Health Promotion in the Office

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Occupational therapists have the training and skill to modify office environments in order to promote employee health. Minor changes in the ways tasks are performed can improve work performance, decrease the incidence of minor health complaints, and help prevent repetition injury. Two employee health promotion education programs are described. They were conducted by an occupational therapist and can be replicated in other settings. One program was a seven-session series for bank employees; the other was a luncheon presentation to office workers employed by a health science university.

Occupational therapists have traditionally been concerned about the effect of the environment on health. They have developed ways to modify the areas where a person lives, works, and plays in order to promote health. This paper describes two model employee education programs that can be used to promote healthful working environments in office settings. The programs were offered to office workers with varied job descriptions. However, many of the examples were specifically directed to employees who use keyboards for several hours each day.

Literature Review

The literature includes studies about the relationship of life changes to illness, suggestions for preventing repetition injury, and the effect of work posture on health. Additional research studies to document changes in work performance and minor health complaints following intervention are suggested.

Presentations from the 1973 Conference on Stressful Life Events (Dohrenwend & Dohrenwend, 1974) and studies by Holmes and Rahe (1967) and by Rahe, McKean, and Arthur (1967) demonstrated the relationship between illness patterns and life changes. These changes can be either positive or negative and vary in degree from going on vacation to the death of a spouse. The researchers assigned value units to each type of change and found that individuals with many life change units were more at risk for health changes the following year. These individuals made it through the changes, but got sick 6 months to 2 years later. By becoming aware of this type of risk, people can identify times when they are more likely to get sick and plan to be good to themselves.

Industry uses the term repetition injury to describe some of the problems resulting from repeated tiny traumas, such as overstressing a joint or muscle. The symptoms often develop over a 5- or 10-year period. Many of these symptoms can be reversed or prevented by making small changes in the way employees work, sit, or move. Two repetition injury prevention programs have been described in The Wall Street Journal (“Labor letter,” 1985). One coal company reported that it had saved $53,000 in back pay and benefits for coal miners who otherwise would have injured their backs. Black and Decker reported a 50% drop in musculoskeletal problems after instituting a program to evaluate and modify posture and work sites.

Other programs have been described at professional meetings. Staff from EME-Systems in Sweden presented papers at the 1984 International Conference on Rural Rehabilitation Technologies in Grand Forks, North Dakota (Kjellstrand, 1984; Weimers, 1984). They described machine ergonomics programs.
developed from their work over the past 10 years with the forestry industry. Many machine operators had been experiencing elbow, neck, shoulder, or back pain. These operators were often the most experienced and had been provided with the newest machines. Analysis indicated that the design of the controls of these machines exacerbated the problem. Operators had to operate five levers with each hand while pushing two rudder-type foot pedals. To solve the pain problems, engineers redesigned the controls so they could be operated using two joysticks with push buttons on the handles; they eliminated the foot pedals; and they added seats that could be adjusted by the operator without stopping work. These changes resulted in less downtime, increased productivity, fewer complaints of pain, and less early retirement. Keeping experienced workers also decreased training time. Both the company and the workers benefited from the changes. The engineers then increased the worker's view of the work area by installing video cameras. This eliminated the strain on the neck and back caused by twisting around to look behind the machine and it lowered the injury rate from machines being backed into workers. The engineers then made similar changes to tractor seats for farmers, cabs for road building equipment, and office chairs.

Trombly (1985) compared variables in injured and noninjured AT&T workers in Boston in an attempt to predict which workers were most likely to have repetition injuries. She found that workers with fewer years of work experience or those just returning from a vacation had a higher risk of being injured. She developed a predictor formula using four variables: hand length, left wrist ratio, Finklestein test, and tenodesis. Workers with longer hands and wrists shaped like a square were more prone to injury. Workers who had experienced pain during the Finklestein test were at risk for tendon problems. In this test, workers make a fist, holding the thumb in the palm of the hand, and then ulnarily deviate the wrist. Tenodesis motion was also related to repetition injury. Tendons should not be either too loose or too tight. This was checked by asking the worker to bring the wrist back with the fingers fully extended and then to bend the wrist with the fingers fully flexed. In addition to identifying which factors would most likely cause a repetition injury, Trombly recommended that workers be educated about biomechanical risk factors and about early warning signs of repetition injury such as numbness tingling and soreness.

Pearce (1984) applied ergonomics, the study of human factors engineering, to video display terminal operators. He suggested that employees practice good posture and correct hand and wrist placement and that they reduce eyestrain. He also suggested using terminals with adjustable keyboards and screens, using properly designed chairs, and having good lighting. He stressed the importance of work breaks and vision breaks and described exercises to help relax tight muscles and reduce stress caused by sitting and concentrating for long periods of time.

Studies done at the Repetition Strain Injury Clinic in Australia (Groom, 1984; Pearce et al., 1984) described early signs of repetition injuries in office workers as fatigue, watering eyes, tension headaches, upper or lower back pain, irritability, wrist pain, and/or decreased work production. Often these problems were worse on Monday mornings or after holidays or vacations. Work production measurements included the number of times a worker had to ask someone to repeat a number or the number of typing errors. Typists seem to develop a rhythm of work and need time to readjust after a break. The studies suggest that for best work production, typists need a 15-minute break from straight typing per hour and should do no more than 4 hours of straight typing per day. The typing should be varied with other office tasks. Examining work space arrangement and developing education programs to help prevent repetition injury were also suggested.

These studies, with their suggestions for specific changes related to posture and office arrangement, along with selected employee education pamphlets, served as a basis for the following programs.

Programs

Unlike traditional health promotion programs in the workplace that emphasize exercise, diet, and smoking cessation, the health promotion programs described here and carried out by an occupational therapist emphasized changing the office environment. This emphasis closely correlated with the therapist’s skills and training. The goals of these programs are to reduce repetition injuries, help health workers cope with stress, and decrease the incidence of minor health complaints. A general program description was mailed to local businesses whose employees spent several hours each day working at keyboards. These included banks, credit bureaus, travel agencies, accounting firms, and investment firms. The occupational therapist then met with representatives from interested businesses to develop specific programs.

A seven-session series about health promotion in the office was developed for one bank after meetings with the personnel department to identify specific needs. Prior to the first session, the therapist visited each department and branch office, photographed bank employees at work, and prepared a slide presentation about proper body mechanics and posture, using bank employees as models. The use of familiar
people and settings as photo subjects was designed to help the bank employees apply the concepts to their own work settings. The bank president asked all employees to attend a general orientation session. Six additional sessions were planned, and employees could preregister for those they wished to attend.

A second approach was used in a university setting. The local chapter of the Higher Education Office Personnel Association invited an occupational therapist to present a program about health promotion at one of their luncheon meetings. The luncheon program consisted of an overview of repetition injuries, specific symptoms, prevention methods, and a work plan for change. It included suggestions for modifying life-style, posture, equipment, desk arrangement, and work organization.

**Introductory Session for Bank Employees**

The introductory program for bank employees and additional information about repetition injury that was included in the program for university employees are described below. A similar program was presented to the local chamber of commerce. The program developed the theme “Keeping Healthy Is a Business—Your Business.” Methods of health promotion were described using business terminology. Health was defined as an absence of disease and of minor health complaints such as headaches, muscle aches, fatigue, respiratory infections, and gastrointestinal upsets. Health also included being satisfied with life and having enough energy to complete self-care and work tasks and leisure-time activities. The therapist suggested that feelings of satisfaction and the absence of minor aches and pains can result in higher work productivity without requiring additional energy or work.

Descriptions of health habits included choices about life-style and activities. Most employees were aware of the benefits of proper nutrition, rest, and exercise. They knew that overexposure to the toxins found in cigarettes, alcohol, and drugs can lead to health problems. The goal was to help the employees change their health habits. The therapist emphasized that change is hard work. She encouraged the employees to avoid setting themselves up for failure; she suggested that they build in encouragement as they reached each intermediate step and that they make the effort to take the first step. The effect of change on family and friends was also described. Employees were reminded that family and friends might resent a change or become angry or frustrated when the employee no longer acted or responded in the usual way. For example, they might say, “I like the old you,” “It’s okay to diet, but not with me,” or “It’s okay to exercise, but not when I want you to drive me to my friend’s house.” Employees were encouraged to be aware of these common behavior patterns and to plan strategies for dealing with them.

Employees were encouraged to support each other. They were reminded that even though most people want to feel good, some people seem to get gratification from poor health habits. Some people enjoy the attention they get from talking about their health complaints, the increased socialization from others asking how they feel, and the attention they get from others telling them that they hope they will feel better. Some poor health habits occur only at times of increased or decreased stress and vary with the setting or time. Individuals may comment that the poor habits are only evident when they need something to do or are bored or upset. Sometimes keeping a log of minor health complaints or asking other employees to identify poor health habits can help an employee identify locations or times that promote poor performance.

The therapist stated that each employee needs to be able to deal with the stresses of life and to be able to cope with change. Physical, psychological, and environmental stresses all build on each other. When one type of stress is especially heavy, it helps to try to reduce the other two types. There is no way to eliminate all stress, but employees can practice effective coping techniques. There are also problems caused by having too little stress. These include disease syndromes, boredom, and sensory deprivation. The goal is to maintain a level of stress that is right for the individual.

The therapist then discussed studies in the literature related to stress, posture, and the office environment. The discussion of posture included how individuals usually do things, how they stand and sit, and whether they use good body mechanics. The therapist emphasized that it is the little things that count. Moving a tiny bit incorrectly every day, every year, adds up and can result in major health problems. It helps to keep the spine and other joints aligned, watch pressure points, and avoid eyestrain. The therapist described early eyestrain symptoms, which include fatigue, watering eyes, and headache, and poor position symptoms, which include upper or lower back pain, irritability, tension headaches, fatigue, decreased work production and wrist pain.

Prevention methods were also described. One method to prevent eyestrain is to position word processor screens or computers to avoid reflected glare from windows or overhead lights and to add sheen drapes to windows. Nonglare screens, eyeshades, or shades for the screen may be purchased. The screen should be kept clean and free from fingerprints and dust. Visual distractions in the background should be eliminated. Documents or rough drafts should be
positioned at the same eye level as the screen, and document holders should be used if needed.

Posture could be improved by adjusting furniture and office equipment so that it is efficient for each employee. Each employee was encouraged to arrange her desk so that she could hold her head erect, have her feet flat on the floor, have the lumbar area of her back supported, and work with her arms next to her side with elbows bent about 90 degrees. Armrests or keyboards that allow the employee to rest her hands on the base of the keyboard were also suggested. If furniture could not be adjusted, the employee was encouraged to try using a footstool, seat cushion, or wooden platform under the typewriter to improve typing posture.

Employees were encouraged to organize work so that they could vary position. The therapist stated that any one position maintained over a long period of time is bad, no matter what the position. She pointed out that some typists unconsciously vary how they type by sometimes using elbow motions, other times using more wrist motion, and still other times using mostly finger motion. Some offices have reorganized job descriptions so that no one does 8 hours of straight typing. Typing is alternated with filing, running errands, answering phone calls, ordering, and other tasks. The therapist pointed out that most office employees are not in control of their work life. Someone else controls when work arrives and when it must be completed. She suggested that employees try to arrange reasonable deadlines with supervisors and set realistic priorities for tasks. It is also helpful to have a support group for times when frustration peaks at the office and workloads seem impossible.

The therapist then presented a slide series showing some common habits that often lead to sore muscles or injury. Employees were reminded that no one position is bad in itself. It is important to determine how often the position is assumed, how long it is maintained, and whether habitual positions are balanced by also stretching in the opposite direction. The slides depicted employees in correct and poor office arrangements and body positions. For example, in one slide, an employee held the telephone between her chin and shoulder, which could lead to neck stiffness or upper back pain. Another slide depicted a less stressful position, with the telephone held at ear level and the paperwork positioned at eye level. Other suggestions for employees included holding the telephone on alternating sides or using a lightweight operator headset, which eliminates the need to hold the receiver.

Other slides demonstrated postural causes of pain, such as prolonged twisting while typing. Suggestions included positioning work at eye level, using document holders, and working at a surface large enough to hold the keyboard, screen, and document to be typed. The slide series also included correct and poor matches of employees with office furniture. Keyboard height, chair height, backrest position, and work surface variations were demonstrated. Additional slides showed correct and poor sitting postures in office and home environments. Employees were encouraged to use their chairs for support and to vary work positions. Foot position was also noted. Slides showing poor positions included an employee seated with her foot pressed against a carton, another employee with her feet curled under her, and a third employee sitting on her foot. These employees had reported knee and ankle pain, numbness, and decreased circulation. Other pictures showed employees slouching in chairs, sitting with too much lumbar hyperextension, and sitting with weight on one rather than both hips. Employees were encouraged to work with joints aligned and legs and back supported and to arrange furniture to allow for changes in position.

Good examples included employees using a footrest, a foot support on a high chair, and a wastebasket as an improvised footrest. Employees were urged to alternate standing and sitting positions and to maintain spine alignment while standing. Poor examples included always carrying a briefcase on the same side, holding grocery bags or a child on the same hip, and arranging all work to one side. Other examples included shoulder and neck pain aggravated by carrying...
a heavy shoulder bag and hip and back pain aggravated by carrying a heavy wallet or large ring of keys in one hip pocket. One slide showed a man at the automatic teller wearing a tool belt with all of the tools positioned over one hip. Employees were reminded to balance loads where possible and to work in energy-conserving positions.

Slides were also used to demonstrate good body mechanics when moving and lifting objects. Concepts included stooping instead of bending (see Figures 1 and 2), sitting rather than leaning over for long periods when consulting with a co-worker or filing, and using a sturdy step stool to reach high items. When picking up heavy objects, employees were encouraged to bend their knees, keep both feet flat on the floor, and face the item to be lifted. Emphasis was placed on minor changes that could improve work posture and prevent injury.

The program continued with a description of the six optional sessions, which were scheduled during the last work hour of one day every other week. The purpose of the sessions was to help employees develop and implement personal health plans. Topics, times, location, and preregistration forms were included on program flyers, which were distributed to each employee. The first session helped employees assess their life-style and emphasized personal responsibility for health habits. The second session described how to analyze and improve work posture and how to improve the work environment. The third session stressed back care and practice in safe body mechanics while lifting and moving objects. The fourth session included practice with three types of stress reduction techniques and a film about how lifestyle patterns affect health throughout life. Employees could practice change agent methods at the fifth session. The final session included a discussion about the importance of maintaining a balance of work and play and allowing enough time for self-care and rest. It also helped employees identify community resources that could help them implement personal health promotion plans. Handouts were provided at most sessions and one complete set of the handouts was available in the personnel department.

Following the program description, a plan of action was described. Employees were told that as managers of their health habits, they could improve their health status by developing work plans and preparing quarterly and annual reports. The first step was to complete a needs assessment that identified their general health status, life-style and good and bad habits. Then they were asked to determine realistic, reachable long- and short-term goals and to decide what they wanted to change as well as the amount of energy they were willing to spend to change their habits.

The third step involved identifying positive and negative forces that might help or hinder their plans. They were asked to postulate how their new behaviors might affect family and friends and how they could enlist their support.

The fourth step was to consider alternate plans and pick the one most appealing to them. Employees were reminded that small steps with measurable goals are often more effective. They were asked to consider what types of plans had worked for them in the past, what support systems were available, and what other stressors were present. They were also told that a high stress time in their life was not the time to totally change their life-style.

The fifth step was to develop an evaluation system so that they could determine whether their plan was working and to build in some rewards for meeting their goals. Finally, they were encouraged to get started and take the first step toward a happier, healthier life.

Specific planning suggestions were also included in the presentation for university office employees. Employees were asked to try to keep a log for 1 week and record notes about how tired they felt, when they had headaches or back pain, and some notes about work efficiency. For example, was their first draft error-free, or did they have to reproof and correct typos several times? They were asked to evaluate their sitting position and work space, and they were to ask co-workers to observe how they normally sat when concentrating on a task. It was suggested that employees take "before" and "after" pictures, that they choose one or two minor changes to try for a few
weeks, and that they repeat the log to note changes. They were told that a new position might initially feel strange, but that they should notice health changes within a few weeks. They could evaluate the effectiveness of changing their habits based on how they felt.

Response to Programs

Response to the bank program varied. The first session was held in a local theater, in which an orchestra pit separated the speaker from the participants. Sound system quality varied. In spite of this, many employees commented that they thought the presentation was helpful. Others thought that the concepts presented in the overview were common sense.

Some employees preferred the health promotion approach that emphasized exercise, weight control, and smoking cessation programs. They did not want to deal with changing daily habits at work or confront poor office relationships. The most popular topic for the optional session was stress management. Office workers wanted ways to decrease muscle tension after prolonged periods of typing. In one optional session, employees role-played typical stressful situations in an office environment and discussed ways of coping with the stress. Because both secretaries and managers attended the same session, some secretaries were reluctant to discuss their concerns. This suggests the need for separate programs for employees and managers in settings where office relationships are strained.

Another problem was that many employees did not know each other. Bank management had stated that name tags and introductions were not necessary because everyone knew each other. However, participants stated that they did not know others in the room. Discussions would have been facilitated by including more introduction activities at the beginning of each session.

Scheduling the sessions at the end of the work day but still during office hours caused another problem. Some employees could not leave their offices because they had not completed their work tasks for the day. Even though the program was sponsored by management, employees did not have the freedom to leave their work stations. The program evaluations from individual employees who attended the program were positive, but management expressed some concerns about the value of the program. Even though management participated in the initial planning, ongoing program evaluation meetings were needed; and the bank management chose to cancel some of the optional sessions. It must be recognized that the approach of promoting health by changing habits of office workers at work is still new and is often seen as threatening in traditional environments.

The response to the presentation of the introductory session at the Chamber of Commerce was positive, and employers stated that the concepts were relevant for their employees. The response to the program for university employees was also positive. The office workers commented that they found the program relevant and helpful and that they planned to implement some of the suggestions on their own. Discussions were more open than in the more formal bank setting. The informal setting, the absence of employers, and the participants' friendship with each other facilitated discussion.

Summary

Occupational therapists have the training and skill to modify office environments to promote employee health. Detailed observation of office arrangement, employee posture, and work habits can identify poor habits that could later lead to health problems. Minor changes in the ways tasks are performed can improve work performance, decrease the incidence of minor health complaints, and help prevent repetition injury. Cooperation is needed from both employees and employers. Employers must be willing to consider changes in office procedures, and employees must be willing to cooperate for the extended time needed to change basic work habits. Additional research is needed to document changes that are due to occupational therapy intervention in health promotion programs, and longitudinal studies are needed to document change in the incidence of repetition injury.

References

project: Prediction of worker's propensity to develop repetitive motion injuries of the upper extremity. Boston: Boston University, Department of Occupational Therapy.


Selected Handouts and Sources

1. Wellness: Taking Charge of Your Health; Fitness; Weight Control for Better Health; A Guide to Managing Stress; Working VDTs: The Human Interface; Back Tips for People Who Sit; Your Back Is Always Working; Back to Basics: A Guide to Preventing Back Injury; Back Exercises for a Healthier Back, Krames Communications, 312 90th Street, Daly City, CA 94015-1898.

2. Stress, Blue Cross Association, 840 North Lake Shore Drive, Chicago, IL 60611.
