

Loss

Control



FARMERS

Information Bulletin

General Ergonomics

Ergonomics is the science of fitting the work to the worker and it draws on many other disciplines as its base. It draws on sciences like physiology, anthropometry, and biomechanics.

Risk factors can be found in any occupation from the construction site, to the automotive shop, to the retail store, to the food industry. Everyone needs to understand that there is a risk of injury, but there are some definite risk factors to consider. The potential for musculoskeletal disorders (MSD's) increases if work activities and job conditions involve any of the following conditions:

- *Frequent manual material handling.*
- *Exposure to extreme temperatures.*
- *Repetitive motions throughout the work shift.*
- *Awkward or stationary work positions.*
- *Utilization of excessive force or localized pressure to perform tasks.*
- *Unnecessary lifting of heavy and awkward items.*
- *The need to use a computer on the job for long periods of time.*

Whether it is to sit upright, lift properly, or take appropriate breaks, everyone can do something to prevent MSD's. The following concepts will help to improve workplace design and practices. These are common ergonomic principles and can be easily adapted to all organizations and workstations.

- *Maintain a neutral posture.*
This represents the natural stance the body wants to take. When standing, it is a straight line drawn from the ear through the shoulder, the hip, the knee and the ankle. Work surfaces should be about waist level to prevent reaching and the elbows should be bent at a 90-degree angle.

While seated keep the back straight and the knees bent at about a 90-degree angle with the feet flat on the floor. The closer the body is to the neutral position, the better.

- *Prevent excessive repetition.*
One of the major causes of MSD's, such as carpal tunnel and tendonitis, is excessive repetition. There are several ways to prevent excessive repetition while working. If possible, try not to perform the same task all day. Try varying your routine. If you always perform the same tasks every day, try completing them in a different sequence. The key to preventing excessive repetition is to not sit or do the same things for hours on end.
- *Adjust work surfaces.*
Whether standing or sitting, work surfaces need to assist individuals in keeping the neutral posture. The work surface should be about at waist height, keeping the worker from stooping over to work or having to raise their shoulders to reach. Different people having a different size need to have a different workstation setup. Adjustable work surfaces are best if at all possible and will allow different workers to adjust the workstation to fit their build. If adjustable workstations are not possible, adjust the station for the taller employees and supply platforms or stepping stools for the shorter employees. The bottom line is to maintain the most neutral posture possible and keep employees working upright.
- *Lift properly.*
Back injuries are the number one injury to workers. One source of back injuries is from improper lifting techniques. Lift with the knees, not with the back.

Other steps can be taken to reduce lifting injuries. First, design containers that hold smaller amounts of products putting less stress on the back. Inquire if supplies and distributors are able to supply smaller containers. Create or utilize containers with handholds, enabling a better grip. Ensure that the containers fit the product. Provide hand trucks and provide training on how to operate them safely. This will include loading the hand truck, lifting and lowering the load, and pushing the cart versus pulling it. Training is a good start to preventing lifting injuries and applying some general engineering principles will go a long way.

■ *Avoid reaching.*

Reaching also puts stress on the back as even lighter items are lifted repetitively. Place items that are most used as close to the worker as possible. Place heavier items close in order to reduce the extra distance for moving the heavier items. This puts less stress on the back and shoulders as items are lifted. Appropriate arrangement of the workstation can alleviate many shoulder and upper back issues.

■ *Control environmental factors.*

Extremes in temperature, hot or cold, put stress on the body. Employees working in these environments should be given proper personal equipment and training on its usage. Ensure that the tools are appropriate for the climate, such as slip resistant handles, and provide training on using the equipment. Lighting is another environmental factor that relates to eyestrain. Too much light causes glare for computer users and poor lighting can lead to trip hazards or inability to focus on delicate work. Control the environmental factors where possible and supply the proper equipment to operate safely where the factors cannot be controlled.

■ *Take time to recover.*

Recovery is an important part of preventing MSD's. This can generally be accomplished during regularly scheduled break periods. Stretching or other exercises during breaks assist with recovery. If additional breaks are needed but unable to be scheduled, take micro-breaks of 20-30 seconds during which quick stretching or exercise at the workstation is done. This is important in data entry type jobs.

■ *Understand the risk factors.*

This is essentially the first step in finding problems before they become issues. Some of the known risk factors, as discussed earlier, are excessive vibration, repetitive motions, awkward postures, extreme temperatures, heavy lifting, and overexertion of force. Once you understand what the risk factors are, it will be easier to spot them. In addition, giving employees training on these risk factors will help. They perform the job every day and will know where to find the hazards. Minimize as many of these factors as possible to improve the ergonomics of any given tasks.

■ *Know the signs.*

Ensure you understand some of the signs and symptoms of the common MSD's. Numbness and tingling in the extremities, especially in the fingers, lasting more than 24 hours or prohibiting sleep is a sure sign of an ergonomic disorder and requires medical attention. Ensure employees understand how important it is to seek medical attention and not to disregard the pain as the usual aches of working. By catching MSD's early, employers can avoid these types of injuries in the work place and the painful recovery time for the employees.