ERGONOMICS PROGRAM COMPONENTS

This report has sought to make the case that every organization should have an ergonomics program to minimize injuries and discomfort on the job. Unfortunately, only a small minority of organizations has made that commitment. A poll by *HRMagazine* published in its June 2000 issue revealed that only 23% of the organizations contacted had an ergonomics program. A majority (56%) of those with programs created their programs to prevent injuries before they occurred; 33% created them in response to injuries on the job; and 11% did so to lower insurance premiums. Anecdotal evidence gathered by the author suggests that fewer than 10% of major academic and public libraries have established an ergonomics program, and an even smaller percentage applies for other libraries.

An ergonomics program should have the following components:

Evaluation

A systematic evaluation of the work environment can be undertaken by an ergonomics consultant or by management and staff after they have studied the subject. Even when an ergonomics consultant is retained, assign a committee that includes employees to work with him or her because the employees best understand their work and can give valuable input into solutions.

If management and staff undertake the evaluation, enroll one or more people in an ergonomics seminar. For example, Humantech, a major ergonomics consulting firm, offers a two-day seminar on ergonomics, office ergonomics, and laboratory ergonomics. Tuition is a maximum of $625 per person, but group discounts are available. Humantech also offers on-site seminars. The daily rate varies by the size of the group, but at a minimum of $7,000, exclusive of reimbursable expenses, it is cost-effective only for groups of 12 or more.

www.htec.com

The National Safety Council also offers training programs, but most are geared to industrial safety. Their general course, designated "Ergonomics: Evaluation and Applications" is useful because it defines ergonomics, teaches how to develop an organizational ergonomics program, identifies risk factors, and identifies options for controlling or preventing risk factors. Both computer use and lifting tasks are covered. However, hand tools and machine/equipment controls are also covered. The two-day seminar, which is held at least eight times per year throughout the United States, is priced at $495 for members and $620 for nonmembers.

www.nsc.org

The most common types of injuries in libraries and offices relate to the use of computers. Addressing these problems requires looking not only at each person's computer, workstation, and chair but also posture and lighting. Use the basics set forth in Chapter 4 as a checklist for assessing the workplace. The checklist OSHA prepared as part of its ergonomics standard development is included as Appendix D.

Interview each employee at his or her workstation to determine any pattern of discomfort: aching wrists, backache, stiff neck, and so on. When approaching the employee, observe his or her posture to determine whether the back is straight, feet at flat on the floor, arms form a 90-degree angle, and wrists are straight. If the posture is poor, is it attributable to a poorly designed or poorly adjusted chair or unsuitable workstation? Observe whether the computer monitor has glare, and, if so, from where it appears to come.

Each employee should also be asked whether he or she stretches regularly. If not, encourage stretching.

Don't overlook employee back injuries. According to the U.S. Department of Labor, at least one-third of the occupational injuries are caused by lifting and carrying objects that weigh less than 50 pounds. Many of these injuries occur in libraries, offices, and other nonindustrial settings. Although factories, warehouses, and moving companies train workers and regularly monitor their activity, the less common lifting and stacking done in offices and libraries is generally without training and supervision. Employees in libraries engage in lifting or stacking when handling incoming or outgoing shipments of books, when carrying shelving, moving furniture, or lifting book trucks over high doorsills.

NIOSH is the National Institute of Occupational Safety and Health, www.cdc.gov/niosh.

Information is available at www.cdc.gov/niosh.

NIOSH, a part of the U.S. Department of Labor, published a lifting equation in 1981 setting the maximum acceptable weight of handling under various conditions. It revised the equation in 1991 and reduced weight to a maximum of 51 pounds. Subsequent studies by the Department of Industrial Systems Engineering at Ohio State University determined that even 51 pounds can be too much weight if a person is lifting for a sustained period, lifting quickly, or with poor technique. Lifting without proper technique is safe only when less than 20 pounds is involved.

Several software packages are designed to help an organization evaluate its work environment. All require a mid-level PC with Windows, except as noted:

Applied Computer Services, www.acsco.com

Applied Computer Services Inc. has developed a product called *RP Ergonomics.* It is a product that includes an OSHA workplace risk factor checklist, a comprehensive discomfort survey, and a module for the NIOSH lifting analysis. It also has a module for maintaining a medical history. Its price is $1,000.

www.ergoteam.net

ErgoTeam Ltd. has introduced the *Office Comfort Index*, an Internet-based software program that allows an organization to systematically evaluate the ergonomic needs of its office workers. The program consists of two parts, an Individual Self-Assessment Survey and a Facilitator Database. The survey examines areas such as workstation layout, seating, lighting, work environment, and computer equipment. The database compiles all individual survey information and allows organizations to create many management reports and perform different tracking functions.

A demonstration version of the software is available at www.officecomfort.com.

www.delmia.com

Delmia Corp.'s (formerly Deneb Robotics Inc.) *Envision/ERGO* is a human motion and task analysis tool. Human motion is rapidly prototyped, enabling analysis of reach, lift, posture, cycle time, visibility, and motion. Analysis capabilities include range of motion, NIOSH lifting guidelines, upper-limb repetitive motion assessment, and methods time measurement. Pricing is available on request.

Worker Training

Dr. Michael Minieka, the neurologist who formed the Chicago Ergonomics Group Inc., the company that undertook an ergonomic analysis of the American Library Association's offices in 1998, consistently found that his early clients failed to direct employees in the use of the ergonomic equipment purchased as the result of his company's analysis. Given that information, he stressed that training on the proper use of equipment may be even more important than the equipment itself.

A worker training program should include at least these five topics:

1. Common MSDs and their symptoms
2. Tasks that can cause MSD
3. Ergonomic basics
4. Hands-on training in adjusting a chair and other equipment
5. Prompt reporting of injuries

Many software packages can be used in training workers:

Datachem Software Inc.'s *ErgoSmart* is a computer-based ergonomics training system for employees who work at computers. There are five modules covering ergonomics and the computer, a monitor evaluation, how to set up a monitor, a monitor health analyzer, and monitor questions and answers. The site license is priced at $695.

www.datachemsoftware.com

ErgoTips, by the same company, is a sequence of 14 screen savers that help employees ergonomically set up their computers and shows them how to stretch for comfort at their workstations. The first screens contain full-color graphics on how to adjust chair, keyboard, and monitor, and maintain proper posture. Each exercise includes an automatic timer. The site license is priced at $495.

ErgoWeb Online Egonomics Training by ErgoWeb Inc. is a self-paced ergonomics training system with online testing. It consists of 10 modules: introduction, affected body tissues and disorders, human physical capabilities and limitations, ergonomics standards and guidelines, ergonomics laws, controls and displays, work site assessment, work site risk factor checklists, detailed work site analysis, and prevention and control of ergonomic risk conditions. Prices are quoted on request.

www.ergoweb.com

Many components in the training products mentioned in the evaluation component can also be adapted for use in worker training.

Record Keeping/Analysis

Every organization should maintain a log of all reported injuries, including those that involved no time off work. The log should be reviewed periodically to determine if a pattern exists.

Ergonomic Technologies Corp.'s CURED is a software application that combines database, analysis, and program monitoring elements for comprehensive management of an organization's ergonomics. It allows users to access data, maintain historical data records, visualize tasks, share data, and

www.etcnewyork.com

understand ergonomic risk factors and solutions developed for each task. The product can be used in either a Windows 95/98 or NT operating environment. Its price is $7,500. Given the high price, only relatively large organizations should consider it. For those organizations for which $7,500 is a luxury, the OSHA 200 log available without charge at is a good alternative.

OSHA 200 log is available at www.osha.gov.

Action

Address all conditions that have resulted in injury as quickly as possible. Undertake short-term fixes if funds are not available for a long-term solution. A good example is the telephone book to raise the monitor until a monitor arm can be purchased.

Address all conditions that might result in injury or that have resulted in discomfort as part of the regular budgeting process. For libraries with a technology plan, ergonomics should be a component of the plan. For those that do not, the plan should form a line item in the budget.

Re-evaluation

Consult the records periodically to determine whether the number and seriousness of ergonomic incidents has decreased as a result of the program. Consider not only the total number of reports, but also their type and location. Are there injury types that have not gone down? Are there areas of the library where they have not gone down?

Small libraries may not have a large enough number of injuries to be statistically significant, but even a single injury may be an indicator of a problem that could result in future injury. Reports of discomfort may also identify future potential injuries.