

LOSS CONTROL TOOL CHEST

WHAT IS ERGONOMICS – Part 2

In “What is Ergonomics - Part 1” we asked two questions:

WHAT IS ERGONOMICS?

Ergonomics is the science of fitting jobs to people with the knowledge of physical abilities, limitations, and human characteristics that apply to a job’s design.

WHAT IS THE PURPOSE?

The purpose is to apply ergonomic principles to the workplace to reduce the number and severity of musculoskeletal disorders (MSD’s) to decrease workers’ compensation claims and simultaneously increase productivity, quality, and efficiency.

WE NOW ADDRESS ERGONOMIC DESIGN, WHICH INCLUDES:

- Evaluation of work exposures
- Engineering and administrative controls to reduce identified hazards
- Education of management and workers

Controls are through elimination, engineering and administration. The first consideration is to assure that the actual step in the process or task is necessary. The elimination of a process is the best way to control an exposure. Engineering to create work areas within the primary zone (see below) is fairly simple and typically involves adjusting the work area to fit the worker such as adjusting the height of a table. Workers should be observed at work to determine if there are any movements outside of the primary and secondary work zones so that the repositioning of materials might result in a simple fix.

Administrative controls include rotating employees in more physically demanding tasks, changes in task/job rules and procedures such as limiting overtime, and training in ergonomic recognition and controls. Typical rotation time frames are two hours so that changes can be made during break times and lunch. The factors of rate of task and energy exertion should be taken into account to determine if the frequency of rotating employees should be increased. However, if a task is anticipated to lead to a stress-related injury, rotation merely pushes back the clock and does not eliminate the exposure.

Elements that should be considered include the physical qualities of the individual worker, the characteristics of the work setting, and the environmental conditions. The interaction between the worker and the task are:

- Posture - the positioning of the body and/or body parts, awkward positioning, bending, and twisting

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- Force - exertion on body, compression of spine, tension on tendons and joints, static positioning, grip strength factors
- Acceleration/velocity - speed of movement and rate of change affecting joints and muscles
- Repetition - frequency closely related to force, distance, duration, and recovery with no specified threshold for injury
- Duration - may be viewed as minutes/hours per day, but also years of exposure should be considered
- Recovery time - amount of rest time required to allow the body to respond to fatigue, heat recuperation of metabolic needs, and may have wide variance within any population
- Other factors to a lesser degree include vibration, heat, cold, lighting, and noise

A common problem that is encountered is having the employee operate outside the primary and secondary work zones during their normal daily tasks. This requires the employee to reach, bend, and work inefficiently, which results in decreased productivity and can lead to injury.

The primary/best work zone for standing tasks is from the wrist to the elbow. Forward motions would see the elbow slightly bent with minimal work outside the width of the shoulders. Work tables or operations below wrist level require the individual to either bend over or slump their shoulders. Above the elbow requires them to lift their entire arms or shrug their shoulders in unusual postures.

The secondary/preferred work zone is from the tip of the fingers with the hands at the side up to shoulder height. The individual would extend their hand forward without bending at the waist and raise the arms out to the side of the shoulders by one foot. A portion of a task could be completed at this work zone, but attempts should be made to organize work to keep it within the primary zone.

Ergonomics encompasses every part of what we do and how we do it every day of our lives. In the workplace, common sense is often your best guide, and the employee will be able to help in the process of creating simple ergonomic solutions to improve productivity while protecting the individual.

Apply ergonomic principles to YOUR workplace!