

Does anyone in your organization lift bodies or caskets?
Mow lawns? Sit at a desk all day in front of a computer screen?
If so, you need to have an ergonomics program in place
to protect both your workers and your company.

Designing for good ergonomics

The term ergonomics refers to the application of human factors to the design of the work environment. Good ergonomics provide a higher level of safety and efficiency by matching the physical demands of the job to the needs, abilities and limitations of the worker.

This can be accomplished through workstation design, environment management, the use of correctly designed equipment and tools, and work practices such as safe lifting.

Good ergonomics prevent musculoskeletal disorders (MSDs) and maximize productivity by reducing fatigue and discomfort. OSHA estimates that approximately one-third of all reported occupational injuries and illnesses are related to poor ergonomics. These types of injuries cost employers approximately \$50 billion a year in workers compensation costs, lost worktime and other related expenses.

Workers with severe MSDs can face permanent disability that prevents them from returning to their jobs or handling simple everyday tasks such as lifting a gallon of milk or picking up a baby.

Ergonomics safety programs and interventions can reduce or eliminate these injuries.

What are MSDs? MSDs are injuries to the soft tissues, including muscles, tendons, ligaments, joints, cartilage and nervous system. MSDs usually occur slowly over time due to repetitive motion or trauma to the body from unsafe work practices such as reaching or squatting for extended periods of time, or lifting improperly.

There are many different types of MSDs. An MSD can present itself as painful aching joints or muscles, pain, tingling or numbness in an extremity, fingers or toes turning white, shooting or stabbing pains, swelling or inflammation, stiffness or difficulty moving, a burning sensation or pain during the night.

Some common disorders include tendonitis, herniated spinal discs, bursitis, sciatica, trigger finger, carpal tunnel and low back pain. Other common names for MSDs include Repetitive Strain or Stress Injury, Repetitive Motion Injury, Cumulative Trauma Disorder, Overuse Syndrome and Activity-related Pain Syndrome.

Causes of ergonomic injuries (MSDs)

Repetition. Repetition refers to performing a task or series of motions over and over again with little or no variation. When motions are repeated frequently for prolonged periods, fatigue and strain of the muscle and tendons can occur because there is inadequate time for recovery. Repetition is a problem if you perform a task more than twice per minute for more than 2 consecutive hours.

Awkward postures. Awkward postures refer to positions of the body (e.g., limbs, joints, back) that deviate significantly from the neutral position. Neutral posture is the position of a joint that requires the least amount of muscle activity to maintain. For example, the back is neutral when standing up straight.

Examples of awkward postures include repeatedly raising or working with your hands above the head, sitting with feet unsupported; working with the back, neck or wrist bent or twisted; and kneeling or squatting.

Static postures. Static postures refer to physical exertion in which the same posture or position is held throughout the exertion. These types of exertions put increased loads on the muscles and tendons, contributing to fatigue.

When your body does not move while exerting itself, blood flow is impeded. Examples include gripping tools that cannot be put down, holding the arms out or up to perform tasks or standing in one place for prolonged periods.

Excessive force. Force means strong physical exertion. Excessive muscle tension contracts muscles to their maximum, leading to fatigue and possible muscle and soft tissue damage.

Examples of excessive force include lifting more than 75 pounds at any one time, pushing/pulling with more than 20 pounds of initial force and pinching or gripping an unsupported object.

Cold temperatures. Working in environments below 68 degrees for prolonged periods can cause nerve damage. Cold temperatures can affect a worker's coordination and manual dexterity and can cause a worker to use more force than is required for a task.

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Carrying a 10-pound object 25 inches from your spine is equal to 250 pounds of force on your lower back. Carrying this same object only 10 inches from your spine reduces this load to 100 pounds of force on your lower back.

Vibration. Repeated use of vibratory equipment, including hand tools and lawn-mowers, can damage blood vessels and reduce nutrient flow to the hand. Loss of circulation can lead to tissue and nerve damage and hypersensitivity to cold. Using tools or equipment with moderate vibration levels for more than two hours total per day puts you at risk.

Whole body exposure to vibration results from use of chain saws, jack hammers or percussive tools, or from use of forklifts on rough surfaces. Exposure to whole body vibration for more than 30 minutes per day can affect the skeletal muscles and cause low back pain.

Compression. Grasping edges such as tool handles can concentrate force on small areas, reducing blood flow and nerve transmission and damaging tendons and tendon sheaths. Compression injuries occur when soft tissue is compressed between the bone and a hard or sharp object such as a handle.

Stress. Not all ergonomic risk factors are physical. Some are related to the work environment. Stress on the job, conflicts with co-workers and supervisors, deadlines, etc., can all contribute to MSDs.

Personal factors. Some personal factors put people at greater risk of developing MSDs. Age and gender, hobbies outside of work, previous injuries, overall physical condition, medical conditions such as diabetes and arthritis, pregnancy, obesity, various medications, smoking and general fatigue can all make a worker more susceptible to MSDs.

Ergonomic risks to cemetery, crematory and funeral personnel

Typical tasks in the cemetery and funeral industry that pose a risk of ergonomic injury include: reaching or awkward postures in landscaping; lifting bodies, caskets, markers, etc; tool use; and office

or lab work. Helping your employees use correct work practices can protect their health and safety, and also contribute to their effectiveness as employees.

There are many things that can be done to prevent MSDs on the job. General rules to minimize the risk of MSDs include:

- Be conscious of body position, and always try to work in neutral postures.
- Use work practices that reduce excessive force and repetition.
- Keep everything needed for the job within easy reach and at proper heights.
- Keep warm while working.
- Minimize static unsupported postures and pressure points.
- Always use proper lifting technique.
- Ask for assistance with physically difficult tasks.
- Take micro-breaks. Stand, stretch and change tasks periodically to minimize stress on the body.
- Maintain a comfortable and ergonomically correct work environment.

Some specific solutions to prevent injuries for the problem areas listed above include:

Excessive force

There are multiple hazards associated with lifting, and multiple factors are associated with determining whether or not lifting can be performed safely. Some loads are too heavy to lift even under ideal lifting conditions. Factors that increase the risk of injury include reaching to access and lift a load, frequent repetition of lifting motion, lifting for long periods of time and twisting and bending of the torso.

Frequent repetition or lifting for long periods of time leads to muscle fatigue, ultimately resulting in poor lifting technique. Twisting and bending pull the back out of its normal alignment and can pinch or alter the disks, making them more susceptible to bulging, rupture, overexertion and strain. Lifting techniques to prevent injury include:

- Use lift and assist equipment whenever possible.
- Keep the load directly in front of and close to the body. Carrying a 10-pound object 25 inches from your spine is equal to 250 pounds of force on your lower back. Carrying this same object only 10 inches from your spine reduces this load to 100 pounds of force on your lower back.
- Avoid any or all twisting of the torso,

and minimize bending by keeping the load between shoulder and thigh height.

- Avoid lifting any excessively heavy loads. For most people, anything over 50 to 60 pounds is too heavy. If lifting conditions are less than ideal (i.e. twisting or bending, frequent repetition, etc., are required), the maximum load considered “too heavy” should be reduced.

Injury to the lower extremities, including the knees and ankles, can occur when significant force must be exerted to push/pull heavy loads or even moderate loads across uneven surfaces. Some solutions for this include:

- Use machinery or push/pull aides whenever possible.
- Break down large loads into several smaller loads, and/or use a buddy system.
- Be sure that the travel path is free from any debris.
- Wear shoes with good grips to avoid slips.

Repetitive motion

- Keep the wrist as straight as possible while performing finger-intensive tasks.
- Use appropriately designed hand tools that enable the wrist to remain neutral when performing tasks.
- Use power tools to perform highly repetitive motions whenever possible.
- Provide tools with handles appropriately sized for the user.
- Redesign or alternate tasks, or alternate hands to perform tasks so that muscles are not used for prolonged periods.

Vibration

- Use handle wrappings or sleeves that suppress vibration.
- Use vibration-dampening gloves.
- Use vibration isolation between tool and attachment to isolate or minimize vibration whenever possible.
- Avoid extended use of vibratory machinery.

Your ergonomics safety program

OSHA has no specific regulations pertaining to ergonomics in the workplace, but it has established guidelines. OSHA uses the General Duty Clause to cite employers for ergonomic hazards. Under the OSHA Act’s General Duty Clause, employers must keep their workplaces free from recognized serious hazards, including ergonomic hazards.

OCCUPATIONAL SAFETY: ERGONOMICS

The NIOSH (National Institute for Occupational Safety and Health) also has guidelines. According to the NIOSH, seven steps comprise an effective program for evaluating and addressing musculoskeletal concerns in a workplace, as follows:

1. Look for signs of potential musculoskeletal problems in the workplace, such as frequent worker reports of aches and pains, or job tasks that require repetitive, forceful exertions.

2. Show management commitment in addressing possible problems and encouraging worker involvement in problem-solving activities.

3. Provide training to expand management and worker ability to evaluate potential musculoskeletal problems.

4. Gather data to identify jobs or work conditions that are most problematic, using sources such as injury and illness logs, medical records and job analyses.

5. Identify effective controls for tasks that pose a risk of musculoskeletal injury. Evaluate these approaches once they have been instituted to see if they have reduced or eliminated the problem.

6. Establish health care management to emphasize the importance of early detection and treatment of musculoskeletal disorders for preventing impairment and disability.

7. Minimize risk factors for musculoskeletal disorders when planning new work processes and operations. It costs less to build good design into the workplace than to redesign or retrofit later.

Good ergonomics are a win-win for employees and businesses. Companies of all sizes have had great success in using an ergonomics program as a cost-effective way to prevent or reduce work-related MSDs, keep workers on the job and boost productivity and workplace morale.

Developing a safety program may seem like a daunting and expensive task for your business; but it is essential and it is money well-spent. Studies have shown a \$4 to \$6 return for every dollar invested in safety and health.

Look for the final article of this series on developing your equipment safety program in the next issue of ICCFA Magazine. Remember, a successful safety program is key to having not only healthy and competent workers, but also a healthy, successful business. □

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