How to Identify and Assess Ergonomic Hazards

Unearth the hidden MSI risks that may be lurking in your workplace.

While rarely fatal, repetitive strain injuries, repetitive motion injuries, cumulative trauma disorders and other musculoskeletal injuries (MSIs) are life-disrupting, painful and expensive. They're also increasingly common and now represent the fastest growing source of workers comp time loss injuries. That's why all jurisdictions require employers to implement ergonomic measures to head off the risk of MSIs in their own workplaces. As with other hazards, the starting point for MSI risk control is identifying and assessing workplace hazards. Here's how.

Identifying MSI Hazards

First, employers should evaluate the workplace for factors that could expose workers to ergonomics'related hazards.

Who'

As OHS coordinator, you should oversee the process and designate a competent person who's knowledgeable of work procedures and the associated MSI risk factors to carry it out. In addition, some jurisdictions specifically require that the assessment be carried out in consultation with other parties, including:

- The workplace JHSC or health and safety representative (FED, BC, NL, NT, NU, SK);
- Any workers who've shown signs or symptoms of MSIs (BC, NL); and/or
- A sampling of workers who do the work or use the equipment assessed (BC, NL).

When'

If you've never evaluated your workplace for ergonomics-related hazards, do the whole workplace now. If you've done an evaluation before, a new evaluation should be done at least once a year, and when:

- A worker gets injured or reports MSI symptoms;
- A new piece of equipment, procedure or work station is added to the workplace;
- An existing piece of equipment, procedure or work station is modified; and
- In response to other changes or developments suggesting that your last hazard assessment may no longer be accurate and needs updating.

In addition, you should regularly re-evaluate the workplace for ergonomics-related hazards to ensure that your ergonomics program is effective.

How'

To identify potential MSI hazards, you should:

- Review injury records, including first aid reports, workers comp claims, incident reports, workers' complaints and JHSC meeting minutes, to identify patterns of injuries (or potential injuries), which will help you spot the jobs and workstations that may expose workers to MSIs;
- Observe workers performing their duties to determine if

there are any risk factors present; and
- Prioritize the jobs and equipment for assessment by ranking them from lowest to highest level of risk so you can focus your assessment efforts on the most hazardous jobs and equipment.

Another way to get information on potential ergonomics hazards is by using a symptoms survey of workers to measure the extent of symptoms of MSIs in each area of the workplace and determine which jobs are leading to worker pain and/or discomfort. The survey also measures worker awareness of ergonomics-related disorders and gives workers a way to report the location, frequency and duration of discomfort.

What'

When reviewing the injury records and survey results, look for MSIs that could be caused by ergonomics-related hazards, such as bursitis, lower back pain or tendonitis. When observing workers at work, look for risk factors such as:

- Physical demands of work activities, including:
    - Force required;
    - Repetition;
    - Duration;
    - Vibration;
    - Work postures; and
    - Local contact stresses;
- Aspects of the layout and condition of the workplace or workstation, including:
    - Working reaches and heights;
    - Seating; and
    - Floor surfaces;
- Characteristics of objects and materials handled, including:
    - Size and shape;
    - Load condition and weight distribution; and
    - Container, tool and equipment handles;

- Environmental conditions, including temperature; and
- Characteristics of the organization of work, such as:
    - Work-recovery cycles;
    - Task variability; and
    - Work rate.

Assessing MSI Hazards

Once you've identified potential MSI hazards, you need to assess their risk. The purpose of the assessment is to determine whether any of the identified hazards are of a sufficient magnitude to cause concern and thus require appropriate steps to eliminate or minimize workers' risk of exposure to the hazards. The same people involved in the identification process should also be involved in the assessment.

The 3 critical parameters that must be considered in the assessment of exposure to an ergonomics-related hazard are:

- Intensity;
- Duration; and

Methods for performing MSI hazard assessment include:

- Videotaping or taking still photographs of workers performing their tasks, their work postures, workstation layout, etc.;
- Measuring workstations, the size of handles, tool vibration, etc.;
- Weighing tools;
- Determining the characteristics of work surfaces, such as with regard to slip resistance;
- Measuring exposures to heat, cold, vibration, noise and lighting;
- Making biomechanical calculations, such as the force required to accomplish a task or the pressure put on a spinal disk;

- Using task analysis techniques, such as the NIOSH lifting equation, Snook push/pull tables, etc.; and
- Using postural analysis techniques, such as Rapid Upper Limb Assessment (RULA).

The results of your assessment will help you prioritize which hazards to address and in which order based on how effectively you can address the problems. You can do so by looking at:

- The severity of the hazard;
- The complexity of its causes;
- Potential costs of changing the workstation, equipment, procedures, etc.; and
- Availability of technology to address causes.

Controlling MSI Hazards

The next step is to select methods to control the MSI hazards you identify based on your assessment. Follow the hierarchy of controls, starting with totally eliminating the hazard if that's 'reasonably practicable.' If you can't eliminate a hazardous task, consider whether you can engineer it out of existence. Possibilities may include:

- Raising a workstation to a more comfortable height for a worker;
- Repositioning a workstation so a worker doesn't have to reach for materials or tools;
- Switching to tools that are ergonomically designed to fit better in workers' hands, are lighter and require less force to use.

The next rung of controls are administrative controls that make the work safer by changing how it's carried out, such as by letting workers who perform a repetitive task take more frequent breaks. As usual, PPE is the control of last resort, and may include gloves protecting against vibration or anti-fatigue mats for workers who have to stand for long periods.

Don’t Forget Telecommuters

Last but not least, depending on which jurisdiction you’re in, you may also have to extend your MSI hazard identification and assessment to the home offices of workers you allow to telecommute.