

gearing up for industry

Technology Transfer

By Scott Donkin, D.C.



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SUMMARY: Even a cursory glance at the balance sheets of U.S. corporations will reveal the spiraling cost of employee health care. Treating employees who are injured on the job is expensive and often-times unnecessary. In this article, Scott Donkin, D.C., reviews a number of studies that reveal some of the expensive health problems that are created and perpetuated by poor ergonomic design. If a commitment to preventative health care and wellness programs were adopted by American corporations, billions of dollars could be saved. What those corporations lack, however, is the information and expertise needed to implement such plans. According to Dr. Donkin, dissemination of this kind of information is becoming as much a part of chiropractic treatment as the adjustment.

In today's information society, the acquisition and dissemination of information is becoming as much a part of chiropractic treatment as the adjustment. It is likely to become one of this decade's most important new treatment modalities, particularly regarding chiropractic's involvement in occupational safety and health. "Technology transfer," as it is appropriately termed, is earmarked as a priority mission by the National Institute of Occupational Safety and Health. Stephen Sauter, Ph.D., chief of the motivation and stress research section, division of biomedical and behavioral science at NIOSH, states that: "In our view, what is needed is increased analysis, delineation and dissemination of management models leading to successful ergonomic reforms to provide principled guidance for further intervention. At the same time, systematic analysis of the benefits of ergonomic interventions in terms

of worker well-being or other bottom-line, organizational performance measures is needed to motivate and justify or validate such reforms."

Individual chiropractic involvement in occupational health issues and technology transfer is frequently initiated by frustration experienced in administering appropriate, effective treatment to a patient and then allowing him to return to a job which, by the characteristics of its poor design, perpetuates the patient's condition. Once this realization is faced with the responsibility to participate in solving the ergonomic problem, this creates a tremendous opportunity for the chiropractor to create a mutually beneficial relationship with a company, corporation, or government agency, providing the chiropractor is appropriately trained in this field.

It is difficult to exactly determine the number of people adversely af-

ected by poor ergonomic workstation design but reviewing excerpted data from several representative studies will assist in our understanding of the prevalence of musculoskeletal problems. Etienne Grandjean studied video display terminal (VDT) workers and non-VDT workers in the Swiss banking industry in 1980. He documented through physical examination and questionnaires that 50 percent of the VDT data entry clerks had muscular problems whereas only 23 percent non-VDT typists had problems.

Michael Smith used extensive health questionnaires at several newspaper offices and an insurance company in San Francisco during 1981. Approximately 81 percent of the clerical VDT workers had complaints of neck and shoulder pain and 78 percent experienced low back pain. The control group in this study had neck/shoulder and low back complaints of 55 percent and 56 respectively. J.B. Coe studied multiple work-sites for the New Zealand Department of Health in 1980 and discovered through health questionnaires that the level of muscle discomfort experienced by VDT operators was over 40 percent higher than non-VDT operators.

The researchers in each of these field studies reported a number of ergonomic deficiencies at the VDT worksites including disturbing reflections, lack of adjustability, inappropriate working heights and inability to rest hands or arms while working. Two laboratory studies at AT&T Bell Labs (Starr et al. 1984) and IBM (Gould and Grischkowsky, 1984) in which work stations were ergonomically correct found no differences in complaint levels of VDT and non-VDT workers.

It is safe to say that if VDT workstations are correctly positioned and workers are properly trained, they need not experience any more problems than their non-VDT

counterparts. If ergonomic conditions are poor, there are physical and operational characteristics of the VDT which would make it more likely that the worker will have more visual and muscular complaints than would be the case in a comparable, traditional workplace.

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Performance is also an important issue. In 1981 NIOSH studied, in their laboratory, through health questionnaires and performance measures (keystroke) optimal and suboptimal workstations and found enhanced performance of over 24 percent in the optimal workstation. In 1983 a similar study was performed at NIOSH, but lighting/glare conditions were equalized to the optimal state. Performance was still over 17 percent greater at the optimal workstation.

The need for ergonomic intervention is almost universal in any company that has not paid specific and close attention to proper layout, design and specification. In addition, end users must be trained in the use, operation and function of every aspect of their workstation and the importance of working, resting, and stretching appropriately for their own health and safety as well as for maximum performance. In fact, the State of Maine enacted a law on March 30, 1990 (H.P. 481-I.D. 661) to establish occupational health and safety standards for operators of VDTs. Section 252 states: "every employer shall

establish an education and training program for all operators." Item 1 states that education and training programs shall be both oral and in writing and, among other things, include "an explanation or description of the proper use of terminals and the protective measures that the operator may take to avoid or minimize symptoms or conditions that may result from extended or improper use of terminals (B) and instruction related to the importance of maintaining proper posture during terminal operation and a description of methods to achieve and maintain this posture, including the use of any adjustable workstation equipment used by the operator (C)."

The chiropractic profession is already involved in this issue because we treat people suffering from the end result of poor ergonomic workstation design. The decision must now be made as to how involved we should become and how well equipped we are to get involved. The very nature of our biomechanical training and orientation toward correcting the cause of problems indicates that we are highly interested in contributing to occupational solutions.

How well equipped we are to become involved is another issue. Unless the doctor of chiropractic has undergone specific training in ergonomics and occupational health he or she is not qualified to fully participate in solving problems and implementing corrections. However, given our previous training the chiropractor usually absorbs this type of training easily and can readily make practical application. The doctor of chiropractic can now acquire the technology necessary to fully participate in occupational health and then is able to transfer this technology to employers and employees alike.

I had the opportunity to visit at

continued on page 44

length with Dr. Sauter and Roger Stephens, Ph.D., director of ergonomics at the Occupational Safety and Health Administration and David LeGrande, director of Occupational Safety and Health at the Communication Workers of America. I wanted to expose them to the notion of chiropractic involvement in ergonomics and occupational health and determine if they felt that appropriately trained chiropractors, speaking from their biomechanical, prevention oriented background and experience in treating patients suffering from the end result of poor ergonomic workstation design and organization, can make a meaningful contribution to solving these problems.

I explained the fact that the ACA has developed an official council on occupational safety and health and that chiropractors were already being trained in a 120-hour, postgraduate course which will be expanded to a 300-hour course leading to diplomate status in occupational health. While in the

midst of explaining this to Dr. Stephens, he expressed his concerns about professionals realizing their limitations in involvement in ergonomics. He said there is a rapidly growing number of overnight ergonomists that have taken a short weekend course and feel that they are experts. As I continued to explain the level and quality of training involved in this postgraduate study he became increasingly favorable to chiropractic involvement. He mentioned that true solutions come from a team approach involving members from various perspectives. The perspective that trained health-care professionals provide, such as a chiropractor, could become very important. My impressions of Dr. Sauter's comments were quite positive. These gentlemen could not officially endorse a program because that is strictly against OSHA and NIOSH policy. However, they certainly encouraged pursuing involvement.

David LeGrande of the CWA, after hearing my explanation, said

he felt involvement by trained chiropractors was great. Many employers, especially small employers, are generally ignorant of the technical issues including problems and bottom-line benefits of ergonomic approaches. These businesses are not equipped to staff personnel devoted to keeping in touch with the latest research. Chiropractors could particularly assist these companies. Companies must have some method or source for understanding how profits are currently being lost through poor ergonomics and how implementing proper solutions can increase profits.

Examine one short example of technology transfer. On Sept. 25, 1990, I surveyed 48 claims processors at a local insurance company. The results of this survey indicated that 52 percent of the respondents felt as if they did not have good posture, 69 percent found themselves slouching often or continuously, 71 percent experienced pain which detracted from their tasks, 73 percent complained of neck problems, 48 percent had shoulder problems, and 71 percent had back problems. I administered a 40-minute training program on fundamentals of sitting properly and walked through their office. I discovered that every chair had four adjustments but not a single person knew how to adjust their chair. After a short explanation and personal attention to each workstation and its unique fit to each individual, I found immediate improvement in performance, morale and reports of decreased symptoms. We continued to track the effects of this simple intervention and the benefits to management, employees and myself have been well worth the effort.

The technology is available and this niche will be filled. All that is left is determining who will fill it. ■



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