

Caveat Emptor

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Educating the public about the hazards of the workplace is a three-step process. The first step is making the public aware of the hazards and their preventability. The second step is the marketing of preventive or therapeutic equipment by manufacturers and retailers to workers and employers. The third step is educating consumers so that they can evaluate the usefulness and appropriateness of merchandise. I propose that we are in the second stage and that professionals involved in the treatment of workplace injuries need to be active in facilitating movement into the third stage.

Ergonomics has become a buzz word in the sale of many products. It would appear from the context of its usage in advertising that its meaning is poorly or incompletely understood. Ergonomics has become the automobile tailfin of 1990s marketing.

Ergonomic or human factors design got its start in the United States during World War II with the design of aircraft control panels. It was discovered that the unacceptably high number of aircraft crashes was due to the nonstandardized layout of controls and instrumentation. The early literature of the field is replete with studies of instrumentation and the human-machine interface at the controls. The defense industry has continued to support research in this area.

Many car manufacturers are currently trumpeting their ergonomically designed dashboards. The radio is placed in a position that is out of the driver's line of sight and is equipped with a profusion of multiple-function controls that are too far away to read. Directly beneath the radio are pop-out coin and drink trays. When used as designed, the drink tray prevents opening of the

coin tray and operation of the radio because drinks block access to them. Imagine the morning commuter with a cup of coffee, approaching the toll booth and trying to turn up the radio to hear a traffic report. To call this ergonomic design borders on criminal misrepresentation. It certainly does nothing to educate consumers about the value of ergonomics or human factors and gives the public a negative view of the value of human factors design.

I recently encountered a product sold to users of computers that purported to be both "ergonomic and therapeutic." When I inquired about its therapeutic value, the manufacturer could not justify the claim except by circular logic, i.e., if it prevents a repetitive stress disorder (RSI), then it is therapeutic, even if there is no proof that it prevents RSI.

The public is now informed about the hazards of RSI and back injuries, but it is being offered products for which manufacturers make inaccurate, exaggerated, or inappropriate claims. I offer some examples from my experience.

For the past 3 years, while putting myself through school, I have been a part-time employee in a retail store of a nationally known mail order tool house. Last year the company added a line of injury prevention products such as back supports, cock-up splints, antivibration gloves, and tennis elbow cuffs. The sales force was not trained in the use of these products. Although most of the salespeople are competent woodworkers, none has any medical training. I have overheard my colleagues telling customers that a product will "fix you right up" when they had no understanding of the medical problem described by the customer.

The sales of an inappropriate item by the merchant or the inappropriate choice by the customer based on misleading marketing claims or the consumer's lack of knowledge can have far-reaching consequences for the user. A friend of mine wore a cock-up splint for over a year and complained

that it gave her no relief from carpal tunnel syndrome. This woman is a nurse-midwife who bought a splint off the shelf in a pharmacy when she began to experience wrist pain, which she associated with carpal tunnel syndrome. Her wrist pain was on the dorsum of her hand and radiated up through her thumb. She had DeQuervain's syndrome, not carpal tunnel syndrome! She wore a splint that did not help her for over a year before seeking medical attention for a problem that it did not alleviate. If a health care professional can make that kind of mistake, what of the layman?

The effects of prolonged computer use are perhaps what the public most often associates with workplace disease. The number of journalists affected probably has played no small part in the publicity of these problems. There are now several products, which can be found in any computer store, that claim to be ergonomically designed or to reduce the risk of RSI. Many useful products, such as wrist rests and adjustable chairs, are useful in adapting the workplace to reduce worker stress. However, all products should be viewed skeptically because there are some on the market that claim to prevent injuries, but could instead cause injuries. Two recently introduced products cause concern regarding their potential for injury.

The first product is a "mouse" that is described as being ergonomically designed. This item is designed to fit comfortably in the arches of the hand, which would seem to be the basis of this claim. The standard mouse is moved around on the desk top using the muscles of the shoulder and arm. This product is a trackball, which in essence turns the mouse over so that desk space is not needed to move it around. The trackball is placed directly under the thumb and controlled solely by the movement of the thumb. I am concerned by the trade-off of the use of many larger muscles throughout the work day to the use of a static posture and smaller muscles that pass through a constricted passage in the wrist. I have to wonder

if there will not be a higher incidence of tenosynovitis or DeQuervain's syndrome in a population that uses this mouse all day.

The second product is a vibrator with a timer that is marketed as a means to help prevent carpal tunnel syndrome. The idea behind this product is to set a timer to make the computer user take regular breaks from keyboard tasks and hold the vibrator on the palm to increase blood flow to the hand. To the engineer with no training in anatomy or clinical skills, this makes sense based on what has been published regarding breaks and exercising to increase blood flow. However, what is not common knowledge is that therapists use vibration in treatment to *increase* flexor tone. There is a reflex response to vibration at certain frequencies applied to the flexor tendons in the palm that would increase the tone of the forearm flexors—the muscles that most need to relax to alleviate stress through the carpal tunnel. I called the manufacturer to inquire if they were aware of this and had avoided vibration frequencies that would facilitate an increased tone response. They were not aware of the effects of vibration.

Professionals dealing with workplace injuries and disease need to be aware of the products brought to market that are supposedly ergonomic or therapeutic. We need to hold manufacturers accountable for their claims. Keep in mind when evaluating a client or workplace that the client or employer may have purchased a product supposed to be preventative that is actually not useful or perhaps may be a hazard. Do not accept the statement that ergonomic equipment is used. Seek the specifics of which ergonomic equipment is being used. The purchase of equipment that does not work as advertised is a false economy. It is the role of the professional to identify these false economies and educate the consumer regarding appropriate equipment to alleviate or prevent injuries. It is only through active participation in the marketplace decisions that the third step—educating the consumer—can be attained.