



Loss Control TIPS

Technical Information Paper Series

Innovative Safety and Health SolutionsSM

Workplace-Related Discomfort

Is Discomfort Real?

Workplace-related discomfort is not a myth. Many workers in offices, and on production floors, routinely encounter considerable discomfort from their work activities.

To understand how easily discomfort occurs, pick up a pencil, pinching it lightly between the index finger and the thumb. Bend your wrist of the hand holding the pencil in the direction of the palm as far as possible. Keeping your wrist in this position, pinch and hold the pencil firmly. Does it hurt? You have just encountered upper extremity discomfort.

Wrist flexion (bending toward the palm) during pinching is a common awkward posture in the work place. People are forced into flexion when reaching into files which are too high, pulling parts out of improperly placed boxes, and for many left handers, when writing. Wrist flexion, and other awkward postures, such as shoulder flexion (reaching to the front), abduction (moving the arm out to the side), and elbow flexion and extension, are common in the workplace. If you can experience discomfort simply from pinching a pencil briefly, imagine the level of discomfort encountered by a person forced to use a pinch grip all day.

Observing Discomfort

Our body uses discomfort as a warning to discontinue whatever we are doing before any damage is done, or before the system involved simply quits. There are times when discomfort is almost constantly on our minds, while at other times we are totally unaware of our discomfort.

Observe people during a long, boring meeting. They quickly begin to fidget - sitting up, then slouching, shifting from one side to another. They are hyperaware of their discomfort resulting from constant pressure on their body tissues.

Just the opposite is evident if you are fortunate enough to observe an interesting meeting. Everyone's attention is riveted upon the speaker, or upon other team members during a vibrant team meeting. You should see very little fidgeting. The participants' bodies are subject to the same uncomfortable pressures as the bored group's, but unlike the bored group, the interested group is focusing on the speaker, not their discomfort. When the speaker quits, everyone will quickly start fidgeting because the discomfort signals are finally getting attention.



What lies behind the fidgeting is universally important. Pain, numbness, or other forms of discomfort, are clues that: Task demands may be excessive; that the people may be encountering stressful awkward postures; or that the people are uninvolved, disenchanted, and bored. Frequently, the complaints of discomfort are caused by a combination of the three.

The Physiology Of Discomfort

Discomfort involves primarily the interaction of three body systems—muscular, circulatory, and nervous.

Muscles allow or prevent motion. Muscle fibers require oxygen and nutrients to function. They also generate waste products, which must be removed from the body. The circulatory system supplies oxygen and nutrients, while removing the waste products. Nerves sense the environment inside and outside the body, relaying the information to the spinal column and brain. In turn, they relay action assignments to the body's systems in reaction to the constantly changing environment. Nerves are the messengers of discomfort. They are heavily dependent upon adequate circulation -- so much so that if they are compressed or otherwise deprived of circulation for a few minutes, their effectiveness is seriously impaired.

When muscles work, they demand more oxygen, nutrients, and waste removal. This requires increased blood circulation. If the muscle work is dynamic (constantly in motion, such as leg muscles during running), the muscles actually help pump the blood, improving circulation. The opposite occurs when the muscle effort is static (non-moving), such as when gripping a pencil. Static muscles tend to restrict the size of the blood vessels because they are intertwined with the muscle fibers. Because of this restriction, the flow of blood ultimately proves inadequate to meet the needs of the muscle. When this occurs, discomfort ensues. The built up waste chemicals in the muscle trigger the nervous system's pain receptors. This alerts the individual to change position or reduce the demand on the muscles to improve blood flow.

Remember the last time you carried a heavy load, and your arm or wrist began to hurt? To alleviate the discomfort, you put down the load, or changed sides. Almost immediately, you could feel the discomfort ebbing. With the muscle relaxed, the blood supply immediately increased, quickly flushing the muscle clean and restoring equilibrium to the system.

A different cause of discomfort is constant pressure on body tissues. This occurs, for example, when sitting, leaning against something, or by wearing heavy items such as scuba diving weight belts or back packs. The constant pressure results in circulatory impairment at the pressure points due to restriction of the blood flow. Thus the fidgeting mentioned earlier. Every time you shift your sitting position, you reestablish adequate circulation to the compressed tissues.

In addition to blood vessel constriction, circulation impairment can result from various conditions or activities--cardiovascular disease, obesity, smoking, or respiratory obstruction. Systemic impairments such as these may not cause pain or numbness, but they will hasten *onset* of discomfort for any given work load.

Dynamic vs. Static

Muscles work in both the static and dynamic modes. Dynamic (moving) work by the muscle actually increases blood circulation. Aerobic exercise, for instance, forces large amounts of oxygen to the tissues, helping healthy tissue to stay healthy, while healing injured tissues. Static (unmoving) work has the opposite effect--work without adequate circulation. *Dynamic awkward postures*, in the absence of heavy forces, or excessively high repetitiveness, should not create significant discomfort. *Static awkward postures*, even in the absence of external force demands, can create considerable discomfort.

Although awkward postures are generally undesirable, unavoidable awkward postures at the workstation, should be kept dynamic. For instance, momentarily reaching for a part (shoulder flexion) on an assembly table (a dynamic process for the shoulder muscles) should not create discomfort. However, assembling the part with static shoulder flexion would likely cause discomfort. When muscle groups are static, they should be as close to their neutral position as possible. A neutral muscle is one which is neither extended nor flexed. In most instances, a neutral posture is one in which the joint is at mid point of its range of motion. For instance, the elbow is neutral at 90°; the wrist when in line with the forearm.

Two key concepts dominate management of work place related discomfort.

- Many uncomfortable people are performing tasks which add no value to the product or service. From forklift drivers with sore necks and shoulders, to people removing flashing who develop sore hands and wrists, non value adding tasks create a wealth of discomfort. Non value adding tasks are best controlled by eliminating them, then reallocating the human resources to more valuable tasks.
- Soliciting, listening to, and heeding ideas which the people actually doing the task have is always a good idea. People generally recognize when they are uncomfortable, and they generally have a pretty good idea of what needs to be done to relieve the discomfort. Considerable success, and good, will result from implementing their ideas.

Workplace discomfort in most industries is *easily controllable* with careful equipment selection, good engineering, and thorough training.

For more information, contact your local Hartford agent or your Hartford Loss Control Consultant. Visit The Hartford's Loss Control web site at <http://www.thehartford.com/corporate/losscontrol/>

This document is provided for information purposes only. It is not intended to be a substitute for individual legal counsel or advice on issues discussed within. Readers seeking resolution of specific legal issues or business concerns related to the captioned topic should consult their attorneys and/or insurance representatives.