor of Longevity

-The Vitality Podcast with Dr Alan Mishra (Stanford University)

27

33

EVIDENCE-BASED Daily Integration

Transform Stress From Being a Threat to Becoming a Challenge

34

© Copyright. Society of Diagnostic Medical Sonography. All Rights Reserved.

EVIDENCE-BASED Daily Integration

Diet

Minimize bread, added sugar, and pasta intake

Coffee in moderate doses = powerful antioxidant via polyphenol intake

35

EVIDENCE-BASED Daily Integration

Strengthen Meaningful Social Connections

Oxytocin stimulus

36

© Copyright. Society of Diagnostic Medical Sonography. All Rights Reserved.

EVIDENCE-BASED Daily Integration

Peer Debrief

A brief same-day check-in after heavy scans.

Peer support helps process difficult cases.

37

EVIDENCE-BASED Daily Integration

Heat/Cold Stress

Sauna (heat shock proteins)

Cold Plunge (endorphins and healthy dopamine)

38

© Copyright. Society of Diagnostic Medical Sonography. All Rights Reserved.

SHARED RESPONSIBILITY

It's Not All on You

What you own

Neutral posture and the Rule of 30.
Microbreaks and stretch habits.
Off-shift conditioning and recovery.
Reporting symptoms early.

What your department owes

Height-adjustable tables, chairs, and monitors.
Scanning-hour limits and task rotation.
A safety culture that expects reporting.
Support for difficult-news training and debriefs.

Organizational fixes reduce burnout at least as well as individual coping (West et al. Lancet 2016).

28

39

REWRITING THE STORY

Takeaways

1. The strain is predictable, and largely preventable. Naming it is the first step.
2. Small habits compound: the Rule of 30, microbreaks, a five-move stretch menu, and 2-3 strength sessions a week.
3. The mind is part of the musculoskeletal system. Breath, movement, and peer support protect the body too.
4. Wellness is shared: you own your posture and habits; the department owes you the equipment and the culture.

29

40

© Copyright. Society of Diagnostic Medical Sonography. All Rights Reserved.

SOURCES

Selected References

Evans KD, Roll SC, Baker J. WRMSD Among Registered Diagnostic Medical Sonographers and Vascular Technologists. J Diagn Med Sonogr. 2009;25(6):287-299.

Pike I, Russo A, Berkowitz J, et al. The Prevalence of Musculoskeletal Disorders Among Diagnostic Medical Sonographers. J Diagn Med Sonogr. 1997;13(5):219-227.

SDMS. Industry Standards for the Prevention of Work Related Musculoskeletal Disorders in Sonography. J Diagn Med Sonogr. 2017;33(5):370-391.

Zangiabadi Z, et al. Musculoskeletal disorders among sonographers: a systematic review and meta-analysis. BMC Health Serv Res. 2024;24:1233.

Hogan A. Pain Levels and Injuries by Sonographic Specialty. J Diagn Med Sonogr. 2022;38(1):53-58.

AIUM Practice Principles for Work-Related Musculoskeletal Disorder. J Ultrasound Med. 2023;42(5):1139-1157.

Village J, Trask C. Ergonomic analysis of postural and muscular loads to diagnostic sonographers. Int J Ind Ergon. 2007;37(9-10):781-789.

Wong KY, et al. Effects of arm abduction angle and cushion support on supraspinatus stiffness. J Occup Health. 2021;63(1):e12306.

McDonald M, Salisbury H. Physical Activity, Exercise, and Musculoskeletal Disorders in Sonographers. J Diagn Med Sonogr. 2019;35(4):305-315.

Coffin CT. Work-related musculoskeletal disorders in sonographers. Reports in Medical Imaging. 2014;7:15-26.

Schory A, et al. Exercises that produce optimal muscle ratios of the scapular stabilizers. Int J Sports Phys Ther. 2016;11(3):321-336.

Garber CE, et al. ACSM position stand: Quantity and quality of exercise. Med Sci Sports Exerc. 2011;43(7):1334-1359.

McLean L, et al. Computer terminal work and the benefit of microbreaks. Appl Ergon. 2001;32(3):225-237.

Tran M. Incidence and Cause of Occupational Burnout Syndrome Among Sonographers. J Diagn Med Sonogr. 2024;40(3):233-239.

Balban MY, et al. Brief structured respiration practices enhance mood and reduce physiological arousal. Cell Rep Med. 2023;4(1):100895.

West CP, et al. Interventions to prevent and reduce physician burnout. Lancet. 2016;388(10057):2272-2281.

Thank You

Protecting the people behind the probe.

Colin Rigney, PT, DPT, RMSK · Advanced MSK Ultrasound Center

ADVANCED MSK ULTRASOUND CENTER

© Copyright. Society of Diagnostic Medical Sonography. All Rights Reserved.