



Ergonomics

What's in it for me?

by Rick Spencer, M.S.

While planning for an upcoming business trip, I found myself browsing a popular hotel chain website to see all of the amenities offered for the room I had reserved. Nothing can make someone miss home more than an uncomfortable hotel room in an unfamiliar city. The description seemed to have the normal options: a comfortable bed, television and chair. As I continued on, my eyes opened wide when I read, "This room offers the latest in technology and ergonomic comfort to our guests." Not only could I expect to have the comforts of home, I would also be able to rest easy knowing that my ergonomic needs would be met. As an ergonomics consultant, my disappointment came when I realized that the only item they were using to establish "ergonomic comfort" was the pres-

ence of a Herman Miller® chair, a popular designer of office furniture.

This experience demonstrates two important points. First, the term "ergonomic" has become a trendy and familiar part of the average American's vocabulary. Second, the perception of ergonomic solutions has developed into something that can be satisfied by the latest gadget, piece of equipment or furniture design. Before you log onto eBay to purchase an Aeron® chair, the black mesh chair that has become an office status symbol, you should ask yourself a question: "What's in it for me? Is ergonomics just another trend, or is there a value that goes far beyond flashy chairs and gadgets?"

To answer this question, let's start with the basics – what is ergonomics? Rather than bore you with textbook terminology, put simply, the primary purpose of ergonomics is to reduce stress on the body that can result from your activities and your environment.

The rapid growth of ergonomic awareness has been fueled by medical and clinical professionals who are motivated to prevent musculoskeletal disorders (MSDs), such as carpal tunnel syn-



drome, tendonitis (e.g. tennis elbow), ruptured spinal discs, neck injuries, ligament sprains and trigger finger. MSDs are disorders that affect muscles, bones, connective tissues and nerves. Common MSDs affect the neck, back, shoulders, arms, wrists, hands, knees, ankles and feet. Take another look at this list. If you have ever experienced pain or discomfort in one or more of these body parts, or if you realize how your lifestyle would be extremely limited if you were to develop an MSD, the rest of this article is for you.

The good news is that ergonomic interventions can treat or prevent MSDs. To prevent MSDs, we have to understand how these disorders develop. Typically, MSDs result from two types of trauma: acute and cumulative trauma. Acute trauma refers to sudden tissue damage that exceeds the capacity of the body's tolerance. For example, acute trauma can occur when a person lifts an excessively heavy object using poor body mechanics. The capacity for the body to withstand tissue damage decreases with age and declining physical fitness.

Alternatively, cumulative trauma involves a more gradual process that can result in discomfort, pain and injury. Damage occurs gradually from repetitive or sustained activities as a result of interrupted blood flow, bone and joint stress and muscle fatigue. This process initially involves small amounts of tissue damage or "microtrauma" and is typically without symptoms. As this process

continues, larger amounts of tissue damage or "macrotrauma" finally result in consequential symptoms and disability.

The widespread occurrence of MSDs in the United States has cost employers and healthcare agencies billions of dollars. More importantly, the individuals suffering from MSDs have suffered through months or even years of pain and discomfort, creating for some individuals the inability to return to the care-free lifestyle they once enjoyed.

Still interested? Let's discuss what you need to know about ergonomics that will allow you to identify potential risk factors and to prevent discomfort, pain and injury.

First we need to dispel some of the common misconceptions that are often associated with ergonomics. Numerous medical studies have implicated poor environmental design and at-risk behaviors as contributors to the development of the vast majority of MSDs. Much of the efforts to combat these contributors have focused on environmental design. From engineers to university researchers, thousands of individuals and groups have worked to decrease the risk of injury at your work and home using high-tech inventions and gadgets. With all of this research and intelligence on the case, how can individuals still be suffering from these debilitating disorders? Read on.

As I stated above, research shows that at-risk behaviors are just important as environmental design to prevent MSDs. It is that

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easy, just change your behavior! OK, so maybe it's not that easy. That is why there is so much effort and focus on environmental design and equipment. If we can make people more like robots and less like human beings the problem will be solved. Unfortunately, as long as there is human interaction with activities and the environment, behavior will always present a potential risk factor.

The reason I have elaborated on this point is to ensure that you do not rely on equipment, such as the newest fancy office chair, as the only intervention necessary to prevent the development of MSDs. While equipment, gadgets or furniture can be extremely valuable, a successful solution must involve an integrated approach. Here are some simple solutions that you can apply at work and at home to maintain your healthy lifestyle and to prevent MSDs.

To start, and this may be surprising, take a look at your fitness routine and nutritional habits. The Surgeon General recently reported that 60% of adults are overweight and physically unfit. These lifestyle factors, combined with aging, are the most important contributors to MSDs, though they are rarely mentioned in the discussion of MSD prevention. It is easy to say that you should exercise more and eat less, the challenge is maintaining that motivation. So start small. As a coach I once had used to say, "Inch by inch everything is cinch; yard by yard everything is



hard." Think about simple steps you can start with to help your body recover from the stress it experiences due to your environment and activities. Don't skip breakfast, get adequate sleep (between 7-8 hours), and use the stairs rather than the elevator. Where you start is not important, it is the ability to maintain and progress your efforts that will make a difference.

Once you have examined your lifestyle habits, take a look at your work and home life. As technology continues to improve, and society becomes more dependant on an electronic lifestyle, it is easy to find yourself exposed to extended hours of seated activities, using computers and staring at visual displays. Unfortunately, human beings are designed for movement and respond poorly to these prolonged static postures. Muscles need to dynamically contract and relax on a periodic basis to remain strong. If a personal exercise program is lacking, sedentary work leads to muscle deconditioning. In addition, dynamic muscle activity (periodic contracting and relaxing of muscle tissues) is essential for proper blood flow, nourishment and oxygenation of tissues.

Take a look at your daily schedule. If you are exposed to sedentary and static postures, create a routine of periodic movement and stretch breaks.

The information in this article should help you determine certain risk factors and matching solutions that can be used to reduce and prevent the symptoms of MSDs. However, it is important to follow the golden rule of ergonomics – one size does not fit all. Specific solutions for your activities and environment are crucial in preventing pain and injury and in maintaining an active lifestyle.

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