Sonographers on Standby

Red tape delays a final course of action on ergonomic reform

October was supposed to be a month of reprieve for the nearly 81% of sonographers scanning in pain. Instead, they continue to wait for federal intervention to alleviate a problem that has been ending one of every five careers in ultrasound.

MSD AND ERGONOMICS

Studies have shown improper work conditions contribute to musculoskeletal disorders (MSD), which can disable workers or end careers. According to the National Academy of Science, medical problems associated with repetitive stress afflict about 1 million workers and cost employers from 45 to 54 billion dollars annually in compensation, reduced production, and lost wages. A 1997 study conducted by the Employee Health and Safety Services at Healthcare Benefit Trust (HBT), Vancouver, BC, found work-related MSD particularly prevalent among ultrasound professionals.
FEDERAL ACTION

The problem of ergonomic injury in the workplace came to a head at the Occupational Safety and Health Administration (OSHA) hearings in April 2000. By January 2001, OSHA had released a final ruling on ergonomic programs for all occupations.

The OSHA ruling required U.S. businesses to design and implement an ergonomics program for workers, analyze problem jobs for ergonomic risk factors, conduct extensive training, and compensate workers forced to take time off or receive light duty due to repetitive stress injuries.

OSHA's ruling would have taken effect in October — Ultrasound Awareness Month — but was cancelled by a Joint Resolution of Disapproval in March. The resolution marked the first successful use of the Congressional Review Act of 1966, which grants Congress the power to repeal major rules issued by executive branch agencies, such as OSHA, with the approval of the president.

Opponents of the ergonomic standards believe the rules would be too complex and expensive to implement. Cost estimates for implementing the program in U.S. businesses varied from OSHA's $4.8 billion to the Employment Policy Foundation's $126.6 billion. Backers of the standards believe that money saved from preventing injuries each year would more than compensate for the cost of the programs.

PERSONAL STRUGGLES

The controversy surrounding the federal government's decision to overturn OSHA's standards has left many MSD sufferers feeling abandoned and hopeless. Many victims have to fight to receive worker's compensation because ergonomic injury still lacks recognition as a legitimate disability, despite the obvious physical and emotional damage it wreaks.

Sonographers like Susan Murphey, RDMS, RDCS, are particularly at risk. Ten years performing ultrasound scans left Murphey's shoulder joint permanently scarred. For a year, she was unable to extend her hand from her side because of the pain, and two years of rehabilitation therapy didn't restore her shoulder's full range of motion. She was forced to

limit her physical activities, to the point of having her young children ask permission before holding her hand. And she can never perform an ultrasound scan again.

LOADS AND SHORTAGES

Musculoskeletal disorders such as the ones Murphey sustained are the result of wear on connective tissue and joints caused by long-term repetitive, unnatural, or strained motion. Related to MSD is repetitive strain injury (RSI), which can affect:

- nerves, resulting in carpal tunnel syndrome;
- tendons, resulting in tenosynovitis, peritiendinitis, or epicondylitis; and
- muscles, resulting in tension neck syndrome.

These disorders are common to jobs that require a substantial amount of repetitive, physically demanding work. Incidents of MSD among sonographers have risen, despite their greater awareness of the occupational risks.

Joan Baker, MSR, RDMS, RDCS, former president of the Society for Diagnostic Medical Sonography (SDMS), attributes this rise to heavier patient loads and staffing shortages. "The number of procedures that sonographers perform per year has increased by 55.5% since 1992," she says. "That is a tremendous volume increase in the same eight-hour day, and
that increased volume is being shared among fewer people.”

**RISK FACTORS**

Other ergonomic risk factors include improper postural alignment, body mechanics, and equipment design. Research conducted in the same period as the HBT study found a positive relationship between musculoskeletal pain and the following factors:

- Sonographer height (less than 63 inches);
- Frequency of scans (100 or more scans per month);
- Duration of scans (average scan time of 25 minutes or more per patient); and
- Use of manually propelled machines.

Some technologists experience task-specific symptoms. For example, cardiac sonographers, who must scan with the left hand, experience more problems in the forearm or elbow, says Baker.

**WARNING SIGNS**

Technologists may experience indicators of MSD — soreness, burning, pain, numbness, stiffness, weakness, or loss of coordination — but often work through them.

“Sonographers tend to be dedicated to the profession almost to a detriment,” says Murphey, who acknowledged her disorder only when the pain persisted after a weeklong vacation. “You always tell yourself you have to keep going, to take care of the next patient.”

Fortunately, prevention is possible. Equipment manufacturers, sonographers, and administrators can all take steps to reduce the risk of ergonomic injury in the workplace.

**ENGINEERING SOLUTIONS**

Worldwide studies have found similar cases of MSD among sonographers, despite varying lifestyles and activities. “The common denominators are the equipment and the fact that they all do ultrasound,” says Baker. "These are some pretty good indications that we need equipment design changes if we're going to address this problem.”

Manufacturers are listening. Siemens Ultrasound recently released the SONOLINE® Antares, the first machine specifically designed to address ergonomic problems.

“One of the biggest contributors to workplace injury for sonographers is the fact that they have to reach between the patient, who they interact with all day, and the control panel of the system, which they have to have a hand on,” says Doug Whisler, director for emerging markets at Siemens Ultrasound. To alleviate this problem, the Antares was designed with architecture that allows easy access to the patient from all sides, Whisler says.

The Antares also features a height-adjustable monitor and keyboard for performing scans seated or standing, tilt-and-swivel monitor positioning to reduce neck strain, and an adjustable wrist support. A modified transducer alleviates what Baker calls “pinch-grip” syndrome — hand and wrist pain caused by gripping a transducer tightly for hours at a time. The lighter-weight transducer uses special, more flexible cables to reduce grip tension.

“[Ultrasound] scanning is a very hands-on occupation, much more interactive than other modalities,” Whisler says. “It was time that manufacturers, from the equipment standpoint, tried to address some ergonomic issues.”

**INDIVIDUAL SOLUTIONS**

“Even if they can’t change the equipment they have to work with, sonographers can help themselves by learning proper positioning,” says Baker. Most technologists are not taught how to avoid repetitive-motion injury to themselves when they learn to perform a procedure, but programs for ergonomics training and education are gaining popularity.

Sound Ergonomics LLC, an ultrasound consulting and education company, offers a variety of products and services to reduce MSD. Sonographers can buy products to use with existing equipment that may not be ergonomically sound, or purchase specialized stretching equipment to improve flexibility. Instructional posters and videotapes demonstrating

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**Use the following musculoskeletal checklist to assess work posture practices**

- Is the patient close enough to me? Are my arm and elbow tucked in closely to my body in a comfortable position?
- Did I adjust my chair or examination bed according to the body habitus of my patient in relationship to my height?
- Is my posture a comfortable and correct one so as not to cause undue stress on my body?
- Am I working with my wrist and neck in a straight and supported position?
- Are the monitor and keyboard positioned so that I can easily see and reach them?
- Am I supporting my limbs properly throughout the entire examination?
- When I stand, am I carrying my body weight equally on both feet?
- Did I take a micro-break, consciously releasing tension on the scanning hand for a few seconds?
- Did I take a mini-break, removing the probe from the scanning hand, stretching the hand, arm and shoulders, and glancing periodically away from the monitor to release eye tension?
- Am I aware of any unusual symptoms, such as numbness, swelling, or pain?

proper body positioning during scans are also available.

According to Baker, simple techniques for holding a transducer, adopting proper postural alignment, and regular stretching can reduce musculoskeletal strain.

**ADMINISTRATIVE SOLUTIONS**

Solutions are available for administrators, as well. According to Sound Ergonomics, workstation layout, equipment design, and employee scheduling all play a role in reducing MSD. For a fee, Sound Ergonomics experts will visit a facility to evaluate these areas and offer suggestions for improving the work environment. Administrators can visit the company’s Web site for a free list of equipment specifications and recommendations that optimize ergonomic needs. Sound Ergonomics also hosts seminars on body-positioning and ways to reduce MSD.

Even without outside consultation, administrators can make a difference in reducing MSD through simple work organization. The HBT study’s findings suggest that task rotation within a department will reduce the amount of repetitive work individual sonographers perform and lower the overall risk of injury.

**SLOW PROGRESS**

Despite the many solutions available to prevent MSD among sonographers, progress is slow. Facilities are reluctant to remodel their scanning rooms or do not have the funds to purchase new equipment. Reimbursement payments for injuries are low. Murphy can relate stories of sonographers who sustained career-ending musculoskeletal injuries, only to have their insurance claims rejected.

“It’s becoming a very serious and critical condition,” says Baker. Now federal intervention, too, has become part of the problem. Although Congressional action slowed its campaign to provide ergonomic reform, OSHA expects to issue a list of guidelines on ergonomic safety to replace the overturned bill.

Baker believes that while the guidelines are a step in the right direction, sonographers do not have to wait for a federal ruling to change their work habits. “The risk of MSD shouldn’t scare technologists away from the field,” she says. “A lot of these issues can be addressed with education and training.”

**RESOURCES AND SUPPLEMENTAL READING**

3. www.soundergonomics.com

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**Ergonomic Scanning Tips:**

Consider using support cushions for your scanning arm. “Suspending” puts added stress on arm and shoulder muscles and can quickly cause fatigue.

Take a little extra time to position the patient before you begin the exam. You should have the patient move as close to you as possible.

The position of both your hands during an exam should be considered. Rest your non-scanning hand in your lap whenever you are not using the keyboard of the equipment.

Gripping the ultrasound transducer can contribute to new or recurrent injury. You should have a relaxed grip, which can be difficult when there is gel on the transducer. Wear gloves with textured fingers, which will help you grip the transducer using less pressure.

Support your upper body and trunk from your abdominal muscles.

If you are suffering from pain as a result of an occupational injury you MUST file an incident report at the time of the onset of pain and visit your employee health office. Do this prior to seeking other medical advice for your injury so that the place where you were injured is documented. You must be very specific as to how you became injured on the job, and to what you attribute this injury.

Once you have filed an incident report, seek appropriate medical attention.

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