Ergonomic hazards - the problems behind our aches and pains

Ergonomic hazards lead to musculoskeletal injuries (MSIs)

Ergonomics can be defined as the "law of work". The approach is to ***fit the job to the worker****, not the other way around*. It's about how much people are expected to do with their bodies and brains. As a Canadian ergonomist says, workers are expected to do things on the job that robots don't do.

When an ergonomic approach is not used to design work activities, tools and/or equipment, you may be exposed to (your body comes in contact with or must deal with) a variety of problems. The odds are that you will end up with "aches and pains", "strains and sprains", musculoskeletal injuries (MSIs) -- whatever you call it, it's a lot of pain.

When wear and tear reaches a certain point, the result is some kind of disability. It can be short-term but many take a long time to heal, partly because the hazard is not fixed. Sometimes, the damage is permanent.

Whether it lasts a long time or a short time, an MSI affects life on and off the job. Everyday activities can be difficult or impossible -- opening a jar, chopping an onion, driving a car, lifting a child, turning a door knob, getting dressed, and holding a toothbrush.

These injuries, and their often-unseen effects, can be prevented -- by dealing with the hazard(s). There are different types of ergonomic hazards; here are some definitions and examples:

Force:

The amount of pressure a person uses for a task. It includes pushing, pulling, lifting and even using a computer keyboard. Force puts a strain on the body and can cause damage to body parts or tissues.

Contact stress is one type of force. This may occur if a tool handle or edge digs into the soft tissue of the palm of the hand, the hand is used as a hammer, or someone works on their knees. The contact concentrates force on a small area, putting pressure on those tissues. It may cause injuries.

Vibration is another kind of force. It is found in vibrating tools and equipment. When vibration affects the hands and arms, it can damage the nerves and/or blood vessels so that a person's hands/fingertips go numb and cannot be used easily.

Examples of force include:

- ❑ lifting heavy boxes
- ❑ the grasp or grip used to hold something (avoid pinch grips)
- ❑ computer keyboard work
- ❑ jack hammer (vibration)
- ❑ resting the palm of hand or wrist on a tool handle or edge of something

Posture:

Awkward posture is working in positions that feel uncomfortable. It could be working with your arms over your head, twisting, bending or reaching, or working with a bent back, bent wrist, etc. This can stretch a person's physical limits, compress nerves and irritate tendons.

Static posture involves working with your body or (part of) a limb in one position for a long time. This includes constant standing or sitting or holding your arm, neck or shoulder in one position. Doing this can restrict blood flow and damage muscles.

Examples of posture hazards include:

- ❑ working with arms above your head (awkward; also static if it lasts)
- ❑ working with bent joints (awkward; also static if it lasts)

- ❑ standing or kneeling for a while (static)
- ❑ working with your neck cricked to see the computer screen (awkward and static)

Repetition:

This means doing the same motion over and over, without adequate rest -- even mini- breaks. Repetition overuses the same muscles, tendons, and other soft tissues. It can irritate tendons and increase pressure on nerves and may cause permanent damage.

Examples of repetition include:

- ❑ traditional assembly line work
- ❑ data entry
- ❑ piecework sewing

Work environment:

These hazards are part of the general work environment; as energy sources, they also are physical hazards such as humidity, temperature, noise and light.

People working in cold temperatures can get stiff and sore; they may drop things. Noise causes deafness and interferes with our ability to hear and understand people's words and other sounds. Poor lighting can lead to trips or falls and poor postures as we try to read things (e.g. with glare).

Examples of ergonomic work environment hazards include:

- ❑ working with cold objects
- ❑ outdoors work during the summer
- ❑ working indoors with low or high humidity
- ❑ work with or near loud machinery or equipment
- ❑ poor lighting (too much or little)

Stressors/work organisation:

These hazards "stress us out". But it is not easy to see these invisible aspects of work. Stressors include:

- ❑ how much say or control we have about our work;
- ❑ how people and technology work together to produce a product or provide a service;
- ❑ too much or too little workload or demands on our body and mind; and
- ❑ the amount of respect and support we (don't) get on the job.

Job-related stressors are the result of choices those in authority make. They cover "technical aspects" of work -- production methods, technology -- and the "people aspects" -- how people will use the technology, how our skills and knowledge are used (or not), social interactions, etc.

Stressors or work organization hazards that are important in ergonomic issues include:

- ❑ pace of work
- ❑ workload
- ❑ staffing levels
- ❑ hours of work
- ❑ supervision style
- ❑ production quotas
- ❑ deadlines
- ❑ number and length of rest breaks
- ❑ flexibility allowed for family and other responsibilities
- ❑ violence (including harassment and discrimination)

Work organization hazards/stressors are at the center of the ergonomic hazards chart. That's because they are often the "why?" behind many other hazards. Studies also tell us that "stress" sets us up for MSIs in the neck, shoulders and lower back.

For example, if the speed of a job is increased, workers may have more repetitive motions, perhaps in more static postures. Deadlines or production quotas can cause muscles to tense up, adding to "wear and tear" on soft tissues and leading to MSIs.

To figure out how stressors and other ergonomic hazards are connected, try asking:

1. *But why? (up to five times);* or
2. *What makes the symptoms worse?*