Repetitive Strain Injuries: the Cost, Causes and Cures

Repetitive strain injuries have received a lot of attention recently. It is common to read about "carpal tunnel syndrome," "repetitive strain injury" or "ergonomics" in newspapers or magazines. These terms are used in advertising for chairs, tools and workstations.
What are repetitive strain injuries? A repetitive strain injury, or RSI, is an injury to the musculoskeletal system - the bones, joints, ligaments, tendons and muscles in our body. But, unlike breaking a bone after a fall from a ladder, RSIôs develop slowly, as a result of repeated microtrauma to a specific part of the musculoskeletal system, hence the term "repetitive strain."

For example, carpal tunnel syndrome, otherwise known as "writer's cramp" is an increasingly common RSI. It is a nerve disorder affecting the hand, but the problem starts at the wrist. The carpal tunnel is a narrow channel formed by the bones of the wrist and the carpal ligament. Running through this tunnel are nerves, tendons, and other blood vessels. One of these nerves performs a special function by supplying sensation to the palm and fingers. If the tunnel becomes overcrowded, by way of tendon inflammation for example, the median nerve is pinched. This leads to tingling and often painful sensations in the palm and fingers of the hand.

There are other names for RSIôs, such as, cumulative trauma disorder, occupational overuse syndrome or "wear and tear" disorders. They all refer to the same group of injuries. RSIôs are given specific names depending on what part of the body is involved, such as carpal tunnel syndrome, tennis elbow, trigger finger, and rotator cuff tendinitis (which affects the shoulder) to name but a few.

Where do they come from?

The definitive cause of RSIôs is still being debated. Most experts agree however, that three of the major factors in RSI development are: awkward body postures, excessive force, and highly repetitive movement without adequate rest. Other factors contributing to the problem include: exposing the body to vibrating surfaces or tools, working in very cold environments (indoor or outdoor), poor lighting levels, and inadequate fitness in relation to the physical demands of the task. These risk factors can be found at work, at home, and at play, although most research has focused on the work environment.

In the case of carpal tunnel syndrome, repetitive and awkward hand and wrist motions may be involved in keyboarding or in playing certain musical instruments. Awkward, forceful and

repetitive rotation of the forearm as experienced when shoveling snow or playing tennis, has been associated with another RSI named epicondylitis, more commonly known as tennis elbow.

What's the impact on our society?

The main impact or RSIôs in the workplace is injury to workers. A worker who injures him/herself at work will receive worker's compensation benefits. These benefits come from the workersôcompensation board which the employer contributes to through annual premiums. On average, a worker affected by an RSI will be off work for approximately seven weeks. Indirect costs such as replacement of affected workers, lower productivity and product quality and decreased employee morale have been estimated at five times the direct costs. Anyone can easily relate to the human costs associated with RSIôs in terms of pain and suffering and its effect on family life and leisure time.

However, RSIôs are a manageable problem in the workplace. By recognizing the risk factors and designing work to minimize or eliminate them, the likelihood of incurring an RSI is reduced. This is where "ergonomics" comes in. Ergonomics is the science of matching the task to the person(s) who do it. Professional ergonomists take into account the capabilities and limitations of human beings and apply them to the task to be performed.

For example, the human body was not meant to sit at a desk for eight hours a day, typing on a keyboard and staring at a computer screen. Doing this kind of work for months or years, especially at a poorly designed workstation and without adequate rest breaks, will eventually lead to musculoskeletal discomfort, fatigue, eye strain and RSIôs. Computer workstations should be designed for comfort and adjustability.

Interspersing other tasks into the work that involve different movements alleviates muscle soreness, prevents the onset of eye strain and increases blood circulation. Something as simple as walking down the hall to deliver mail can help. In sedentary jobs such as this, regular stretching during the workday is recommended.

Repetitive strain injuries develop gradually as a result of repeated exposure to the risk factors discussed. It is in the initial stages of development that changes can be made to prevent their progression into full blown and possibly irreversible conditions. Applying sound ergonomic principles is an effective means to achieve this goal.

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