

CHAPTER 4

DESIGNING WORKSITE STRESS MANAGEMENT PROGRAMS

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Increased interest in stress management training programs delivered in the workplace has accelerated because of:

- o Recognition that job stress represents a significant and growing health problem as well as a mounting major expense for American industry.
- o Increasing understanding of the mechanisms of actions that link stress with various illness syndromes and somatic complaints.
- o Improved methodologies for identifying and evaluating stress in the workplace.
- o Improved implementation and validation of various stress reduction techniques.
- ô Evidence that stress management training programs are not only cost effective for corporations but also increase employee satisfaction and relationships with management, and improve quality of life in the workplace.

Health care costs in 1984 consumed almost 11% of the gross national product(American Medical News, 1985). Heart disease, cancer, strokes, and accidents are major contributors and are increasingly being linked to stressful lifestyles and behaviors or inappropriate coping responses to stress. Job stress has been estimated to cost American industry \$150 billion annually as assessed by absenteeism, diminished productivity, compensation claims, health insurance and direct medical expenses (Manuso, 1984). Put into perspective, that's more than 15 times the price tag for all strikes combined. Over 500 million work days are lost each year due to illness or disability, 93 million because of back problems, and 26 million are attributed to cardiovascular complaints associated with coronary heart disease and hypertension. The Metropolitan Life Insurance Company in 1984 indicated that an average of one million workers are absent on any given work day largely due to stress related disorders. Some estimates suggest that up to 25% of payroll expenses may be health related. The Xerox Corporation estimates that it costs approximately one to one and a half million dollars to replace a top executive and \$200,000-\$500,000 for senior managers at lower echelons (Rosch, 1984a). In addition to the major illness categories cited, a variety of other stress related behaviors also take their toll. Alcoholic employees and smokers exhibit twice as much absenteeism. A recent American Association of Family Physicians' study of six occupational groups confirmed that job

stress was considered to be the greatest factor leading to adverse health habits (American Association of Family Physicians, 1979).

Surveys suggest that 75-90% of visits to primary care physicians are due to stress-related problems such as backache, headache, insomnia, anxiety, depression, chest pain, hypertension, gastrointestinal, and dermatologic complaints, etc. (Stroebel, 1982). The ability of stress to cause emotional and somatic symptoms or contribute to various disease syndromes has long been appreciated but mechanisms of action have only recently begun to be clarified. A pertinent example is the stressful Type A coronary prone behavior pattern now acknowledged to be as predictive as any other known risk factor for coronary heart disease (Coronary-Prone Behavior Review Panel, 1981). Furthermore, reducing coronary prone behavior currently represents the most successful strategy for preventing recurrent heart attacks (Friedman, et al., 1984). The role of stress in hypertension is attested to by the latest National Heart, Lung, and Blood Institute's recommendations for the treatment of hypertension (Joint National Committee on Detection, Evaluation, and Treatment of High Blood Pressure, 1984). These new guidelines urge that non-pharmacologic measures be employed as the initial treatment for hypertension or be instituted as adjuvant measures in any therapeutic regimen. While weight reduction and salt restriction fall into this category, their efficacy is rather limited. To a considerable extent therefore, these new recommendations really reflect a growing acknowledgement of the importance of stress and efficacy of stress reduction strategies such as meditation, progressive muscular relaxation, or specific biofeedback techniques in treating hypertension. Clearly, industry has also shown great interest in this approach. A recent survey of 160 corporations indicated "stress management" programs to be the first priority (Pelletier, 1984). There were four times as many projects in this category as the next largest segments, physical fitness, and non-drug treatment of hypertension. At the present time a three year program is underway between the University of California School of Medicine, Bank of America, and several major corporations in California to develop and evaluate behavioral approaches to reduce stress and hypertension (Pelletier, 1983).

Anecdotal reports supported by preliminary research data implicate psychosocial stress as an important factor in the development and course of various malignancies as well as infections ranging from the common cold to herpes. Verification of the validity of such relationships has now come from the rapidly emerging field of psychoneuroimmunology (Ader, 1981), clearly confirming the ability of stress to reduce immune system defenses against cancer, as well as bacterial and viral infections. Increased gastrointestinal, secretory and motility patterns in response to stress allow insight into the pathogenesis of conditions such as peptic ulcer and colitis characterized by such abnormalities. Similarly, the facilitative effects of stress on a variety of allergic phenomena that affect the

skin and lung have assisted us in understanding the role of emotions in dermatologic, allergic, chronic pulmonary obstructive disease and asthma. Further understanding of the nature of stressful stimuli that can provoke such responses increasingly implicates work-related problems as a potent factor.

Of particular interest has been recent research linking stressful working conditions with an increased incidence of coronary heart disease in certain occupational groups (Karasek, et al., 1981). Common denominators in such situations appear to be lack of control, increased responsibility without commensurate authority, and inability to express emotions in the workplace (Karasek, 1979). Many occupations that fall into this category primarily involve females. More and more women also are subjected to further stress because of increasing migration into a male dominated work force that does not fulfill the promise of the Equal Rights amendment or the women's liberation movement. This appears to be of particular importance since certain subsets of working females seem to be exhibiting more and more male Type A coronary prone behavior and a concomitant substantial increase in heart attacks or are in occupations that have high demand and low control. (Haynes and Lacroix, 1985). One recent study at Stanford University indicated that four times as many women MBAs than male controls seek psychological counselling and have more frequent functional stress related complaints (San Francisco Examiner, 1985).

Conversely, it appears likely that "positive" stressful stimuli and emotions confer health enhancement benefits. The availability of strong social support networks, pride of accomplishment, a sense of being in control, enjoying what you are doing, being able to get things "off your chest" all seem to fall into this category (Kobasa and Maddi, 1979). Such observations also have relevance for job stress reduction program goals.

Even if we were to agree that stress and particularly stress at work can cause significant illness, is it possible to develop techniques to identify or quantify it to enable us to predict and hopefully prevent such harmful consequences? While current methodologies are admittedly crude, the answer would appear to be a resounding yes. Perhaps the most well known and popular stress appraisal instrument is the Holmes-Rahe Social Readjustment Rating Scale (Holmes and Rahe, 1967). This technique which has undergone several modifications, rates some 43 life change events in order of magnitude ranging from loss of a spouse at the top with a value of 100 to getting a traffic ticket at the bottom with a score of 11. By merely totalling the score of items experienced in the preceding 6 to 12 months, it is possible to predict with some accuracy the likelihood of future illness and to some extent its severity. As indicated previously, identification and measurement of stressful Type A coronary prone behavior has also been found to be significantly predictive for the subsequent development of heart

attacks (Rosenman, et al., 1964, 1970). The relationship of such "male" type behavior is best assessed by a standardized and structured personal interview conducted by trained personnel (Rosenman, 1978). This requirement makes large scale surveys time consuming and expensive. As a consequence, a variety of questionnaires such as the Jenkins Activity Survey (Jenkins, 1967) and the Bortner Rating Scale (Bortner, 1969) have often been used to uncover coronary prone behavior to improve cost effectiveness and can be used in the industrial setting for screening.

Finally, it seems quite apparent that the nature of stress in modern society can result from not only major life change events or exaggerated and inappropriate behavioral syndromes but also a host of minor irritating hassles that occur repeatedly on a daily basis. Examples are getting stuck in a traffic jam on the way to or from work, arguments with co-workers, customers, relatives, friends, etc. - or even a broken shoelace. These can also be measured by means of a "Hassle Index" (Kanner, et al., 1981) which can also forecast adverse health consequences. The amazing thing is that despite the crudity of all these approaches, the Holmes-Rahe Scale, Type A coronary prone behavior evaluation, and the Hassle Index all seem able to forecast with some accuracy the development of subsequent illness. The 467 item computer scored Stress Vector Analysis attempts to incorporate and correlate information obtained from these and other stress measuring scales to provide a profile of stress that displays its relative sources of origin and mechanisms of expression (Staats, 1982). Further developments would appear to offer greater promise by refining combinations of such test approaches or by measuring psychophysiologic responses to standardized emotional challenges. Proof of the efficacy of stress management programs is difficult to obtain. There are a variety of reasons for this. A major problem in gathering information is that stress reduction efforts are often components of a larger employee assistance program that includes or emphasizes such activities as jogging, aerobic exercise, counseling on nutrition, alcoholism, substance abuse, or family problems. While such ancillary services also may come under the general heading of stress reduction measures, it is difficult to dissect out the specific contribution of a stress reduction intervention, per se. Meditation, progressive muscular relaxation, biofeedback, assertiveness training, behavioral modification and other stress reduction strategies may provide benefits but they cannot be isolated and identified as such. In addition, relatively few stress reduction programs have been constructed so as to permit adequate evaluation of efficacy. Criteria cited are often diminished absenteeism, improved productivity, improved relations or better quality of life in the workplace. However, these are usually influenced by other confounding factors or by virtue of their self report nature are not susceptible to scientific scrutiny. Nevertheless after an extensive analysis of stress programs in 1984, Green and his colleagues at the Center for Health Promotion Research and Development at the University of Texas

concluded that "despite methodological problems inherent in some of the previous evaluations, the data suggest that stress reduction programs at the worksite are effective in reducing both physiological and psychological indications of stress" (McLeroy, Green, Mullen and Foshee, 1984). They also emphasized that stress management programs must address both individual and collective stress management techniques, as well as modifying the stressful aspects of the work environment including business policies and corporate culture.

There are numerous anecdotal reports that suggest benefits. Several years ago, the PA Medical Corporation claimed a 14% decline in absenteeism due to their stress reduction program (Everly and Girdano, 1980). Kenecott Copper credited a whopping 75% decrease in "sickness and accident costs" to their stress reduction efforts (Egdahl and Walsh, 1980). At Transco, much of the company's profit rise was considered to be a direct consequence of stress reduction programs (Everly and Girdano, 1980). Such enthusiastic claims have naturally spurred other corporations on to investigate the desirability of introducing or adding stress reduction programs as an additional employee benefit.

While our purpose here is to review and evaluate formal stress reduction programs per se, it is perhaps more practical to study efficacy within the context of broader employee assistance programs. Many such efforts really represent stress reduction techniques although they fall under other headings such as exercise, counselling on alcoholism, and substance abuse, marital problems, and diet, all of which have important stress related implications. The mere establishment of an employee assistance program may in itself have important stress reduction benefits since it provides pertinent resources for the worker, as well as tangible evidence of management's interest and dedication to personal welfare. One study suggests that 10% of all employees have significant serious personal problems (Pelletier, 1984), while another indicates that employee assistance programs, by improving or resolving such difficulties, have achieved an average 80% rehabilitation rate among participants (Berry, 1981). In terms of over-all employee assistance programs which do not necessarily employ specific stress reduction strategies cited previously, there appears to be little question of benefit to all parties concerned. Kimberly Clark reported a 70% reduction in on the job accidents with their employee assistance program (Dedmon, 1980). At General Motors, there was a 40% decrease in lost time and a 60% decrease in sickness and accident benefit payments. On the job accidents decreased by 50% and so did grievances. The cost effectiveness of each dollar invested was significant with at least a 3-1 return (Stessin, 1977). Equitable Life Assurance Society estimated \$ 5.52 (Manuso, 1984) and Kenecott Copper \$6.00 (Berry, 1981) saved for every dollar spent on their programs. Other less quantifiable benefits were also cited. The Chief Executive officer of Tenneco, which purports to have the "Cadillac" of corporate wellness

programs, cited improved morale, better quality of life, greater inducement for recruiting, less employee turnover, and better employee-management relationships as additional benefits. Johnson & Johnson's wellness program "Live For Life" far exceeded predicted and hoped for cost savings and also created a greater "sense of community" among the employees as well as between the company and its employees (Brown, 1981).

CAUSES AND NATURE OF STRESS AT THE WORKSITE

Job stress can have many roots and causes. Some of these are environmental and arise from annoying physical problems at work such as crowding, noise and air pollution, and possible exposure to potentially hazardous substances. Others may relate to the nature of the occupation, The common denominator here is often being placed in a situation which demands considerable responsibility without commensurate authority or decision making capability or not being able to express your true feelings and get things off your chest. Dull, dead-end, assembly line type of work, or having a job which does not permit full use of one's talents and potential or where constant deadlines do not permit enough time to get the job done to one's satisfaction may prove particularly stressful for large groups of individuals in middle management positions.

Stress at work can also be due to the individual's own personality, a good example being the executive with Type A behavior who is continually frustrated by self imposed unrealistic goals that are inflexibly pursued. Such individuals may themselves be vectors of stress at work as their aggressive and sometimes hostile behavior produces adverse repercussions on co-workers and customers. More often, it is not the individual or the job per se but rather a mismatch between the two in terms of basic goals, needs, and values that causes continuing problems. Stress at work may also have its real roots outside the workplace because of family or financial problems which lead to alcoholism, depression, or anxiety that affect activities and performance on the job. Some common factors that contribute to job stress are (Rosch, 1984b):

- o Inadequate time to complete the job to one's satisfaction.
- o Lack of clear job description or chain of command.
- o Absence of recognition or reward for good job performance.
- o Inability or lack of opportunity to voice complaints.
- o Lots of responsibilities but little authority or decision-making capability.
- o Inability to work with superiors, co-workers, or subordinates because of basic differences in goals and values.
- o Lack of control or pride over the finished product.
- o Job insecurity due to pressures from within or possibility of takeover or merger.
- o Prejudice and bigotry due to age, sex, race, or religion.

- o Unpleasant environmental conditions because of smoking, crowding, noise and air pollution, exposure to toxic chemicals or carcinogens, or commuting difficulties.
- o Concerns related to responsibility for employees.
- o Not being able to utilize personal talents or abilities effectively or to full potential.
- o The FUD factor - fear, uncertainty, doubt.

Most formal stress reduction programs concentrate on using various methods to reduce physiologic and somatic responses to stress by the use of meditation, progressive muscular relaxation, biofeedback, yoga, exercise, or similar interventions and combinations. Obviously, the ability to identify sources of stress and eliminate or mitigate them, provides a more effective approach to the problem. Coordinating such efforts with instruction in behavioral modification providing coping skills, assertiveness training or taking advantage of other aspects of an overall employee assistance program that deals with other psychosocial problems would appear to represent the most effective and comprehensive approach. It is important to keep each of these multifaceted aspects in mind when attempting to construct or evaluate stress management training programs for industry. As noted previously, many stress reduction efforts offered by corporations are not identified formally as such but are included as part of larger company policies, programs, and benefits. A comprehensive analysis of the problem that acknowledges all the above pertinent variables has been developed by Schwartz and co-workers at the Department of Psychology at Yale University (Neale, Singer, Schwartz and Schwartz, 1982). This is summarized in the form of an occupational stress evaluation grid which analyzes and categorizes stressors from such varying viewpoints and highlights strategies which have been developed to deal with them. (See Table 1.1, p. 5)

STRESS MANAGEMENT TRAINING PROGRAMS AT THE WORKSITE

As part of this review, we attempted to identify, categorize, and evaluate stress management training programs offered to workers. This required reviewing the literature supplemented by a series of written and telephone inquiries based on various leads and prior contacts. There were few new programs identified and very little additional information relative to new long term results or controlled studies. There was a general absence of criteria for assessing the efficacy of any such intervention. Most efforts consisted primarily of educational programs designed to acquaint workers with the role of stress in health, and illness, sources and causes of stress, nature of stress related symptoms, and diagrams illustrating stress reduction techniques. In a few instances there were also lectures, symposia, or workshops lasting from several hours to several days. Such programs were usually implemented at the worksite or at conference centers, and hotels, occasionally in the form of a "retreat." In larger organizations tend to be administered by company personnel, and/or

outside consultants. In some instances vendors offer packaged programs that utilize slides, descriptive material, case histories and audio cassettes. Most commercial programs attempt to provide participants with individual stress profiles based upon responses to self report questionnaires, standardized psychological assessment instruments, or the use of a standard or modified Holmes-Rahe Rating Scale. On occasion a specially constructed questionnaire was designed to focus on a particular occupation or worksite. Stress management training was usually provided in the form of meditative or autogenic techniques to induce general relaxation, and to a lesser extent, behavioral and cognitive approaches. In some instances, biofeedback services were available. Encouraging jogging, aerobic exercises and dancing and participation in sports represented the most common approach.

Physiologic Techniques

Most standardized stress management programs utilize procedures designed to assist the individual in dealing with environmental demands that cannot be avoided. One example is progressive muscular relaxation which is achieved by contracting and then relaxing various muscle groups in the body in a systematic fashion. The goal here is to produce a level of deep muscular relaxation. The original technique described by Jacobson (Jacobson, 1929) has been modified in many ways so that attention is also directed to accompanying such exercises with relaxing thoughts and images, as well as a tranquil breathing pattern. Other forms which include Autogenic Training (Luthe, 1969) place a greater emphasis on sensations such as limb warmth or heaviness to achieve this effect and many use visual imagery in conjunction with physical relaxation.

A variety of meditative measures are frequently employed. These range from specific Eastern techniques to the simplified "Relaxation Response" (Benson, 1975), which utilizes a repetitive deep breathing pattern and associated focus on a word or phrase with each expiration. It has been suggested that this induces a suppression of arousal responses somewhat antithetical to the "fight or flight" reactions. Practicing individuals seem more adept at resisting intrusive stressful thoughts or unpleasant external stimuli throughout the day as well as during the procedure. In rare instances, transcendental or Siddha meditation or yoga have been taught and utilized. A brief technique, known as the "Quieting Response" (Stroebel, 1982) consists of a combination of deep breathing and muscular relaxation combined with visual imagery for ten or fifteen seconds. It is easy to learn and can be used several times a day, especially when stressful situations are anticipated or encountered.

In sites where biofeedback training is available, individuals learn to develop self control over a number of physiological activities previously thought to be entirely involuntary. The most frequent

training techniques utilize frontalis muscle tension, fingertip temperature, and electrodermal response. Special electronic sensors located at appropriate anatomical sites generate a signal that is converted into electrical activity. This input is then transformed into either an auditory or visual cue which varies correspondingly with the degree of activity. By receiving such information on a continuing basis, individuals quickly become aware of body processes which were previously unknown and can recognize stimuli or feelings which produce consistent changes in a certain direction. By repetitive training and reinforcement of measures which reduce muscle tension or raise fingertip temperatures, a state of relaxation can be induced (Brown, 1977). In clinical practice, patients with tension headaches or Raynaud's disease have been successfully taught to abort attacks by reducing muscle tension or warming their fingertips as soon as early warning signs appear. Similarly, many other stress related symptoms can be reduced by successfully learning and practicing strategies. Biofeedback does require specialized equipment and trained personnel and generally requires individualized instruction. Consequently, it is not as cost effective as meditation, muscular relaxation or autogenic training which can be taught to groups of individuals.

Cognitive Training

Behavioral modification is another method used to reduce exaggerated or inappropriate responses to stress. One example is assertiveness training which is designed to provide individuals with more effective control over their activities. This approach emphasizes the development of appropriate assertive techniques to facilitate communication of personal needs and requirements. It is particularly useful in dealing with difficult interpersonal relationships, such as a need for change in job assignment since it reduces the anger and anxiety often associated with such situations. Other behavioral techniques are directed towards improving skills and communication, time management, and assistance in career development to more fully utilize potential skills and talents. In clinical practice, reduction of Type A coronary prone behavior has been reported to be the most effective method of preventing recurrent heart attacks (Friedman, et al., 1984). Increased use of techniques to reduce coronary prone behavior can be anticipated as soon as training programs and methodologies become standardized. However, this requires specially trained personnel and outside of one or two research efforts, no formal programs are available in training programs in this technique. In general, behavioral modification utilizes role playing, observation, self report feedback, and other behavioral therapy techniques and can be effectively taught in a group setting.

Improving cognitive skills may also provide important stress reduction benefits. This approach is based on the assumption that harmful stress responses often result from the individual's past experiences

in terms of appraisal of threatening situations. Very often, it is not the external event itself, but rather the individual's perception of it that causes problems. Cognitive training is designed to assist individuals in learning how to reappraise stressful situations by logic and reasoning rather than emotional reactions that have been ingrained by past habits. Often this involves emphasis on developing improvement of self esteem and personal worth.

Physical Fitness

Physical fitness is far and away the most popular method utilized to deal with stress in the workplace. This may take varied forms ranging from lunch hour or other company sponsored walking and jogging groups, aerobic dancing or exercise classes, or encouraging the use of community or in-house fitness facilities where specialized muscle building equipment is available. Proponents of jogging claim that regular running dissipates the build up of stress related hormones and provides a period of quiet time for personal reflection, free from the intrusion of usual external noxious stimuli. Some enthusiasts believe that the repetitive sound of footsteps facilitates the induction of a meditative state or that this particular aerobic activity induces a "spiritual high" by the release of small brain peptides such as the endorphins. In general, physical fitness programs require comparatively little expenditure of funds or specialized personnel and can be adapted to a variety of situations and occupational resources.

Reduction of psychosocial stress in the form of counseling services, weight reduction, cigarette smoking, alcohol and substance abuse, and financial and family problems are also benefits provided by many corporations or unions. Other employee programs which sharply reduce costs for legal assistance, medical and dental care, drug treatment, or by providing expanded insurance coverage are also offered. The increasing use of flex-time, in which personnel have more flexibility in determining working hours, and making baby sitting services available for working parents with preschool children are other types of stress reduction benefits. In addition to reducing workers' anxiety and expenses, they also improve employee company relationships by fostering a sense of caring and concern.

EVALUATION OF STRESS MANAGEMENT PROGRAMS

Both because of their heterogeneity and rather imprecise parameters of efficacy, as well as lack of control groups, proof of the success of stress management training intervention is difficult to obtain. There is little additional information that can be added to the excellent reviews by Murphy (Murphy, 1984) and the Yale - NIOSH Occupational Stress Project (Neale, et al., 1982), and several comprehensive and informative studies recently published (Fielding, 1984; O'Donnell and Ainsworth, 1984; Quick and Quick, 1984). However, there are presently several ongoing programs to develop and systematically evaluate the

health as well as economic benefits of health promotion programs with an emphasis on stress since it is such a pervasive concern. This type of information is being developed at:

1. The University of Texas Center for Health Promotion, Research and Development (McLeroy, et al, 1984).
2. UCLA under the auspices of Jonathan Fielding and U.S. Corporate Health Management to determine efficacy of hypertension control, smoking cessation, and stress management and, to a lesser extent, physical fitness and weight reduction (Fielding, 1984).
3. The 3 year Corporate Health Promotion Research Project of the University of California School of Medicine in San Francisco and 13 major corporations to determine the most promising areas of research (Pelletier, 1983).

In addition, the American Institute of Stress continually monitors and reports on activities in this area in the United States and abroad. Criteria for efficacy of stress reduction interventions should include assessment of such parameters as:

1. Decreased health costs
2. Decreased absenteeism
3. Decreased employee turnover
4. Increased productivity
5. Self-report indicators of
 - (a) better quality of life
 - (b) improved employee interrelationship
 - (c) improved ability to cope with stress
 - (d) improved relations with the organization

The Johnson and Johnson Live for Life program offers stress management as well as information on lifestyle activities such as eating, exercise, and smoking which can be successfully promoted at the work setting (Arnold, 1981). Some 25,000 employees are involved in active programs at 40 separate locations throughout the United States, Puerto Rico, and Europe. It was expected that by the end of 1985, that this would have been extended to all 75,000 employees worldwide. Employee participation is voluntary and services are provided free of charge. On entry a "health screen" allows individuals to examine how healthy their current lifestyles are. Following this, the concept of the program is explained in depth and a variety of action programs are offered to assist with smoking cessation, stress management, exercise, nutrition, weight control, and general health knowledge. These are all integrated closely with established medical programs such as hypertension detection and control and other employee assistance activities. A two year epidemiologic study was designed to evaluate the success of the program using several criteria which were evaluated annually. These included biometric observations such as blood pressure, body fat, weight, estimated maximum oxygen uptake, and blood

lipid values. Behavioral benefits in terms of smoking, alcohol use, physical activity, nutrition, job performance, and interpersonal relations were also recorded. Attitudinal alterations were assessed in terms of sense of general well being, job satisfaction, company relationships, quality of life in the workplace, and improved health attitudes. Four divisions received the complete "Live for Life" program, while 5 served as controls, offering only the health screen to their employees. Approximately 4,000 employees were involved in the epidemiologic study group. Unfortunately, a randomized, prospective control trial was not attempted since the educational program facilities for lifestyle improvement were available to all workers. Thus it would have been impossible to keep individuals randomly assigned to a control group from escaping the effects of this intervention. Random assignment of company sites was also not possible.

Preliminary findings on the cohort of employees which did complete both the baseline and one year health screen did suggest an ability to achieve significant and meaningful improvement as indicated by the figures cited in Table 4.1 (Wilbur, 1981). Obviously, programs such as Live for Life require a major commitment on the part of the employer as well as personnel, equipment, and other resources frequently not available to many organizations. Control Data has spent "well over \$10 million" in its six year Stay Well program in which 50,000 employees nationwide are offered classes on coping with stress, nutrition, etc. However, benefits and savings are difficult to quantify or accurately estimate and that very question bothered the Director of Health Services. In a recent New York Times article (Mirvis, 1985), he was quoted as saying, "Businesses don't know what the return is on any of their employee benefits. What's the return on an extra week of vacation? So why hold wellness programs to such a test?"

However, stress management techniques that can be utilized in almost any industrial setting have also been studied and determined to provide significant benefits. One such program was conducted at the New York Telephone Company for some 160 volunteers who reported high stress (Carrington, et al., 1980). On entry, the subjects completed form A of the 16 personality factor inventory, the SCL-90-R (Derogatis, 1981), and a pretreatment attitude compliance questionnaire. The same instruments were used to measure progress at the end of 6 weeks and again at 5 1/2 months. Thirty-eight subjects were assigned to one of three treatment groups utilizing clinically standardized meditation, Benson's Relaxation Response, and progressive muscular relaxation. A control group of 40 received no specific instruction. The techniques were taught through audio taped instructions with supplementary reading material which the participants reviewed at home. The techniques were practiced twice daily for 15 to 20 minutes and at the end of 2 weeks specially trained

TABLE 4.1. Preliminary findings from Johnson & Johnson's
Live for Life Program.

<u>Health Screen Measure</u>	<u>Percent Change</u> <u>Baseline - One Year</u>	
	<u>Treatment</u> <u>(N=737)</u>	<u>Control</u> <u>(N=680)</u>
<u>Fitness</u>		
Aerobic Calories (/Kg/Week)	43% **	6%
<u>Weight Control</u>		
% Above Ideal Weight	-1% **	6%
<u>Smoking Cessation</u>		
% Current Smokers	-15% *	- 4%
<u>Stress Management</u>		
General Well Being	5% **	2%
% With Elevated Blood Pressure (140/90)	-32%	- 9%
<u>Employee Attitudes</u>		
Self-Reported Sick Days	-9% *	14%
Satisfaction With Working Conditions	3% **	- 7%
Satisfaction With Personal Relations At Work	1% **	- 3%
Ability to Handle Job Strain	0% **	- 2%
Job Involvement	2%	0%
Commitment to the Organization	0%	- 2%
Job Self-Esteem	0% *	- 2%
Satisfaction With Growth Opportunities	-1%	- 3%

* = Significant at the 5% level.

** = Significant at the 1% level.

psychologists conducted group meetings to answer any questions and teach additional briefer forms of relaxation that might be utilized throughout the work day.

All four groups, including controls, showed improvement after 5 1/2 months. However, those who were members of the meditation-relaxation groups reported significantly greater symptom reduction than controls as measured by the SCL-90-R. Compliance was greatest in the standardized meditation group (81%) as compared to 76% with the "Relaxation Response" and 63% for the progressive muscular relaxation group. When those subjects who were still practicing their techniques at the conclusion of the study were compared with non-practicers, the therapeutic benefits were even more pronounced despite only occasional use.

The SCL-90-R scores for employees were compared with those of comparison groups previously studied including normals and psychiatric out-patients. The initial scores fell midway between those of psychiatric out-patients and normals on entry into the program. However, at the end of 5 1/2 months, the scores for the meditation-relaxation groups fell in the middle of the normal range and the summarization scale was significantly below normal. In contrast, the New York Telephone control group still ranged significantly above the non-patient normal average value. The progressive muscle relaxation group did not differ significantly from controls in terms of symptom reduction but most meditation groups did. Those subjects who stopped practicing generally did so within the first three months. Those who continued, often switched from frequent to occasional practicing, but significant improvement was still apparent.

In another study conducted in the corporate offices of the Converse Rubber Company (Peters, Benson and Porter, 1977a), 126 volunteers participated in a program designed to study the effects of two fifteen minute relaxation breaks during the work day. One third of the group had two or three instructional sessions in the relaxation response, another third simply relaxed without focusing on anything specific, or listened to music, and a final group received no special instruction. The efficacy of the program was assessed by self report of physical and mental symptoms including level of energy, improved concentration, overall efficiency, problem solving ability, and time lost due to illness. On each of these indices, the relaxation response group showed the greatest benefits. The control group reported least improvement, and the daily relaxation break without specific training showed intermediate gains. Of interest was the notation that specific relaxation training instructions also appeared to result in significant reductions in blood pressure (Peters, Benson and Peters, 1977b). The results of such studies are encouraging since they suggest that positive benefits can result from relatively simple, brief, easy to learn techniques that are inexpensive, do not require

highly trained personnel or specialized equipment, and can be adapted to almost any work setting. However, long term follow-up is required to demonstrate sustained improvement and such data is not readily available.

Mullen at the University of Texas recently presented an overview of the evaluation of health promotion programs in a discussion paper for the United Way Trust (Mullen, 1985). Among the programs reviewed were those at Pioneer Hi-Bred International, Quaker Oats, and the innovative and highly successful program of the Mendocino United School District. Healthy People in Unhealthy Places: Stress and Fitness at Work (Pelletier, 1984) is based on a two year study of over 160 corporate programs and profiles the effective programs at Xerox, Johnson & Johnson, IBM, and Scherer Brothers Lumber Company. Both of these sources provide useful information on program design, incentives, development, and evaluation.

A variety of outside vendors also offer stress management training programs for workers that may be delivered on site or at other locations. These generally provide psychologists or specially trained personnel to instruct employees in the various stress reduction techniques noted above. However, evaluating their efficacy is hampered because of lack of control groups, absence of long term follow-up and inadequate assessment criteria. One innovative approach which attempts to focus on job related stress due to incompatibility between the individual's goals and behavior and work requirements is offered by Human Synergistics (Lafferty, 1983, 1984 revisions). Level 1 ("Life Styles Inventory: Self Description") provides detailed information about behavior by means of a lifestyle inventory. This involves completing a self description questionnaire revealing thinking patterns which characterize personality and lifestyle and whether such activities are productive or destructive.

The results develop a profile that rates and compares concern for people and satisfaction, concern for people and security, concern for task and security, and concern for task and satisfaction. At Level 2 ("Life Styles Inventory: Description by Others") the same lifestyle inventory is completed by 6 or 7 other close friends or co-workers whose opinion would be respected in describing these same aspects of the individual's behavior and attitude. The resulting composite profile helps to identify the way others perceive your attitude. The similarities and differences that exist between the results of Level 1 and Level 2 evaluation provide important insights into understanding the effects your behavior has on other people.

Level 3 ("Concept of Self Index") offers an in-depth psychological inquiry into the major influences that cause observable behavior. This provides basic information on factors such as self esteem, motivations, misconceptions, and fundamental ways of processing

information that directly affects behavior. As a result, a plan for changing inappropriate or self defeating thinking and behavior patterns can be formulated.

Levels 4(a) ("Management Practices Audit") and 4(b) ("Supervisory Practices Audit") focus on managerial and supervisory behavior. This measures some 15 management skill areas and 12 styles both by self report as well as by 4 or 5 anonymous close co-workers reports. Such confidential feedback about management methods has been found to facilitate significant positive change. The Human Synergistics program has been in existence for approximately 15 years with minor modifications. The company indicates that efficacy can be validated and that in addition to improved efficiency at work there are distinct health benefits. Cost effectiveness is more difficult to prove and the major value of this program would appear to be targeted to middle management or executive personnel.

The Institute for Labor and Mental Health has developed an Occupational Stress Group that uses trained shop stewards to conduct a highly structured twelve week course in the workplace. This is designed to increase the worker's sense of power or ability to influence working conditions and to promote a greater sense of camaraderie and self trust. A major result has been a more "focused anger" directed at specific work problems that attempts to rectify discrepancies. It is claimed that this increases productivity, reduces problems related to alcoholism and emotional outbursts or random anger at home (Behavior Today, 1985).

Another newly formed company, STRESSCARE, offers a prepackaged multi-dimensional approach to stress management for corporations (Elkin, 1984). This program contains a variety of techniques as shown in Figure 4.1. Preliminary reports on general applicability, cost effectiveness, compliance, and efficacy are favorable.

FUTURE DIRECTIONS

Clearly, management, labor unions, and various occupational organizations have become increasingly aware of the importance of job stress and are expressing increasing interest in programs to reduce its causes or combat its effects. Rapidly rising worker compensation claims for all sorts of job stress as well as increasing payroll costs for health related insurance and expenses will undoubtedly accelerate this trend. Detailed analysis of specific occupational stress related problems have been noted in a variety of surveys including stress and burn-out in the schools, operating railroad engineers, law enforcement officials, air traffic controllers, editors, and graphic arts design personnel. Such studies may be particularly useful in formulating specifically targeted programs.

STRESSCARE PROGRAM

Program Overview

10	20	30	40	50	60	70	80	90	100	110	120
Welcome and Introduction	Understanding Stress	The Stresscare Program	Q&A with the Program	Stress Awareness Training and Biofeedback Demonstration	Stress Monitoring Procedures	Diaphragmatic Breathing	Rapid Relaxation	Preview	Assignment	Preview	Assignment
Progress Review	Personal Stress Profiles	Stress Discrimination Training	Stress Cues & Prompts	Relax Break	Introduction to Perceptual Restructuring	Somatic Relaxation Training (I)	Preview	Assignment	Preview	Assignment	
Progress Review	Perceptual Restructuring (I)	Relaxation Imagery	Thought Stopping	Type A Behavior Pattern	Somatic Relaxation Training (II)	Preview	Assignment	Preview	Assignment		
Progress Review	Perceptual Restructuring (II)	Meditative Relaxation	Stress Application Training	Somatic Relaxation Training (III)	Preview	Assignment	Preview	Assignment			
Progress Review and Application Strategies	Nutrition, Fitness, and Stress	Stress-Reducing Communication	Stretches and Techniques	Stress-resistant Lifestyles	Maintenance Strategies	Preview	Assignment	Preview	Assignment		
Progress Review and Application Strategies	Time Stress and Priorities Clarification	Relax Break	Personal Program Evaluations & Wrap-up	Preview	Assignment	Preview	Assignment				

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- Education about the signs and symptoms of stress
- Explanations of how stress reduction techniques can alleviate the signs and symptoms of stress and how the skills to use these techniques effectively can be developed
- Implementation of specific stress management techniques based on all of the above.

- A careful review of audit results, followed by setting/communicating clear, concrete program objectives based on the findings
- A consideration of which stress-related factors will be monitored to measure the impact of the program
- Informational material about the nature of stress and its potential role in producing various illness syndromes

A recent New York Times (Mirvis, 1985) article cited preliminary results during the first year of a 5 year \$4.3 million study of some 85,000 Federal employees and Hawaii residents eligible for Medicaid, who were simply provided access to short-term psychotherapy for stress related problems. The result was a 37% reduction in total medical bills which saved almost \$16 million in medical and health claims.

The cost of a mental health program offered by Blue Cross/Blue Shield of Arizona to employees of some 1,200 companies in Phoenix and Tucson was not disclosed, but the manager of the project insists that "reduced health care claims will 'more than make up' the costs." His analysis of claims further suggested that half of a company's medical expenses come from just 10% of the employees.

The American Telephone and Telegraph Company started its Total Life Concept program in 1982 in anticipation of mounting stress with the impending divestiture of the Bell Companies, offering classes on stress control, nutrition, and exercise. The results were so rewarding that the courses are now offered at five AT&T locations with plans to extend it nationwide. The program manager indicated, "we expect a \$2.00 return for every \$1.00 invested."

An ongoing study of some 6.7 million federal workers' health claims over the past decade similarly revealed that while those seeking mental health treatment initially had higher medical expenses, after five years, the costs were lower than those who did not, even though the patients were older. In fact, patients 55 years and over who received such stress reduction assistance showed the greatest decrease in hospital charges.

New York State now offers a new "crisis intervention visits" program for "persons struggling with a sudden stressful situation." Insurance provides \$60 per visit for up to three visits, up to \$48 for the next ten visits, and up to \$40 for the next twenty visits. The Commissioner of the New York State Department of Civil Service predicted that the program would "save the state \$200 million in absenteeism and medical claims over three years."

Obviously, the most effective approach would be to identify sources of job stress and remove them wherever possible. The subject has been explored at length in Healthy People in Unhealthy Places (Pelletier, 1984) which, as previously noted, should provide a valuable resource for organizations interested in reducing stressful working conditions. As indicated, job stress may also frequently result from problems that have their origin in the worker's personality, attitude, and goals and more frequently an incompatibility with these and the job requirements.

Analysis and differentiation of such sources of stress can be approached by using an inexpensive simple questionnaire offered by the American Institute of Stress. This utilizes and correlates responses

to some 75 questions designed to measure anxiety, depression, hostility, ability to express emotions, Type A behavior with various aspects of perceived job stress. A computerized printout is generated which provides insight into whether the problems arise because of the nature of working conditions, as opposed to personality, or behavioral characteristics, or a mismatch between the two.

While we have seen that some simple stress reduction techniques may provide across the board benefits, stress management techniques ideally should be matched with the requirements of the organization and the population being served. In some instances, emphasis may need to be placed on problems such as job security or career management. For maximum effectiveness, workers should ideally play an active role in program selection, design, and evaluation. Progress is more apt to be made by beginning starting with a small focused intervention program for a specific target group that allows evaluation of efficacy and costs. This can be enlarged in stepwise fashion as results indicate the need for various modifications or greater emphasis in specific areas. This approach seems preferable to instituting a large multifaceted smorgasbord of services. Existing facilities should be utilized whenever possible, and this can usually be accomplished with respect to exercise or fitness programs. On the other hand, it may sometimes be more efficient and economical to take advantage of existing community based exercise programs such as those offered by local YMCA facilities. These often provide other counselling services with respect to diet, nutrition, smoking cessation, hypertension detection, and management of low back problems. It is particularly important that any program provide built-in evaluation techniques to assess the efficacy of the intervention. This requires the participation of randomized control groups and long term follow-up assessment.

Companies can best embark on such programs by learning from the experience of others, particularly organizations of similar size and demographics that have instituted successful programs. An useful resource in such information gathering is the newly formed National Health Network which maintains a current computerized database accessible to businesses, through a toll free number (1-800-322-1234), for locating health promotion services available in their respective geographical location.

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STRESS MANAGEMENT IN WORK SETTINGS

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