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AN ASSESSMENT OF ERGONOMIC INTERVENTIONS AND POLICY DECISIONS AT A LARGE PUBLIC UNIVERSITY

By

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ABSTRACT

AN ASSESSMENT OF ERGONOMIC INTERVENTIONS AND POLICY DECISIONS AT A LARGE PUBLIC UNIVERSITY

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This study was conducted to examine the effectiveness of reducing Cumulative Trauma Disorders (CTDs) after the establishment and implementation of an ergonomics policy at a large public university. Worker compensation data was obtained from the Occupational Health and Safety Administration 200 Log. The frequency and severity of CTD claims were examined and compared between established pre and post intervention groups. Policy effectiveness was judged by the reduction of CTD claims, reduction of CTD claims associated with days away from work, and days restricted from work, reduction of the number of days away from work and the reduction of the number of days restricted.

The results suggest that the ergonomics policy had an effect on reducing CTDs in the workplace after it's official announcement/implementation. Limitations of the study include the inherent characteristics of the workers' compensation systems in tracking of CTD cases, time frame of the study, and limited evaluation

of the policy goals. Recommendations for further study include a more descriptive analysis of the worker, job task, workstation design and ergonomic knowledge.

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CHAPTER I: INTRODUCTION

Over the past decade, informational demands, the personal computer, and increased growth in related new technologies have made remarkable changes in business and in personal lives. Technological advances such as the installation of the computer and more powerful word processing equipment have increased worker productivity. The amount of text being processed and data being entered in data base/computer systems continues to grow (U.S. Department of Labor, May 1992).

As we continue to advance into the information age, the use of computers is increasing. It is estimated that approximately half of America's workforce uses video display terminals (VDTs) daily (Roughton, 1993). "According to the U. S. Census Bureau, computer sales increased more than 1,100 percent between 1981 - 1987. The National Association of Working Women, quoted by the Bureau of National Affairs, reports that there were only two computers for every 100 workers in 1980, compared with two computers for every three workers in 1991" (Rickert, 1992, p. 18). According to the U. S. Department of Commerce, the United States computer market has been steadily increasing since 1991 (estimated through 1994) (U. S. Department of Commerce, 1994, p. 26-2). Also, an estimated 60 million computers are in use today (Banham, 1994). At a

large public university, more than three-quarters of the academic and support staff claim to use computers in their work. Of that group, 88% said they use their computers at least five days a week (Appendix B).

In conjunction with the increased use in the VDT, user injury has also increased. The National Institute of Occupational Safety and Health (NIOSH) estimates that one in every 100 workers, across all industries, will develop CTD symptoms (U. S. Department of Labor Statistics, 1992). The most costly and severe disorders occurring in the VDT workplace are cumulative trauma disorders (Roughton, 1993). According to the U. S. Department of Labor Statistics, cumulative trauma disorders are the number one cause of workers' compensation losses in both time and money in the U. S. (Springer, 1994). "OSHA reports that by the end of the century 50 cents of each dollar paid as workers' compensation will go toward musculoskeletal injuries" (Banham, 1994, p. 26). These costs also put a burden on businesses to find ways to decrease such repetitive stress injuries.

Although there are several methods to reduce CTDs in the workplace, the most effective way to reduce injury is a proactive approach by incorporating a comprehensive ergonomics policy. "If properly applied, ergonomics can make a great impact on reducing workers' compensation costs by removing the injurious relationship between the anatomy, the task and the work station" (Chong, 1993, p. 31). A comprehensive ergonomics solution targets the root causes of such

workplace problems by focusing on a fundamental, holistic approach. Incentives for businesses to establish an ergonomics programs are as follows :

- Saving attributed to preventable injuries
- Reduction in extent of disability
- Productivity and quality benefits
- Avoidance of OSHA citations

(Braun, 1994)

This study will stress the importance of applied ergonomics and will examine the effectiveness of an ergonomics policy at a large university in reducing CTDs in the workplace.

Problem Statement

To reduce the risk of cumulative trauma disorders and related workers' compensation claims, an Ergonomics Policy was put in place at a large public university on April 1, 1993 (Appendix C). The policy is proactive and encourages units to address ergonomic issues before they reach a problem status. The policy requires that work stations and job flow be reviewed and supervisors are required to take the appropriate actions to reduce their employees' exposure to CTDs by educating, evaluating, and remediating. This study will examine the frequency and severity of workstation ergonomic related claims before and after the implementation of the Ergonomics Policy. Related interventions concerning the policy by participating units will also be examined.

Purpose of Research

It is important to review University policies in order to see if they are meeting their intended goals. Policies are generally formed to give direction or clarification on various topics. Depending on the nature of the policy, some issues are more critical than others and review of such policies are needed to insure relevance and proper compliance. The Ergonomics Policy can be considered a critical policy due to the need to reduce health risks and control worker compensation costs. Increases in the use of computer technology, and the risk of VDT office related health hazards on campus require review of this policy as a timely and important step to reduce injuries and minimize costs both to the employee and the university.

Research Objectives

One objective of this study is to compare one of the university's ergonomic policy goals, to reduce the risk of cumulative trauma disorders, with workers' compensation data from the OSHA 200 log. For comparison, the data will be split into two groups representing before and after the implementation of the Ergonomics Policy. Other policy goals such as containing and reducing workers' compensation costs and compliance to anticipated ergonomic standards will not be examined in this study.

The second objective of this study is to review the progress of implementation strategies for the policy such as training and ergonomic worksite evaluations.

CHAPTER II: REVIEW OF LITERATURE

This chapter gives background information on Cumulative Trauma Disorders and worker compensation costs, ergonomics and ergonomic strategies to reduce CTDs, and related standards and regulations. A review of research literature concerning ergonomic intervention program evaluations is also included.

Cumulative Trauma Disorders and Worker Compensation Costs

Cumulative Trauma Disorders or CTDs are a type of injury to the musculoskeletal system usually stemming from repeated motion or stress. It is important to note that CTDs are developed gradually over time. "Because of the slow onset and often innocuous character of the microtrauma, the condition is often ignored until the symptoms become chronic and permanent injury occurs" (Putz-Anderson, 1988, p. 6). Although CTDs are not easy to diagnose, early detection and prevention are key in reducing such injuries (Putz-Anderson, 1988). In reviewing the literature on CTDs, the terms *injury* and *illness* are both commonly used to describe Cumulative Trauma Disorders. Although either term can be used depending on context and usage, CTDs are better associated with

the term illness, due to the chronic nature of these injuries from repetitive stress, rather than term injury which usually defines a single act (Putz-Anderson, 1988).

Cumulative trauma injuries are generally caused by one or a combination of the following conditions:

- High rates of manual repetition
- Excessive force
- Awkward postures
- Excessive vibration
- Warm or cold temperatures

(Putz-Anderson, 1988)

A common type of CTD is Carpal Tunnel Syndrome. Carpal Tunnel Syndrome is relatively common in professions such as musicians, sculptors, gardeners, and other manually intensive jobs. However, VDT operators and people who spend their time working at a computer are the largest and fastest growing population to develop CTDs. "The increase in CTD cases can largely be attributed to the widespread shift by industry to faster forms of automation" (Roughton, 1993, p. 29) which includes computer use.

Claims for CTDs are the leading cause of work-related illness in the United States (Mahone, 1993) and can be considered one of the most serious occupational health hazards. The increase in workers' compensations claims related to CTDs are staggering. CTDs account for over half of all workplace illness and approximately thirty-three percent of workers' compensation costs

(Montante, 1994). As an example, the Chubb Corporation in Warren, New Jersey estimates a claim for Carpal Tunnel on the East and West coast can range from $35,000 to $75,000 and $12,000 to $20,000 in the Mid-West (Marley, 1994). Even minor cases of CTDs can range from $5,000 to $10,000 (Springer, 1994). At Michigan State University, the average workers' compensation CTD expenditure ranged from $505 - $2,365 per claim although the average total expense for CTD illnesses per claim ranged from $1,042 - $12,938 (fiscal years 1989-1990 to 1993-1994) (Appendix D).

Although one objective of a workers' compensation system is to help injured employees return to work, it is not without costs. Increases in medical care, increasing indemnity benefits, administrative costs for claims and costs associated with injured workers are all factors which contribute (besides increase in claims) to rising workers' compensations costs (Roughton, 1993). "The only effective way to control workers' compensation costs is to prevent worker injuries and illnesses from occurring. Significant gains can be made in workers' compensation cost control through the application of ergonomic principals and practices" (Manuele, 1991, p. 27).

Ergonomics and Ergonomic Strategies to Reduce CTDs

Ergonomics can be defined as the study of people at work. "Applied to business, it means creating or designing a work environment that accommodates the needs, limitations, sizes, strengths and weaknesses of a wide range of

people" (Manning, 1994). In the past, ergonomics has generally been associated and applied with mass-production, industry and blue collar work. With the electronic age and increase of computerized "white-collar" work, ergonomics is becoming more identifiable with the office.

The design of the computerized workstation, furniture and equipment in the workplace have a direct impact on the worker. These environments and tools support the workers and related job tasks and may also effect worker satisfaction, productivity and comfort. Poorly designed workstations, equipment, or job design can create fatigue, discomfort and/or mental stress (Braganza, 1994). Other possible symptoms include pain, low production and low morale. These symptoms can be attributed to an ergonomic problem or workplace deficiency (Polakoff, 1992). Although other environmental factors can contribute to discomfort such as illumination, glare (VDT), noise, and temperature, the more serious symptoms arise from improper use or design of the computerized workstation. For example, poor posture can result, in part, from poor workstation layout, improper worksurface and chair height, and lack of lumbar support (Braganza, 1994). "Ergonomic-related problems often indicate some inadequacy in the work design system. Often, the inadequacy involves interface design - the physical aspects of the worksite with which employees interact" (Mahone, 1993, p.17).

Incorporating ergonomics in the office has far reaching benefits. First, properly applied ergonomic principals maximize employee performance while

minimizing stress, strain and injury. This approach can successfully reduce injury while in the long run contain workers' compensation costs. "Ergonomics, which incorporates an understanding of human capabilities, can be used to design equipment and environments to improve efficiency, alleviate physical stress and reduce the potential for injury" (Braganza, 1994, p. 22). There are many possible solutions to reduce CTDs in the workplace. They range from "quick-fixes" to more elaborate ergonomic-medical management solutions.

"Quick-fix" solutions are usually easily identifiable. They include modifications to the existing worksite or adding "ergonomic" equipment. They are relatively low cost and easy to implement. Examples of quick-fix solutions are wrist wraps/splints, chair supports or cushions. Even ergonomic office products need to be used with caution. Quick-fix solutions generally seem to solve the problem temporarily (employees seem initially satisfied) but the hazards still exist and the problem will resurface. "Treating symptoms by dealing with the proximate cause may not lead to lasting or even significant improvements" (Ayoub, 1990, p. 455). These types of solutions cannot solve fundamental job design inadequacies such as improper workload, inappropriate task allocation, improper scheduling or major interface deficiencies (Mahone, 1993).

Conservative treatments or reactive measures for CTDs can include; rest, anti-inflammatory medication, wrist splints, physical therapy, job rotation, job retraining and surgery as a last resort (Roughton, 1993). Although these treatments can be successful, avoiding the need for treatment through

preventative measures is far more appealing. Successful CTD prevention strategies include proactive measures: workstation ergonomic assessment, education/training, job rotation, tool redesign, early diagnosis, employee involvement, medical/health management, top management support and a well defined program (Roughton, 1993; Henderson and Cernohous, 1994). A comprehensive ergonomics program "begins with an understanding of the worker, the nature of the work, and the expected outcome" (Springer, 1994, p. 19).

An example of a successful ergonomic corporation-wide program is at IBM. Key elements of the program include corporation-wide participation, proactive measures, education, work place assessment, incorporation of field research and implementation of appropriate changes. Ergonomics is thought of as a long-term strategy and is incorporated into every facet of the job (Kukla, 1992). Because of the multidimensional nature of acquiring CTDs, (repetition, force, posture, vibration, temperature) a multidimensional solution can be an effective method to reduce such injuries.

Standards and Regulations

There have been several ergonomic standards and regulations proposed or put into legislation which stress the importance of implementing such programs to insure employees' health and safety.

In late 1993, the Occupational Safety and Health Administration (OSHA) took action in developing a national ergonomic standard. Although the official ruling was set for late 1994, OSHA has yet to implement such a standard. Regardless of the status of the official standard, OSHA recommends that companies write an ergonomic plan. The plan should incorporate worksite analysis, hazard prevention and control, medical management, and training and education. Businesses should note, "OSHA is conducting inspections for CTDs and assessing fines against employers without an active ergonomics program" (Roughton, 1993).

The American National Standards Institute (ANSI) enacted a voluntary standard for computer work stations known as ANSI/HFS 100-1988 "American National Standard for Human Factors Engineering of Video Display Terminal Work Stations" (ANSI/HFS 1988). This standard lists recommended ergonomically-correct specification for chairs and computer work stations. This standard is meant to assist business in selecting ergonomically correct furniture for their employees.

The voluntary standard ANSI Z-365 or "Control of Cumulative Trauma Disorders", compliments ANSI/HFS 100. The ANSI Z-365 recommends an approach to CTD prevention including monitoring of symptoms, work site analysis and intervention, and medical management protocols. The final standards for both the ANSI/HFS 100 and ANSI Z-365 are expected in 1995 (Haworth Inc., 1994).

California has proposed a statewide ergonomic program scheduled for adoption in early 1995. Many states have VDT or ergonomic legislation or are in the process of developing legislation. Other countries including Canada and the European Community have developed ergonomic standards for VDT workstations and furniture (Haworth Inc., 1994).

The National Safety Council also offers an on-site course "Joint Safety and Health Committee Training" and guide books for companies that are interested in developing safety programs (Etter, 1994).

Research Literature

A field methodology for the control of musculoskeletal injuries was developed by Reynolds and her colleagues (1994) for jobs prone to cumulative trauma disorders and manual material handling injuries. The systematic methodology is based upon the collection of quantitative data used to evaluate ergonomic changes with respect to biomechanical risk, perceived comfort, productivity and quality. This multi-step procedure allows for control measures to be implemented and evaluated within a short time frame. The methodology was judged to be successful in recognizing, diagnosing and controlling musculoskeletal injuries in manufacturing but can be applied throughout all work settings. The ten-step methodology includes: review of musculoskeletal injury data, ergonomic review, task and operator selection, data collection and analysis, design requirements, alternative solutions, selection and prioritization of

alternatives (cost-benefit analysis), fitting trails, re-analysis and evaluation and implementation. A case study in which this methodology was incorporated into an ergonomics program at a large apparel manufacturer is briefly summarized with encouraging results.

Westlander and his associates (1995) evaluated a participatory ergonomics intervention program of video display terminal operators with routine data-entry and data-dialogue tasks. The researchers were interested in identifying work conditions and strategies for improvement of the worklife of these operators. The study included 68 computer operators at a post office and 21 switchboard operators at a trading company where the majority of operators suffered from musculoskeletal complains of the neck and/or shoulders and back. The intervention program was evaluated in two follow-up studies. Stages of the intervention included a pre-intervention phase (surveys of work conditions, work loads, and job-related health issues; development of the intervention program), an implementation phase and a follow-up of work conditions to control for possible changes. The program included informational workshops on VDT work, research-based proposals for ergonomic improvement via participatory steps by employees, and cost analysis for implementation. The research team strived to empower employees to improve their work situation and foster collaboration among employees and management. In each workplace, the program received positive reception but due to organizational changes, economic depression and a shift in values in the management staff, many of the

improvement changes offered through each intervention program were not fully implemented.

Keyserling and his colleagues (1993) developed a checklist for evaluating ergonomic risk factors associated with upper extremity cumulative trauma disorders. Questions were grouped into five major sections corresponding to the following categories of exposure; repetitiveness, local mechanical contract stress, forceful manual exertions, awkward upper extremity posture, and hand tool usage. The checklist was developed and evaluated at a large automotive corporation as part of a joint labor-management ergonomics intervention program to reduce injuries and disorders caused by poor ergonomic work conditions. Three hundred and thirty five manufacturing and warehouse jobs were surveyed with the checklist by plant personnel at four automotive work sites. An additional analysis was conducted with a subset of 51 jobs by researchers with occupational ergonomics education. Most of the 335 jobs were associated with moderate or substantial exposures to upper extremity risk factors based on the criteria established by the checklist. Approximately 81% of the jobs were found to excessively 'repetitive'. Exertion of high hand forces and awkward work postures were common. Results generated by the ergonomic analysts and results generated by the checklist were generally in agreement, however, the checklist seemed to be more sensitive in identifying the presence of risk factors. The checklist proves to be an effective screening tool for identifying jobs that expose workers to potentially harmful ergonomic stresses. It is important to note

that the checklist methodology did not fully explore the correlation of work methods and specific job attributes associated with these risk exposures.

The research literature includes examples of models for evaluating and implementing ergonomic programs where the predominant goal is to reduce and/or contain worker injury. These methodologies may be useful if a formal evaluation of the entire range of ergonomic activities at the university is to be implemented. Worksite assessments and ergonomic training at the university currently incorporate some principals of the formal methodologies such as an ergonomic audit, workplace solutions, and necessary follow-up.

CHAPTER III: ERGONOMICS POLICY AT MICHIGAN STATE UNIVERSITY

The formation of the Ergonomics Policy was an effort to reduce the risk of cumulative trauma disorders, contain/reduce worker compensation costs and meet compliance to anticipated ergonomic standards. "Michigan State University strives to maintain a safe and healthy workplace for all University employees. Workplace ergonomics is of increasing importance to employees health and safety. This policy is established to promote and protect employee health through ergonomically sound practices." The policy is intended to be a shared responsibility of administrative units and all university employees.

The history of the policy dates back to the early 1990's when there were discussions held on campus in an effort to reduce CTDs and workers' compensation costs. At this time, there were limited ergonomic related activity by various units but these interventions were not coordinated nor structured. Non-structured interventions include: worksite analyses by both outside and campus consultants, informal informational programs, seminars and workshops. The Ergonomics Policy was officially announced on April 1, 1993. From this point forward, there was a coordinated effort by various units on campus to provide ergonomic support, training and workplace assessment. Along with campus notification about the policy, numerous informational campaigns were

launched to inform employees about CTDs and how to obtain help. A complete ergonomics policy informational seminar was held in the fall of 1993 for all administrators and supervisors with attendance of approximately 1,000 people.

The policy embodies a proactive university-wide approach to ergonomics, encouraging action before a problem is manifest. Implementation of the policy includes; ergonomic training, workstation design and evaluation, job design, and medical management. When the policy was enacted, resources to support the policy were fully implemented although some were implemented prior to an official policy.

Listed below are the main ergonomic resources on campus in support of the policy. A brief overview of their involvement is summarized with more detailed information located in the appendices.

MSU Occupational Health Services (Olin Health Center):

- Offers individual or group workstation analysis and recommendations, training and distribution of general information and limited consultation concerning ergonomic furniture. Components of Olin Health Center's Ergonomic Training and Development Program (Working Smarter, Not Harder) include an initial meeting, video tape walk through (reviews job demands/environment, analysis of tape), workforce training, and follow-ups. Worksite evaluations started 11/91 but the majority of sessions fall into the 1994-5 years. (Appendix E).

Human Environment and Design:

- Offers ergonomic expertise and academic curriculum on ergonomics

Computing and Technology:

- Offers "Ergonomic Basics and the Computer" course devoted entirely to ergonomics basics, guidelines and suggestions as they related to the use of computers. Course is generally offered every month (Appendix F).
- Brief introduction to ergonomics included in existing entry level CTTP (computer and technology training program) computer courses.
- Ergonomic computer items available for purchase through MSU computer store.
- Periodical and publication available for review from Commuter Resource Center

MSU Purchasing:

- Brochures on ergonomically designed furniture and accessories and chair loaner program available.
- Broad knowledge base on ergonomic equipment.

Healthy U:

- Provides communication and education materials for the MSU community about ergonomics.

Workers' Compensation Division:

- Administers workers' compensation benefits.

Housing Construction and Design:

- Offers work station design, space planning and interior design services.

Department of Public Safety:

- Forwards ergonomics issues discovered during inspections to appropriate campus resource for follow-up.

Administrative Information Services:

- Participated in Healthy U pilot initiative on workplace ergonomics (Appendix G).

Creation of Non-official Ergonomic Task Force:

- Made up of administrators, faculty and staff members that are interested on ergonomic related activities on campus in support of the policy.

CHAPTER IV: HYPOTHESES

The primary goal of this research is to discover if there are relationships between the establishment of an ergonomics policy/program and the reduction of CTDs in the workplace. Listed below are research hypotheses which examines the relationship between the impact of the university's Ergonomics Policy and the frequency and severity of CTDs.

H 1: The university's Ergonomics Policy has made no impact on reducing the frequency of CTDs in the workplace.

H 2: The university's Ergonomics Policy has made no impact on reducing the frequency of CTDs associated with days away from work in the workplace.

H 3: The university's Ergonomics Policy has made no impact on reducing the frequency of CTDs associated with days restricted from work in the workplace.

H 4: The university's Ergonomics Policy has made no impact on reducing the severity of CTDs associated with days away from work in the workplace.

H 5: The university's Ergonomics Policy has made no impact on reducing the severity of CTDs associated with days restricted from work in the workplace.

CHAPTER VI: METHODOLOGY AND PROCEDURES

Source of Data

Data for analysis was retrieved from the OSHA 200 log in the university's Human Resources Insurance Software Package (claims management system). The OSHA (Occupational Safety and Health Administration) 200 log is a summary statement of occupational injuries and illness for a given employer. A sample copy is shown in Appendix H. Names and case numbers have been altered to preserve confidentially. The entire database includes 5188 worker compensation claims dated from February 14, 1963 - March 15, 1995. Seven hundred and fifty three (14.5%) were described under the classification CTD (Cumulative Trauma Disorder) with dates from November 1988 through February 1995. Six percent of the employee base filed CTD claims, which is similar to the national average.

This study will focus on CTD claims. Data retrieved from the OSHA 200 log used in this study consists of:

- The Date of Illness or Injury (B). This is the date the injured worker listed as the start of the injury/illness or if that information was unobtainable, the date when the claim was filed.

- Occupation (D). The occupation classification used by the university. Includes all employees.

- Department (E). The department of employment at the university.

- Description Illnesses (F). General description of illness. In this log, CTD claims are classified under illness. Body part is also specified such as, hand (right, left, or both), wrist (right, left, or both), arm (right, left, or both), shoulder (right, left, or both), neck, or body. A body classification (minimal, moderate, or severe) could represent injuries to separate body parts (i.e., the arm and shoulder) which occurred together under one claim but do not specifically list each body part effected.

- Disorders Associated With Repeated Trauma (7f). All should be a CTD claim.

- Number of Days Away From Work (Illness) (11). A physician determines the number of days the employee is away from work.

- Number of Days Restricted From Work (Illness) (12). A physician determines the number of days the employee is restricted at work but Human Resources decides how to limit a particular part of the job or and at what duration for each day.

After an initial review of the data, the researcher noticed several CTD claims were listed separately under either the injury or illness classifications in the OSHA report. To verify the appropriate category, the researcher confirmed the suspected mistake with a manager in the Human Resources Department. In the OSHA report, CTD claims should be classified as an illness. To compensate

for this error, those CTD claims that were mis-coded as an injury were added to the claims under the illness classification in order to accurately account for all CTD claims in this study.

OSHA requires that all claims must be logged in the system (to appear on the summary report) including claimants that do not miss days and/or not restricted from work (no loss of time) as they may have medical bills. First aid claims with no medical bills do not have to be logged. Each case number represents one separate claim. Claims represent full-time and part-time employees.

Procedure

To create comparison groups for study, the data were divided into 2 major subsets where the time interval is equal. April 1, 1993 was chosen as the intervention point because that is the date when the Ergonomics Policy was officially implemented. "Pre-intervention" is the time preceding April 1, 1993 and "post-intervention" is the time interval following April 1, 1993. The total population of this data subset is 572 (pre and post intervention). Within these two groupings, the data will be broken into 3 month intervals ranging from July 1, 1991 - December 31, 1994; intervals 1 - 7 will be considered the "pre-intervention" group and intervals 8 - 14 will be the "post-intervention" group (see Table 1). The three month interval was chosen because it broke the year into quarters - a reasonable time interval to represent the smaller time frames which

also allows for short, intermediate and long term measures. There has been minimal variance in employee base at the university during the time frame this study (Appendix I) which makes the equal time measures for comparison groups methodologically sound.

Table 1: Three Month Interval Groupings for Pre and Post Intervention

Pre-intervention			
Interval	n	Time Frame	Months from Intervention
1	36	July 1, 1991 - September 30, 1991	21
2	46	October 1, 1991 - December 31, 1991	18
3	42	January 1, 1992 - March 31,1992	15
4	44	April 1, 1992 - June 30, 1992	12
5	39	July 1, 1992 - September 30, 1992	9
6	42	October 1, 1992 - December 31, 1992	6
7	32	January 1, 1993 - March 31, 1993	3
Post-intervention			
Interval	n	Time Frame	Months from Intervention
8	52	April 1, 1993 - June 30, 1993	3
9	43	July 1, 1993 - September 30, 1993	6
10	42	October 1, 1993 - December 31, 1993	9
11	51	January 1, 1994 - March 31, 1994	12
12	39	April 1, 1994 - June 30, 1994	15
13	35	July 1, 1994 - September 30, 1994	18
14	29	October 1, 1994 - December 31, 1994	21

To test the first hypothesis, a t test for differences between sample proportions (comparison of percents drawn from two samples) was performed to determine if the frequencies associated between pre-intervention (n=281) and

post-intervention (n=291) were statistically different for the total number of CTD claims (n=572).

To test the second hypothesis, a t test for differences between sample proportions (comparison of percents drawn from two samples) was performed to determine if the frequencies associated between pre-intervention (n=30) and post-intervention (n=18) were statistically different for the total number of CTD claims associated with days away from work (n=48).

To test the third hypothesis, a t test for differences between sample proportions (comparison of percents drawn from two samples) was performed to determine if the frequencies associated between pre-intervention (n=48) and post-intervention (n=19) were statistically different for the total number of CTD claims associated with days restricted from work (n=67).

In order to determine the severity of the illness (CTD), the researcher examined the variables, "days away from work" and "days restricted from work". Because these variables represent loss of time from work or restricted time at work they can be considered indicators of severity of the CTD illness. The U. S. Department of Labor, Bureau of Labor Statistics uses these same measures when they report on occupational injuries and illnesses.

To test hypothesis 4 and 5, an analysis of variance test was performed separately for the variables "days away from work" and "days restricted from work" for the pre and post intervention groups. The mean value of each variable can be compared in the pre-intervention and post-intervention groups for

significant differences. The mean value represents the average number of days away or restricted from work and is a measure of severity of the CTD illness.

To further explore the variables "days away from work" and "days restricted from work" a chi-square was calculated to determine any association between the nominal values. There variables were spilt into two groups based on length of days away/restricted from work and frequency (quartiles) to examine the distribution for these claims for pre and post intervention. A crosstabulation with a chi-square test of independence was calculated to determine any association between the groups. Table 2 illustrates the groups formed on the basis of time and Table 3 illustrates the quartile groups based on frequency for the variables "days away/restricted from work". The Pearson chi-square is commonly used to test independence between row and column variables in a crosstabulation. The likelihood-ratio chi-square is alternative to the Pearson chi-square test and is often used in the analysis of categorical data.

Table 2: Classifications of Groups of Severity Based on Days Away/Restricted From Work.

Group	Severity	Range of Time Away/Restricted From Work
0	None	No time loss
1	Very mild	Less than one week
2	Mild	One - two weeks
3	Mild-moderate	Two - four weeks
4	Moderate	1 - 3 months
5	Severe	3 - 12 months
6	Very severe	Over one year

Table 3: Days Away/Restricted From Work by Quartile

	Group	Days	Frequency	Percent
Days Away	1	1 - 8	11	22.9
	2	9 - 17	11	22.9
	3	21 - 48	13	27.1
	4	56 - 698	13	27.1
Days Restricted	1	1 - 5	17	25.4
	2	7 - 13	14	20.9
	3	14 - 26	19	28.3
	4	27 - 365	17	25.4

CHAPTER VII: RESULTS AND DISCUSSION

The results for each test will be summarized followed by a brief discussion. General conclusions will be discussed in the next section.

To test hypothesis 1 (The university's Ergonomics Policy has made no impact on reducing the frequency of CTDs in the workplace), a comparison of percents drawn from two samples was performed to determine significance (p= .05) for number of CTD claims between the pre-intervention and post-intervention groups. Table 4 reveals the frequencies for the pre-intervention group (f=281) and the post-intervention group (f=291) are not statistically significant (p=.669) although there was a slight increase of claims after the intervention. In this case, the first null hypothesis is not rejected, the university's Ergonomics Policy appears to have made little impact on reducing the frequency of CTDs in the workplace. This is not surprising due to ergonomic training and awareness of CTDs in the workplace by the university and mass media. Employees may now recognize their symptoms and consequently seek medical attention.

Table 4: Total Number of Claims, Pre and Post Intervention

Group	n	Percent
Pre-intervention	281	49.1
Post-intervention	291	50.9
t=0.4306	d. f.=570	p=.669

To test hypothesis 2 (The university's Ergonomics Policy has made no impact on reducing the frequency of CTDs associated with days away from work in the workplace), a t test for differences between proportions (comparison of percents drawn from two samples) was performed to determine significance (p= .05) for CTD claims associated with days away from work between the pre-intervention and post-intervention groups. Listed in Table 5, the frequencies for claims associated with days away from work are greater in pre-intervention group (n=30) than the post-intervention group (n=18) although these differences are not statistically significant (p=.09). The second hypothesis is not rejected, the university's Ergonomics Policy appears to have made little impact on reducing the frequency of CTDs associated with days away from work in the workplace. Although there are no significant differences, there are fewer claims in the post-intervention group which may represent a trend and possible significant differences with a larger sample size.

Table 5: Total Number of Claims, Pre and Post Intervention, Days Away From Work

Group	n	Percent
Pre-intervention	30	62.5
Post-intervention	18	37.5
t=1.7321	d. f.=46	p=.09

To test hypothesis 3 (The university's Ergonomics Policy has made no impact on reducing the frequency of CTDs associated with days restricted from work in the workplace), a t test for differences between proportions (comparison of percents drawn from two samples) was performed to determine significance (p=.05) for CTD claims associated with "days restricted from work" between the pre-intervention and post-intervention groups. Table 6 reveals the total number of claims associated with "days restricted from work" are greater in the pre-intervention group (n=48) than the post-intervention group (n=19) and this difference is statistically significant (p=.0008). The third hypothesis can be rejected, the university's Ergonomics Policy appears to have made an impact on reducing the frequency of CTDs associated with days restricted from work after policy implementation.

Table 6: Total Number of Claims, Pre and Post Intervention, Days Restricted From Work

Group	n	Percent
Pre-intervention	48	71.6
Post-Intervention	19	28.4
t=3.5345	d. f.=65	p=.0008

In determining if frequency of claims have any significant differences between the pre and post intervention groups, the variable "days restricted from work" showed a significance difference. Because the number of claims are significantly lower in the post intervention group, it appears that the Ergonomics Policy is on the road to meeting its goals. Although there is no significant difference between group size in total number of claims pre and post intervention, this is not uncommon given the impact of training and CTD awareness and education on campus. It is important to note that the claims associated with "days away from work" and "days restricted from work" only account for 8% (n=48) and 12% (n=67), respectively, of the total number of claims in both the pre and post intervention groups (n=572). The remaining 457 claims (80%) have CTD symptoms and possible associated medical costs but were not as severe to be classified away or restricted from work.

To test hypothesis 4 (The university's Ergonomics Policy has made no impact on reducing the severity of CTDs associate with days away from work in

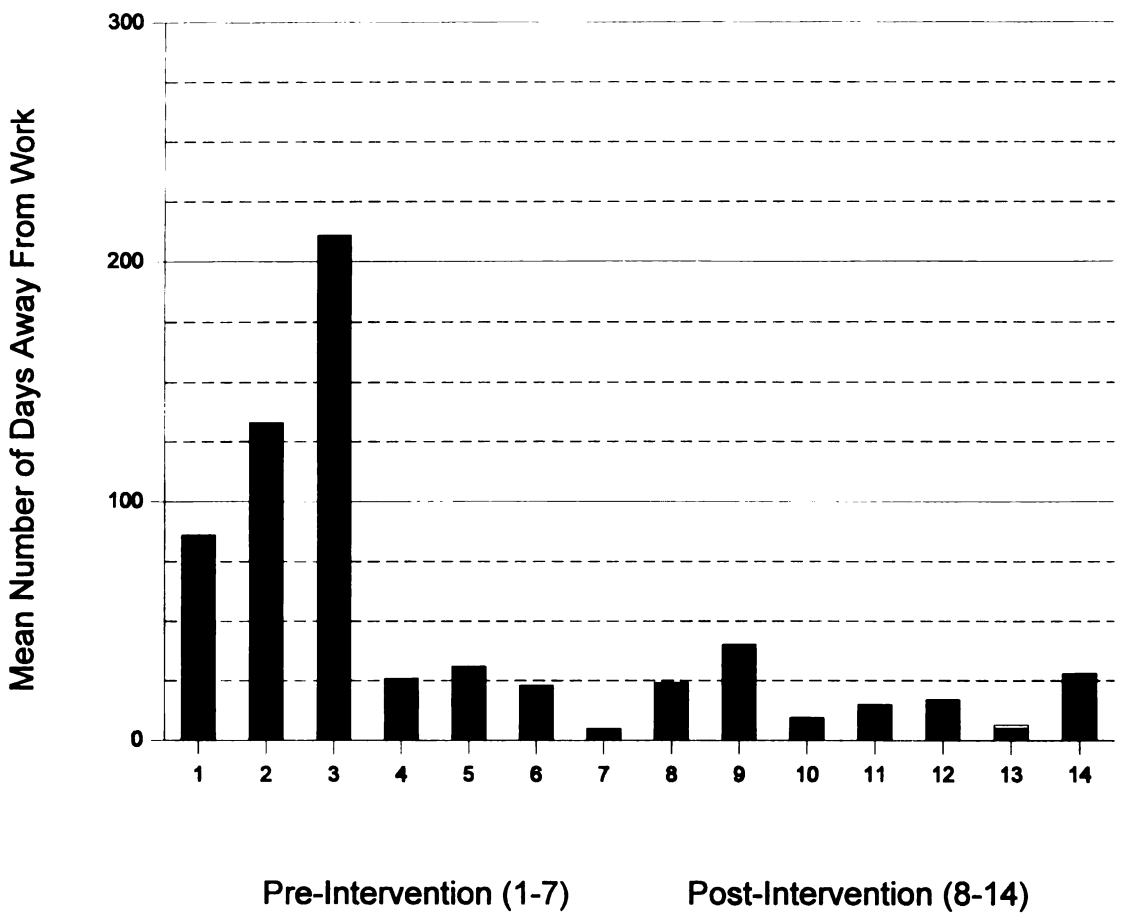
the workplace), an analysis of variance test was performed for the variable "days away from work" for the pre and post intervention groups to determine significant mean differences between the groups (p=.05). Table 7 illustrates the pre-intervention group has a greater mean number of days (95.9) than the post-intervention group (19.94) and these differences are significant (p=.0403). Hypothesis 4 can be rejected, the university's Ergonomics Policy appears to have made an impact on reducing the severity of CTDs associated with days away from work after the policy intervention in the workplace. Less time away from work means less stress and strain on the employee plus generally lower workers' compensation costs. The post-intervention mean of 20 days away from work is encouraging considering the median days away from work for carpal tunnel syndrome is 32 days as reported by the U. S. Department of Labor (Bureau of Labor Statistics, 1992).

Figure 1 shows the distribution of mean values of "days away from work" by the three month time frames in graphical form. This graph clearly illustrates the lower mean of the post-intervention group which suggests a possible correlation to the Ergonomics Policy. It is interesting to note, lower means start with period 4 which may suggest a possible impact from ergonomic related activity before the official announcement of the policy. A table listing the intervals and associated mean value is located in Appendix J.

Table 7: ANOVA - Days Away From Work by Pre and Post Intervention

Group	Mean	S. D.	Error	Cases
Pre-intervention	95.9	151.07	27.58	30
Post-intervention	19.94	22.62	5.33	18
d. f.=1	F=4.4523		Sig. of F=.0403	p<.05

Figure 1: Average Days Away From Work by Three Month Time Frame July 1, 1991 to December 31, 1994



To test hypothesis 5 (The university's Ergonomics Policy has made no impact on reducing the severity of CTDs associated with days restricted from work in the workplace), an analysis of variance test was performed for the variable "days restricted from work" for the pre and post intervention groups to determine significant mean differences between the groups (p=.05). Table 8 shows the pre-intervention group has a mean number of days value of 31.21 and the post-intervention group a mean number of days value of 22.63. This difference is not significant (p=.53) and hypothesis 5 is not rejected, the university's Ergonomics Policy appears to have made little impact on reducing the severity of CTDs associated with days restricted from work in the workplace.

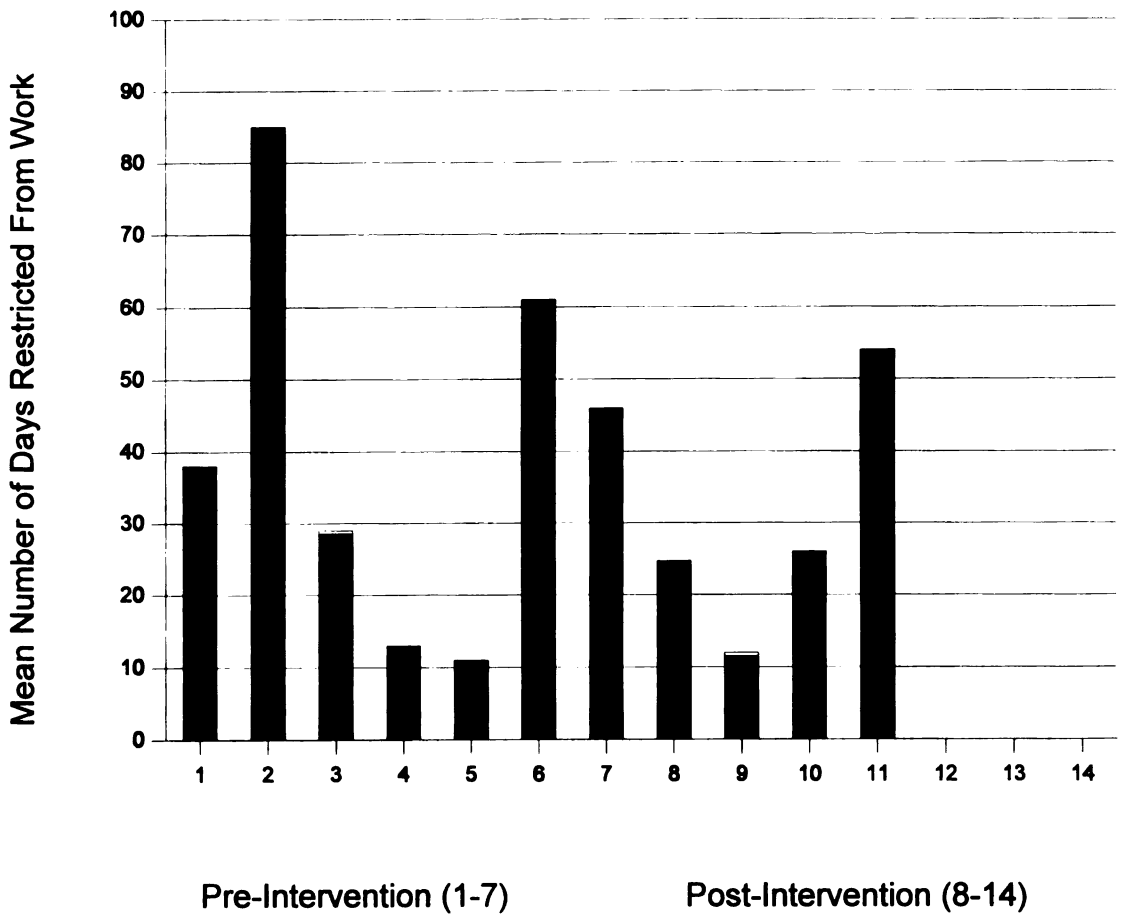
Table 8: ANOVA - Days Restricted from Work by Pre and Post Intervention

Group	Mean	S. D.	Error	Cases
Pre-intervention	31.21	58.06	8.38	48
Post-intervention	22.63	21.86	5.01	19
d. f.=1	F=.3896		Sig. of F=.5347	p<.05

Figure 2 shows the distribution of mean values of "days restricted from work" by the three month time frames in graphical form. Note in this graph, the intervals 12, 13 and 14 have mean values of zero which may be a positive correlation with the Ergonomics Policy. It appears this graph suggests cyclical

trends which may be due to seasonal trends in the academic year and possible workload. A table listing the intervals and associated mean value is located in Appendix J.

Figure 2: Average Days Restricted From Work by Three Month Time Frames July 1, 1991 to December 31, 1994



A chi-square test of independence was calculated separately for the variables "days away from work" and "days restricted from work". Zero or missing values were excluded due to the small sample size. In both cases, the

variables had such a wide range of values including many observations with a frequency of one, the chi-square statistic is questionable therefore no conclusions will be drawn. The variable "days away from work" contained 34 categories ranging from 1 - 698 days (n=48). The variable "days restricted from work" contained 36 categories ranging from 1 - 365 days (n=67). Table 9 lists the summary findings.

Table 9: Chi-square Summary Statistics for Days Away/Restricted From Work - July 1, 1991 - December 31, 1994

Days Away/Restricted From Work (July 1, 1991 - December 31, 1994)

	Chi-Square	D. F.	p	Range of Days
Away	11.50	33	.9998	1 - 698
Restricted	48.52	35	.0639	1 - 365

A crosstabulation with a chi-square test of independence was performed separately for the variables "days away from work" and "days restricted from work" by pre and post intervention. Once again, in both cases, the variables had such a wide range of values plus many observations with a frequency of one, the chi-square statistic is questionable with this crosstabulation. Summary statistics are listed in Table 10.

Table 10: Chi-Square Test of independence Days Away/Restricted From Work, Pre and Post Intervention

Days Away/Restricted From Work Pre and Post Intervention				
Days Away				
	Value	D. F.	p	Range of Days
Pearson Chi-Square	34.49	33	.40	1 - 698
Likelihood Ratio	45.83	33	.07	1 - 698
Days Restricted				
	Value	D. F.	p	Range of Days
Pearson Chi-Square	38.84	35	.30	1 - 365
Likelihood Ratio	47.08	35	.08	1 - 365

Due to the fact the above analysis yielded questionable results because the composition of the raw data set (many single frequency categories, small sample size), the data (days away/restricted from work) was categorized into quartiles where the frequencies are similar and into units of time based on days away/restricted from work in effort to decrease variance.

To examine the distribution of the variables "days away from work" and "days restricted from work" separately by pre and post intervention, the frequency distribution was split into separate groups where the amount of time (days away/days restricted from work) was the basis of the classification. These groups can be considered to represent levels of severity: very mild, mild, mild-moderate, moderate, severe and very severe, with groups ranging from 0 - 6. Groups are listed in Table 2. A crosstabulation with a chi-square test for independence was calculated to determine any difference in distribution between

the groups for both variables separately for the time intervals 1 - 6, and time intervals 0 - 6. The time interval "0" represents claims without days away/restricted from work which aid in tracking frequency as well as severity in these analysis.

Table 11 illustrates the crosstabulation with results from the chi-square test for "days away from work", pre and post intervention for time interval groups 0 - 6. This test shows moderately significant results (p=.7626). Table 12 illustrates the crosstabulation with results from the Chi-square test for "days restricted from work", pre and post intervention for time interval groups 0 - 6. This test shows significant results (p=.00423).

Table 13 illustrates the crosstabulation with results from the chi-square test for "days away from work", pre and post intervention for time interval groups 1 - 6. No significant results (p=.14671) were noted. Table 14 illustrates the crosstabulation with results from the Chi-square test for "days restricted from work", pre and post intervention for time interval groups 1 - 6. This test also reveals no significant results (p=.49542).

In reviewing these analysis together for the two time interval groups (0 - 6 and 1 - 6) possible conclusions can be drawn. Because significant results were calculated for both variables when the "0" category was included and no significant results were calculated without this variable, it appears these differences may be attributed to frequency of claims. A possible reason for not getting any significant results for the time periods (1-6) may be an indicator of

small sample sizes (days away/restricted) with large ranges of categories. Another possible explanation may be due to the possible lack of sensitivity of tracking severity in the OSHA 200 log.

Table 11: Crosstabulation with Chi-Square Test of Independence, Days Away From Work, Pre and Post Intervention, Groups 0 - 6

Pre-intervention

Group	0	1	2	3	4	5	6	Row total
Count	251	4	4	2	10	6	4	281
Exp. Val.	257.4	3.4	3.9	3.4	7.4	3.4	2.0	
Col. %	47.9	51.7	50.0	28.6	66.7	85.7	100	
Row %	89.3	1.4	1.4	.7	3.6	2.1	1.4	
Total %	43.9	.7	.7	.3	1.7	1.0	.7	49.1

Post-intervention

Group	0	1	2	3	4	5	6	Row total
Count	273	3	4	5	5	1	0	291
Exp. Val.	266.6	3.6	4.1	3.6	7.6	3.6	2	
Col. %	52.1	42.9	50.0	71.4	33.3	14.3	0	
Row %	93.8	1.0	1.4	1.7	1.7	.3	0	
Total %	47.7	.5	.7	.9	.9	.2	0	50.9
Column	524	7	8	7	15	7	4	572
Total %	91.6	1.2	1.4	1.2	2.6	1.2	.7	100

	Value	D. F.	Significance
Pearson Chi-Square	11.42	6	.07626
Likelihood Ratio	13.43	6	.03673

Table 12: Crosstabulation with Chi-Square Test of Independence, Days Restricted From Work, Pre and Post Intervention, Groups 0 - 6

Pre-intervention

Group	0	1	2	3	4	5	6	Row total
Count	233	12	7	15	8	5	1	281
Exp. Val.	248.1	8.4	3.9	9.8	7.4	2.9	.5	
Col. %	41.6	70.6	87.5	75.0	53.3	83.3	100	
Row %	82.9	4.3	2.5	5.3	2.8	1.8	.4	
Total %	40.7	2.1	1.2	2.6	1.4	.9	.2	49.1

Post-intervention

Group	0	1	2	3	4	5	6	Row total
Count	272	5	1	5	7	1	0	291
Exp. Val.	256.9	8.6	4.1	10.2	7.6	3.1	.5	
Col. %	53.9	29.4	12.5	25.0	46.7	16.7	0	
Row %	93.5	1.7	.3	1.7	2.4	.3	0	
Total %	47.6	.9	.2	.9	1.2	.2	0	50.9
Column Total %	505 88.3	17 3.0	8 1.4	20 3.5	15 2.6	6 1.0	1 .2	572 100

	Value	D. F.	Significance
Pearson Chi-Square	18.96	6	.00423
Likelihood Ratio	20.47	6	.00228

Table 13: Crosstabulation with Chi-Square Test of Independence, Days Away From Work, Pre and Post Intervention, Groups 1 - 6

				Pre-intervention			
Group	1	2	3	4	5	6	Row total
Count	4	4	2	10	6	4	30
Exp. Val.	4.4	5.0	4.4	9.4	4.4	2.5	
Col. %	57.1	50.0	28.6	66.7	85.7	100	
Row %	13.3	13.3	6.7	33.3	20.0	13.3	
Total %	8.3	8.3	4.2	20.8	12.5	8.3	62.5
				Post-intervention			
Group	1	2	3	4	5	6	Row total
Count	3	4	5	5	1	0	18
Exp. Val.	2.6	3.0	2.6	5.6	2.6	1.5	
Col. %	42.9	50.0	71.4	33.3	14.3	0	
Row %	16.7	22.2	27.8	27.8	5.6	0	
Total %	6.3	8.3	10.4	10.4	2.1	0	37.5
Column	7	8	7	15	7	4	48
Total %	14.6	16.7	14.6	31.3	14.6	8.3	100

	Value	D. F.	Significance
Pearson Chi-Square	8.18	5	.14671
Likelihood Ratio	9.64	5	.08590

Table 14: Crosstabulation with Chi-Square Test of Independence, Days Restricted From Work Pre and Post Intervention, Groups 1 - 6

			Pre-intervention				
Group	1	2	3	4	5	6	Row total
Count	12	7	15	8	5	1	48
Exp. Val.	12.5	5.7	14.3	10.7	4.3	.7	
Col. %	70.6	87.5	75.0	53.3	83.3	100	
Row %	25	14.6	31.3	16.7	10.4	2.1	
Total %	17.9	10.4	22.4	11.9	7.5	1.5	71.6
			Post-intervention				
Group	1	2	3	4	5	6	Row total
Count	5	1	5	7	1	0	19
Exp. Val.	4.8	2.3	5.7	4.3	1.7	.3	
Col. %	29.4	12.5	25.5	46.7	16.7	0	
Row %	26.3	5.3	26.3	36.8	5.3	0	
Total %	7.5	1.5	7.5	10.4	1.5	0	28.4
Column	17	8	20	15	6	1	67
Total %	25.4	11.9	29.9	22.4	9.0	1.5	100

	Value	D. F.	Significance
Pearson Chi-Square	4.38	5	.49542
Likelihood Ratio	4.65	5	.45987

To examine the distribution of the variables "days away from work" and "days restricted from work", a crosstabulation with chi-square analysis was constructed to examine the distribution of the claims for the pre and post intervention. These variables were split into quartiles where frequencies are similar in order to compare the similar variable groups (Table 3) for differences in distribution, pre and post intervention. For example, in Table 3, group 1 for "days away from work", has 11 people who were away from work between 1 - 8

days. (Groups could not be split equally due to the distribution of each variable). A Pearson's chi-square was calculated to determine any statistically significance difference in distribution between the groups.

Table 15 shows frequencies for the variable "days away from work", pre and post intervention groups by quartiles. Quartile 1 represents 1-8 days away from work, quartile 2, 9-17 days, quartile 3, 21-48 days and quartile 4, 56-698 days. Table 16 presents frequencies for the variable "days restricted from work", pre and post intervention groups by quartiles. Quartile 1 represents 1-5 days away from work, quartile 2, 7-13 days, quartile 3, 14-26 days and quartile 4, 27-365 days. In both cases, the test for significance could not accurately predict an accurate distribution for these classifications due to limited sample size and variance of ranges. To re-test this data, the quartiles 1 & 2, and 3 & 4, respectively, were combined for both variables. New crosstabulations were constructed with the new classification in relation to the pre and post intervention groups (Table 17 & 18).

Table 17 illustrates the distribution of "days away from work" for the combined quartile groups 1 & 2 (1 - 17 days) and 3 & 4 (21 - 698 days) for the pre and post intervention groups. This test reveals observed versus predicted distribution patterns for the groups and there was a significant difference (p=.02484). In the pre-intervention group, "1 & 2" had a frequency of 10 and "3 & 4" a frequency of 20. In the post-intervention group, "1 & 2" had a frequency of 12 and "3 & 4" had a frequency of 6 - a actual decrease from the expected

value. In this case, the post-intervention group experienced fewer claims that can be considered more severe (i.e. more days away from work). This supports the claims that the Ergonomics Policy appears to be reducing the risk of severity CTD claims in the workplace.

Table 18 illustrates the distribution of days restricted from work for the combined quartile groups 1 & 2 (1 - 13 days) and 3 & 4 (14 - 365 days) for the pre and post intervention groups. This test reveals observed versus predicted distribution patterns for the groups and there was no significant difference (p=.66718). The distributions are similar for the pre and post intervention groups. In the pre-intervention group, "1 & 2" had a frequency of 23 and "3 & 4" a frequency of 25 In the post-intervention group, "1 & 2" had a frequency of 8 and "3 & 4" had a frequency of 11.

When splitting the data in quartiles, only with the variable "days away from work" any significant differences were found. This finding is encouraging that the frequency associated with claims that can be considered more severe dropped in the post intervention group. This is not surprising because the mean number of days away was significantly lower for the post intervention group as well.

Table 15: Frequency Matrix for Days Away From Work by Quartile, Pre and Post Intervention

			Pre-intervention		
Quartile	1	2	3	4	Row total
Count	6	4	8	12	30
Row %	20.0	13.3	26.7	40.0	62.5
Col. %	54.5	36.4	61.5	92.3	
Total %	12.5	8.3	16.7	25.0	
			Post-intervention		
Quartile	1	2	3	4	Row total
Count	5	7	5	1	18
Row %	27.8	38.9	27.8	5.6	37.5
Col. %	45.5	63.6	38.5	7.7	
Total %	10.4	14.6	10.4	2.1	
Column	11	11	13	13	48
Total	22.9	22.9	27.1	27.1	100

Table 16: Frequency Matrix for Days Restricted From Work, Pre and Post Intervention Groups by Quartile

			Pre-intervention		
Quartile	1	2	3	4	row total
Count	12	11	14	11	48
Row %	25.0	22.9	29.2	22.9	71.6
Col. %	70.6	78.6	73.7	64.7	
Total %	17.9	16.4	20.9	16.4	
			Post-intervention		
Quartile	1	2	3	4	row total
Count	5	3	5	6	19
Row %	26.3	15.8	26.3	31.6	28.4
Col. %	29.4	21.4	26.3	35.3	
Total %	7.5	4.5	7.5	9.0	
Column	17	14	19	17	67
Total	25.4	20.9	28.4	25.4	100

Table 17: Crosstabulation with Chi-square for Days Away From Work, Pre and Post Intervention by Combined Quartile Groups

Group	Quartile	1 - 2	3 - 4	Row total
Pre-intervention	Count	10	20	30
	Row %	33.3	66.7	62.5
	Col. %	45.5	76.9	
	Total %	20.8	41.7	
Post-intervention	Count	12	6	18
	Row %	66.7	33.3	37.5
	Col. %	54.4	23.1	
	Total %	25.0	12.5	
	Column	22	26	48
	Total	45.8	54.2	100

	Value	D. F.	Significance
Pearson Chi-square	5.03497	1	.02484
Likelihood Ratio	5.10305	1	.02388

Table 18: Crosstabulation with Chi-square for Days Restricted From Work, Pre and Post Intervention Groups by Combined Quartile Groups

Group	Quartile	1 - 2	3 - 4	Row total
Pre-intervention	Count	23	25	48
	Row %	47.9	52.1	71.6
	Col. %	74.2	69.4	
	Total %	34.3	37.3	
Post- Intervention	Count	8	11	19
	Row %	42.1	57.9	28.4
	Col. %	25.8	30.6	
	Total %	11.9	16.4	
	Column	31	36	67
	Total	46.3	53.7	100

	Value	D. F.	Significance
Pearson Chi-square	.18491	1	.66718
Likelihood Ratio	.18555	1	.66665

Listed below in Table 19, Table 20 and Table 21 are summary statistics for rates CTD occurrence in occupation classification, department and body part code for the combined time frames of both the pre and post intervention as a whole (n=572). It was not the intent of the researcher to examine these variables in depth, only to highlight insights of overview of findings, concerns and suggestions for further study. All information was retrieved from the OSHA 200 log.

Table 19 represents selected administrative and academic positions. Approximately 75% of positions listed with CTDs fall into either category. The remaining 25%, of which are not listed, are mostly general labor such as kitchen positions, building services, custodial and maintenance. Because most of these positions are administrative in nature and most likely utilize the computer, a detailed task analysis would be recommended to study the occupations and risk of exposure to cumulative trauma disorders in more detail. Many of these positions vary their tasks/duties among the various departments which make it important to conduct a detailed task survey.

Table 20 lists departments with the highest rates of occurrence (frequency) between July 1, 1991 - December 31, 1994 (pre and post intervention). The majority of departments, which are not listed, had fewer than 10 incidents during this time frame. The number of employees in each department (ee's) is an average value from employee data as provided by the department of Data Resources Services of Human Resources Information

Systems. Because the percentage of incidents per number of employees in the Libraries and Labor and Industrial Relations is noticeably higher than the other departments, a further analysis of job duties, and workstation design is warranted and may prove beneficial in helping to contain CTDs in these particular areas.

Table 21 lists the body part associated with CTD illness between July 1, 1991 - December 31, 1994 (pre and post intervention). Specific body parts (left, right or both) were combined into general categories for this brief overview of the data. Although the "arm(s)", "body", and "wrists(s)" classifications are relatively high and may lead to plausible conclusions about body parts affected, a more detailed analysis should be conducted. The "body" classification does not specifically list each body part affected. This classification needs further breakdown to accurately account for body parts effected in CTDs. Although the separate classification of left limb, right limb or both limbs are specific, information on job task analysis and characteristics of users as right or left handed may aid in the understanding of injuries.

Table 19: Frequency of Occupation Classification

Occupation classification	Frequency	Percent
Secretary	145	33.6
Accounting clerk	21	4.9
Administrative assistant	13	3
Academic position	12	2.8
Office assistant	75	17.4
Typist	14	3.2
Librarian	22	5.1
Library assistant	50	11.6
Clerk/receptionist	12	2.8
Data entry operator	4	.9
Programmer/analyst	30	6.9
Editor	5	1.2
Heath care assistant	9	2.1
Medical billing	7	1.6
Office supervisor/supervisor	11	2.5
Animal care	2	.5
total	432	100

Table 20: Frequency of Department Classification

Department Classification	Code	Ee's	Freq.	Percent
Labor and Industrial Relations	38508	15	11	73
Administrative Info. Service	47220	123	18	15
Libraries	50536 (56536)	121	85	70
Admissions	51016	86	17	20
Clinical Center	55153	63	13	21
Health Ctr. MSU Student	55392 (90392)	133	10	8
Extension 4-H Office	58302	58	15	26
Student Affairs Financial Aid	66804 (65804)	66	10	15
As. VP Human Resources	70642	73	10	14
Comptroller	76200	269	10	4
	total	199		

Table 21: Frequency of Body Part Classification

Body Part Classification		Frequency	Percent
Arm(s)		157	27.8
Back		5	.9
Body		175	31
Elbow(s)		10	1.8
Hand(s)		86	15.2
Finger(s)		13	2.3
Shoulder(s)		12	2.1
Wrist(s)		106	18.8
	total	564	100

CHAPTER VIII: CONCLUSIONS AND RECOMMENDATIONS

Based on the results of this study, the ergonomics policy might have had an effect in reducing the risk of CTDs in the workplace after it's official announcement. Significant differences are found between the pre and post intervention groups. There are fewer CTD claims associated with days restricted from work in the post intervention group. The post-intervention group for the variable "days away from work" experienced fewer claims that can be considered more severe (more days away from work). The average number of days away from work is significantly lower in the post-intervention group.

Although these results are encouraging, these conclusions are conservative due to the indicators used and the presence of intervening variables through the various implementation strategies.

Although the intent of this study was not to fully document the implementation strategies of various units that aid in support of the policy, general conclusions can be made. Through discussions and conversations with units that participate in supporting the policy, there is a genuine interested in the importance of ergonomics, the philosophy behind the policy and it's impact on the employees in the workplace. This policy is supported from top management

by providing funding to assist MSU academic and support units with ergonomic improvements (Appendix K).

Summary CTD claim expenditures, although not fully analyzed, support the positive impact of the Ergonomics Policy. Total expenses and expenses paid out of workers' compensation for CTD claims are declining (Appendix D). Although this study focuses on data through 1994, a recent interview with a manager in Human Resources confirms the assumptions about the impact of the policy with current 1995 data. Through the 3rd quarter of 1995 there are fewer than half as many CTD claims when compared to the previous year totals for the same period (1995=48; 1995=119). Expenditures continue to be less and may be attributed to employees' earlier recognition of symptoms.

Limitations and Suggestions for Further Study

This study is limited to the data set of the OSHA 200 log. The log itself contains basic information about workers' compensation claims. The only indicator of severity is in the variables "days away from work" and "days restricted from work". Workers' compensation data may also underestimate CTDs. In order to be counted in the system, the worker must file a claim which is generally associated with the event of an injury or chronic pain. CTDs, on the other hand, develop over time, are associated with mild to severe symptoms, and are not associated with a single event. Thus, CTDs that appear in the OSHA log may represent only these more serious cases. Many people may

experience milder CTD symptoms and feel there is no need to file unless the symptoms turn chronic. Also, it is human nature to tolerate the symptoms of mild pain associated with the early stages of CTDs rather than file for workers' compensation. Other possible explanations for avoiding the workers' compensation system could include lack of awareness or perceived job threat (although illegal). A more comprehensive review of medical records/visits is recommended. Also urging employees to file a claim or seek medical attention with milder symptoms. The medical records, although this information may be difficult to obtain, may contain more sensitive information about measures of severity and length of illness (symptoms to treatment to recovery). Additional information such as habits, job task analysis and workstation design, demographic data (gender, age), employee knowledge of ergonomics and training program participation should be sought for further study to give insight in tests and measures used in analysis.

This study is also limited to the time frame of data collection. Because of the nature of CTDs (which developed gradually over time) and of the long term impact of training, a better evaluation of the policy may lie in examining data several years from the implementation of the policy and also providing a longer time lapse from the official implementation of the policy to examine pre and post intervention groups.

This study was only based on evaluating one goal (reduce to risk of cumulative trauma disorders) through data contained in the OSHA 200 log. A

more throughout examination of the policy goals and strategies is needed to accurately assess the strengths and weaknesses. Reynolds ten step methodology to evaluate for risk assessment and control of CTDs (Reynolds, J., et al, 1994) can be further explored. This study incorporated only one of the steps - the review of musculoskeletal injury data (OSHA 200 log). However, it appears that the activity at Olin is mirroring some of the principals behind the other steps such as conducting an ergonomic audit, formulating alternative and implementing workplace solutions, and necessary follow-up. Training, workstation design, job design and medical management need to be examined individually to assess their impact in the relationship of the goals of the policy. Also, a systematic procedure to track any type of ergonomic activity from purchase records of furniture to requests for ergonomic consultation might be valuable in tracking certain items for evaluation.

Because this study was based on historical data, there was no opportunity to form a control group to validate results. Difficulty also arises in tracking the current status of particular units that provide ergonomic support for the policy - some information in not complete due to limited records plus a handful of units provided "ergonomic support" prior to the official implementation with questionable start dates. This study did not account for seasonal trends in data, although a trend seems likely due to the nature of the university and potential work patterns associated with the academic year.

Importance of Training

On-going training for ergonomic interventions is essential for success of a program. "Training, education, and information programs helped raise awareness and reduce the severity of CTDs, since people seek assistance earlier and those cases requiring therapy or treatment are less severe and more easier to remedied" (Springer, 1994, p. 24). Training is critical to form and reinforce good work habits by changes in work behavior. "While poor job site design causes the most serious injuries, 80 percent of injuries are caused by damaging work behaviors" (Strakal, 1994, p. 45).

Although the Ergonomics Policy states that work station and job flow be reviewed this responsibility falls on the supervisors to take appropriate action in minimizing employee's exposure to CTDs. The policy offers resources but utilizing these resources is not mandatory. University wide mandatory training may provide the avenue for truly minimizing risk of CTDs and workers' compensation costs.

The literature provides many suggestion for ergonomic related training for the computerized office. Although particular methods vary, a generalization can be made. Successful programs should include a assessment of the workplace, equipment and facility characteristics, employee capabilities and job demands. A review of injury reports/medical logs may spot sources of problems. Ergonomic alternatives must be generated for the workplace and the employee with implementation and follow-up with training throughout the whole process.

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APPENDIX A

University Committee on Research Involving Human Subjects Approval

APPENDIX A

MICHIGAN STATE
UNIVERSITY

April 17, 1995

TO: Anne M. Kosinski
3316 Biber Street
East Lansing, MI 48823

RE: IRB#: 95-105
TITLE: AN ASSESSMENT OF ERGONOMIC INTERVENTIONS AND POLICY DECISIONS AT A LARGE PUBLIC UNIVERSITY
REVISION REQUESTED: N/A
CATEGORY: 2-H
APPROVAL DATE: 04/14/95

The University Committee on Research Involving Human Subjects'(UCRIHS) review of this project is complete. I am pleased to advise that the rights and welfare of the human subjects appear to be adequately protected and methods to obtain informed consent are appropriate. Therefore, the UCRIHS approved this project including any revision listed above.

RENEWAL: UCRIHS approval is valid for one calendar year, beginning with the approval date shown above. Investigators planning to continue a project beyond one year must use the green renewal form (enclosed with the original approval letter or when a project is renewed) to seek updated certification. There is a maximum of four such expedited renewals possible. Investigators wishing to continue a project beyond that time need to submit it again for complete review.

REVISIONS: UCRIHS must review any changes in procedures involving human subjects, prior to initiation of the change. If this is done at the time of renewal, please use the green renewal form. To revise an approved protocol at any other time during the year, send your written request to the UCRIHS Chair, requesting revised approval and referencing the project's IRB # and title. Include in your request a description of the change and any revised instruments, consent forms or advertisements that are applicable.

PROBLEMS/ CHANGES: Should either of the following arise during the course of the work, investigators must notify UCRIHS promptly: (1) problems (unexpected side effects, complaints, etc.) involving human subjects or (2) changes in the research environment or new information indicating greater risk to the human subjects than existed when the protocol was previously reviewed and approved.

If we can be of any future help, please do not hesitate to contact us at (517)355-2180 or FAX (517)336-1171.

Sincerely,

David E. Wright, Ph.D
UCRIHS Chair

DEW:pjm

cc: Timothy J. Springer

OFFICE OF
RESEARCH
AND
GRADUATE
STUDIES

University Committee on Research Involving Human Subjects (UCRIHS)
Michigan State University
232 Administration Building
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APPENDIX B

1993-1994 Healthy U Survey: Summary of Findings
Work Related Health Issues

APPENDIX B

1993-94 *Healthy U Survey:* Summary of Findings

Larry Hembroff, Ph.D
and
Ya-Li Huang

January, 1995

Conducted for the MSU 's Healthy U Program by:
the
Survey Research Division
of

I P P S R

Institute for Public Policy and Social Research

Michigan State University

MSU is an Affirmative Action/Equal Opportunity Employer

Work-Related Health Issues

In terms of the costs of medical care and insurance, the University has a vested interest in trying to help individuals make lifestyle choices or to change their behaviors to adopt behaviors that are likely to promote health and, consequently, to reduce costs. But the health care costs to the employer who provides insurance or who loses productivity because of injury or ill-health are still costs whether the injury or ill-health resulted from choices within the control of the individual or not. Previous Healthy U Surveys have focused almost entirely on lifestyles and habits which impact individuals' health and well-being, most of which represent decisions over which individuals have control for themselves. While the evidence is clear that many of these decisions and behaviors do, in fact, have serious, significant effects on individuals' mortility and morbidity, there are other factors, not wholly within the control of individuals which also influence their health. Among these other factors are a host of work and work-related conditions which may adversely impact individuals' health.

The 1993-94 Healthy U Survey included a section of questions that were intended to determine how many MSU employees engage in the kinds of work or work under the kinds of conditions that are associated with the most common work-related injuries. The three most common types of work related injuries have to do computer use, lifting, and with repetitive motion. Many of the computer use related injuries are, themselves, examples of repetitive motion injuries, but not exclusively. Many are related to the ergonomics of the individual's workstation – i.e., the position of the monitor relative to the individual's head, the height of the chair, the amount of screen glare, etc.

Questions regarding computer use were asked before the other two topics. However, for each, respondents were asked whether or not their work involved the activity in questions, how often, for how long, and whether or not they experienced discomfort as a result of the activity. If so they were asked to identify the areas of their bodies where the discomfort occurred, how often and how severe. The results for these questions are presented in Table 22.

Ergonomics and Computer Use. Table 22 indicates that more than three quarters (78.3%) of the faculty and staff employed at the university claimed they have to use computers in their work. Of these, nearly nine out of ten (87.9%) said they use a computer at least five days a week. The average number of hours spent each day working on a computer was 3.77 with a median of 3.00, indicating that a few individuals spent considerably more time on the computer each day than is typical.

Of those who use computers in their work, six out of ten (60.4%) indicated that they experience some type of discomfort when they use the computer. Of those who experience discomfort, the most common form is visual fatigue or eye strain which was claimed to be a problem for 72.6% of those who experienced some form of discomfort. The second most commonly cited area of the body where discomfort occurs was the upper or lower back (30.4%), followed by the wrists (23.0%) and the neck (22.0%). Since these are the percentages experiencing discomfort in particular parts of the body of those who experience any discomfort, it may tend to exaggerate the apparent prevalence of these discomforts. For example, the 30.4% who said they experience discomfort in their upper or lower back actually represents only 18.4% of all employees who use computers and 14.4% of all employees.

Table 22. Distribution of Activity and Discomfort Associated with Using Computers, Lifting Objects, and Repetitive Motion in Work Among All MSU Employees: 1994

	Use Computer		Lift Heavy Objects		Repetitive Motion	
TOTAL	78.3%		19.9%		37.5%	
FREQUENCY						
< 1 Day/Week	0.8%		3.4%		0.6%	
1-4 Days/Week	11.3		43.7		28.1	
5-7 Days/Week	87.9		52.9		71.3	
(N)	(625)		(161)		(298)	
DURATION/TIMES						
Average	3.77 hrs/day		7.48 times/day		4.20 hrs/day	
Median	3.00 hrs/day		3.00 times/day		4.00 hrs/day	
EXPERIENCE DISCOMFORT	60.4%		47.4%		60.2%	
(N)	(625)		(159)		(297)	
LOCATION						
Eyes	72.6%		0.0%		0.0%	
Neck	22.0		15.7		20.2	
Upper/Lower Back	30.4		85.3		22.5	
Shoulders	16.7		8.2		17.3	
Upper/Lower Arms	13.0		8.2		27.6	
Wrists	23.0		9.5		53.9	
Hands	11.6		8.8		32.1	
Legs	3.2		2.5		2.6	
Thighs	0.0		0.0		1.6	
(N)	(378)		(74)		(178)	
HOW OFTEN		(All)		(All)		(All)
Almost Daily	33.2%	(11.1)	17.2%	(1.6)	33.6%	(7.4)
2 - 5 Days/Wk.	25.3	(8.5)	21.6	(2.0)	37.6	(8.3)
2 - 4 Days/Mo.	31.8	(10.7)	15.1	(2.0)	19.2	(4.3)
Few Times/Year	9.8	(3.2)	50.6	(4.7)	9.6	(2.1)
(Not Applicable)		(66.5)		(90.6)		(77.7)
HOW MUCH						
Only a Little	31.4%	(10.4)	20.1%	(1.8)	30.2%	(6.7)
Moderate Amount	52.0	(17.4)	43.8	(4.0)	55.9	(12.5)
Quite a Bit	13.9	(4.7)	20.1	(1.8)	10.7	(2.4)
A Great Deal	2.6	(0.9)	16.1	(1.5)	3.2	(0.7)
(Not Applicable)		(66.5)		(90.6)		(77.7)

Table 22 also indicates that those who experience discomfort do so quite often. A third of those experiencing discomfort (33.2%) do so almost daily while an additional 25.3% do so 2-5 days per week. About a third of those experiencing discomfort indicated that they typically experience only a little discomfort (31.4%), but roughly half (52.0%) said they experience a moderate amount, while 13.9% and 2.6% indicated they experience quite a bit or a great deal of discomfort respectively. Those indicating they experience quite a bit or a great deal of discomfort represent 4.7% and 0.9% of all MSU employees.

Interviewers asked all respondents who use computers in their work if they had been given instruction or information about ways to reduce discomfort when using a computer. Overall, 68.2% of these employees said that they had and 80.3% of these indicated that the information had been provided by the university. Those who reported having been given such information were actually somewhat more likely to report experiencing discomfort from using a computer than were those who said they had not been given this information; however, it is important to note that those who had not received such information tended to use the computer fewer days per week and fewer hours per day when they did use it. Therefore, it might be more informative to examine the utility of having received information about how to reduce computer-related discomfort by comparing the sources of the information among those who received it.

Those who received the information from some source other than the University were more likely to report discomfort (77.6%) than were those who received the information from the University (63.9%). This may indicate something about the quality of the information provided.

Knowing what to do, however, without having either the proper equipment or work flexibility to implement what should be done may still result in health problems. Interviewers asked respondents who had received information about how to reduce computer-related discomforts how often they were able to follow the guidelines given. Overall, 37.3% of these respondents indicated that they could follow the guidelines all or nearly all the time and an additional 36.5% reported they could follow the guidelines much of the time. Only one in ten (10.3%) said they could only rarely follow the guidelines, while 15.8% said they could do so only occasionally. More than three quarters (77.9%) of these employees said that they had been provided the equipment or furniture needed to follow the guidelines or advice, and 90.3% reported having the flexibility in their work tasks to follow the guidelines and advice.

In general, those who reported being more often able to follow the advice or guidelines, those who had the recommended equipment or furniture, and those who had the work flexibility needed, were also less likely to report experiencing discomfort as a result of using a computer in their work. Thus, the value of being able to comply with recommendations regarding the ergonomics of computer use seems to have been substantiated. The cost implications were also indicated. Overall, 22.8% of those who used computers and 35.7% of those who said they experienced computer-related discomfort reported having had to seek medical care because of physical or visual problems they associated with using the computer. In general, those who were more often able to follow ergonomic guidelines, had proper equipment or furniture, and had flexibility in their work tasks were less likely to report having had to seek medical care for computer-related health problems or to miss days of work.

Lifting. Interviewers asked a similar, although less detailed, set of questions regarding lifting heavy objects as a part of one's work. The results for these questions are also presented in Table 22. The table indicates that one in five employees (19.9%) reported having to lift heavy objects. Of those who must do so, over half (52.9%) said they lift heavy objects daily, while only 3.4% said they do so less than once a week. These employees reported having to lift heavy objects an average of seven and a half times a day, although the median number of times per day was only 3. These employees reported that the typical weight of the things they have to lift at work was, on average, 47 pounds and the weight of the heaviest things they had to lift was, on average, 70 pounds; however, the weights for both ranged from only one or two pounds to 150 pounds.

Interviewers asked these employees if they experienced discomfort as a result of the lifting they have to do in their work. Almost half of these employees (47.4% or 9.4% of all employees) reported experiencing discomfort, most of whom experienced back problems (85.3%). The table indicates that these discomforts occurred only a few times per year for 50.6% of those experiencing discomfort (or 4.7%) of all employees, while 17.2% of these employees experienced discomfort almost daily and 21.6% experienced discomfort several days a week.

Over a third of those who reported experiencing discomfort (36.2%) reported that they had either quite a bit (20.1%) or a great deal of discomfort (16.1%). One in five of these employees (20.1%) said they experienced only a little discomfort. Those who reported experiencing discomfort were somewhat more likely to see the doctor more often because of a health problem and to miss more days of work than were other employees.

Repetitive Motion. Interviewers asked employees if their work required doing things regularly with a repetitive motion for extended periods of time. Those employees whose work involved such tasks were then asked a series of questions regarding the frequency and duration of such tasks, and whether or not they experienced discomfort from the work. The results are presented in Table 22 as well.

The table indicates that more than a third of MSU employees (37.5%) worked in jobs with repetitive motion tasks. Of these, 71.3% engaged in repetitive motion tasks five or more days each week. On average these employees engaged in repetitive motion tasks for roughly four hours each day. Six out of ten of these employees (60.2%) reported experiencing discomfort associated with their work. The employees who reported discomfort indicated experiencing discomforts in less concentrated areas of the body than was true regarding discomforts from computer use or lifting. Nevertheless, the discomforts were generally confined to the upper body and upper extremities. About half of these workers (53.9%) had discomfort in their wrists, 32.1% in their hands, 27.6% in their arms, 22.5% in their backs, and 20.2% in their necks. A third of these individuals said they experience the discomfort almost daily while 37.6% more employees said they experience discomfort several days each week. Only 13.9% of these employees (3.1% of all employees) reported experiencing quite a bit (2.4%) or a great deal (0.7%) of discomfort.

Those who reported experiencing discomfort generally were no more likely than other employees to see the doctor because of health problems or to miss days of work. However, those experiencing greater amounts of discomfort were more likely to be absent from work and to see the doctor more often.

APPENDIX C

Ergonomics Policy

APPENDIX C

MICHIGAN STATE UNIVERSITY

OFFICE OF THE PROVOST
VICE PRESIDENT FOR FINANCE AND OPERATIONS AND TREASURER

EAST LANSING • MICHIGAN • 48824-1046

April 1, 1993

MEMORANDUM

To: Vice Presidents, Deans, Directors, Chairpersons, Heads of Administrative Units and Supervisors

From: Lou Anna Kimsey Simon, Interim Provost

Roger Wilkinson, Vice President for Finance and Operations and Treasurer

Subject: **Ergonomics Policy**

Since 1990, Michigan State University has experienced an increase in cumulative trauma disorders (CTD). Worker's Compensation costs related to CTD's increased significantly in fiscal year 1991-92.

In an effort to reduce the risk of these illnesses, the attached policy and procedure is to be implemented immediately. This policy will ensure that all departments and employees work cooperatively to reduce the risk of CTD illnesses.

The policy requires that work stations and job flow be reviewed. Supervisors are to take appropriate corrective measures to minimize exposure to CTD's. The procedure offers resources for training and support services.

A supervisory training program on Ergonomics is being developed for presentation during the fall of 1993.

Your immediate attention to the implementation of this policy is appreciated.

Attachment

ERGONOMICS POLICY
March, 1993

Michigan State University strives to maintain a safe and healthy workplace for all University employees. Workplace ergonomics is of increasing importance to employee health and safety. This policy is established to promote and protect employee health through ergonomically sound practices.

Several general principles guide MSU efforts in the ergonomics area, including the following:

- Immediately after hiring a new employee or making significant changes in assigned responsibilities of an employee in place, supervisors should determine the adequacy of the employee's familiarity with ergonomic principles and practices applicable to the new job responsibilities and locale. When needed, training should be provided.

- Employees receiving ergonomics training should be encouraged to consider the applicability of training content to activities undertaken outside of the workplace.

- When employees are provided unfamiliar or significantly changed new tools, equipment, or work stations, the training in the use of the tool, equipment, or work station should routinely address ergonomics issues.

- Ergonomic features of equipment, tools, and work stations (whether existing or under consideration for acquisition, construction or renovations) should be evaluated. The employee(s) who will be working with the aforementioned should participate in the evaluation.

- Ergonomics training and improvement efforts by administrative units should receive appropriate programmatic and budgetary priority. The efforts should be continuous, to ensure periodic reconsideration of ergonomic issues in light of environmental change and recent research. As with all such unit-level activities, a unit's intentions, priorities, and results achieved are properly discussed within the context of the annual APP&R or SSPP&R process, which permits MAU-level review and reinforcement.

In short, routine and widespread consideration of ergonomic issues should be institutionalized as a natural component in the conduct of University affairs.

Implementation of this policy is a shared responsibility of various administrative units and of all University employees. In particular:

1. Training - Departments/MAUs are responsible for ensuring provision of ergonomic education in their units. For example, employees working with video display terminals or *highly repetitive tasks* should have training in the fundamentals of ergonomics and *cumulative trauma disorders (CTD)* risk factors. Supervisors should have training in how they can work with employees to reduce the risk of injuries and illnesses. Units that provide primary training in the use of tools or equipment (such as MSU Computer Laboratory and Administrative Information Systems in the case of terminals and personal computers) are responsible for routinely incorporating ergonomics concepts within such training.

2. Work Station Design - Incorporation of ergonomics principles in work site construction or renovation planning, is a shared responsibility of all participating units, including the University Architect, Physical Plant, and Facilities Planning & Space Management. For this purpose, the work station should be considered to include furniture, electronic and other tools, lighting, and other environmental features. Departments/MAUs are responsible for individual work stations, once established. Each job-site should provide an appropriate fit between the worker, the technology, and the working environment. Employees should be empowered to share in the responsibility for the safety of their workplace with their supervisor or appropriate others.

3. Job Design - With leadership from departments and MAUs, supervisors are responsible for ensuring appropriate work methods. When considering an employee's regular job assignment, both pace of work and job flow should be reviewed to avoid excessively repetitive work for any one employee and his/her specific position.

4. Medical Management - Employees suffering from job-related cumulative trauma disorders will have access to medical treatment and rehabilitative processes through the Workers' Compensation Program. In these cases, ergonomic accommodations or improvements may be coordinated by the Workers' Compensation Division. However, work station modifications and equipment cost decisions are line responsibility, both financially, and administratively.

5. Individual Compliance - Employees are responsible to follow ergonomic policies and to follow work practices directed or recommended for ergonomic purposes.

Policy applies to: **All University employees.**

Refer questions to: Assistant Vice President for Human Resources 355-0290, or Assistant Provost and Assistant Vice President for Academic Human Resources 353-5300.

ERGONOMICS PROCEDURE
March, 1993

The following procedures are to be followed by departments to ensure ergonomically sound practices.

Compliance:

If a MIOSHA compliance officer notifies your area of an impending inspection or simply visits your Department/MAU, immediately contact the MSU Occupational Safety Officer at 355-5360. The Safety Officer should be present for all investigations and will assist departments with all responses to cited violations, and/or citations. It is important to act immediately if notified by MIOSHA; severe penalties could arise if prompt action is not taken.

Training:

Once a department identifies a need for CTD and/or ergonomics training it may obtained from:

- MSU Occupational Health Services (Olin) at 353-9137,
- MSU Computer Laboratory at 355-4500,
- Administrative Information Services at 353-4420, and/or
- MSU Health Promotion Programs (Healthy-U) at 353-2596.

Information and Support Sources:

Information on VDT and computer related ergonomics and CTD topics can be accessed through use of several electronic data resources including the following:

- "Computer-Selects" CD ROM periodical bibliography available in the Computer Lab,
- "Magic" catalog available at the MSU Libraries,
- "Gopher" a campus information server.

In addition, a number of academic units on campus offer courses and programs on the subject of ergonomics in the workplace. Many of these units are also involved in research projects on various ergonomic issues. These units include the following:

- Human Environment and Design at 355-7712
- Biomechanics at 353-9110
- Building Construction Management at 353-0862

Finally, support for employees who have experienced a CTD illness is available through the Employee Assistance Program (EAP) at 355-4506.

Work Station Evaluation:

Once departments identify work stations needing attention, assistance with work station evaluations can be obtained from MSU Occupational Health Center (Olin) at 353-9317, and Ingham Medical Occupational Health Center at 334-2300. Other providers may be approved by Human Resources. Such evaluations typically entail a fee, and can include recommendations for work station design modifications. Similarly, for a fee, Housing Construction and Design at 355-7476 offers assistance with designing new work stations, or reorganizing existing work stations.

Departments are responsible for reviewing the results of work station evaluations, and taking necessary action to implement all reasonable and necessary modifications in a timely manner.

Job Design:

When departments review the job design of particular positions, they should:

- Identify types of repetitive tasks performed in an individual's position.
- Recommend a job flow allowing on average a ten to fifteen minute alternative task break from repetitive tasks. As a general rule, time on repetitive task should not exceed two hours.
- Communicate an approved, appropriate job flow to the employee, to be maintained as part of the regular job assignment.

Questions regarding job design may be referred to MSU Occupational Health Services (Olin) at 353-9137 or Ingham Medical Occupational Health Center at 334-2300

Medical Management:

If an employee complains of a CTD or other work related injury/illness, departments should:

1. Direct the employee to the appropriate medical facility designated by the Workers' Compensation Division (see workers' compensation policy and procedure).

2. Complete the following:

   - An Authorization to Invoice MSU (140-2665)
   - Report of Claimed Occupational Injury or Illness (140-2592)
   - If the employee is losing time, the Injury Absence Report (140-2513)
   - Request a job site evaluation, if one has not been done, through MSU Occupational Health Services (Olin) at 353-9137, or Ingham Medical Occupational Health Center at 334-2300.

3. Follow all medically prescribed work restrictions if the employee is on the job.

4. Ensure that reasonable and necessary work site modifications have been implemented.

Questions regarding medical management may be directed to Workers' Compensation at 353-5394. Questions on reasonable accommodation required under the Americans with Disabilities Act may be directed to the Coordinator of Handicapper Operations and Services at 355-2270.

APPENDIX

Definitions:

Ergonomics: Referred to as human factors, or human engineering, ergonomics is concerned with understanding the basic physical and psychological attributes of people as these relate to the things that people use (tools, machines, environments). The goal of ergonomic design is to optimize the person-thing relationship, that is, the fit. (Dainoff and Dainoff, 1986)

Repetitive Tasks: Activities involving sustained or repetitive musculoskeletal exertion with no opportunity for rest or recovery. Examples of repetitive tasks are, chopping by hand various food items, working with tools in a twisting motion, bending, lifting, data entry work.

Cumulative Trauma Disorders (CTD): Injuries developed gradually over periods of weeks, months, or even years as a result of repeated stresses on a particular body part as a result of mechanical stresses. (Putz-Anderson, 1988)

APPENDIX D

Cumulative Trauma Disorder Statistics - December 1994 Report

APPENDIX D

Cumulative Trauma Disorder Statistics - December 1994 Report

This table reports the number of CTD cases workers' compensation expenditures were paid on in each fiscal year. Claims paid reflect expenses paid each fiscal year. The claim may have been incurred in a previous year.

CUMULATIVE TRAUMA DISORDER (CTD) EXPENDITURES

Year	Claims Paid	Expense
FY 1989-90	22	$ 11,123
FY 1990-91	141	$292,813
FY 1991-92	266	$540,907
FY 1992-93	226	$534,603
FY 1993-94	276	$459,526
FY 1994 -95*	128	$258,414

This table reports all expenses attributed to CTD illnesses reported each fiscal year. Total expenses reports the total paid on a claim by the fiscal year the illness began. Claims reported reflects the number of new cases reported each FY.

CUMULATIVE TRAUMA DISORDER (CTD) EXPENDITURES

Year	Claims Paid	Expense
FY 1989-90	24	$310,526
FY 1990-91	137	$600,114
FY 1991-92	175	$693,966
FY 1992-93	157	$227,195
FY 1993-94	186	$193,965
FY 1994 -95*	57	$ 25,799

* Through 11-30-94

Average cost per claim 1991-92: $3,965
Average cost per claim 1993-94: $1,042

NOTE: Eighteen individual cases account for a total of $1,008,000 of total expenses (to date) for CTD workers' compensation claims.

APPENDIX E

Olin Health Center Ergonomic Activity

APPENDIX E

MSU Occupational Health Service - Group Assessments/Presentations

Department	Attendance	Session	Date
MSU Development Fund	20	*	11/91 - 6/93*
Controller's Office	100 total in 4 sessions		11/91-6/93
Sociology	5	*	11/91-6/93
Olin Health Center	13	21*	11/91-6/93
Food Science	4	*	11/91-6/93
University Printing	4	1	October 1993
Dept. of Communications	4	1	October 1993
College of Nursing	17	2 (same people)	November 1993
Animal Health Diagnostic Lab	7	2	11/93
	12	4	11/91 -6/93
Arts and Letters	8	*	January 1994
Admissions Office	46	*	January 1994
Romance & Classical Languages	3	1	February 1994
Packaging	8	1	February 1994
4-H Extension	21 surveyed 48	*	February 1994
Dept. of History	6	1	March 1994
Registrar's Office	65	1	March 1993
Pesticide Research Center	3	*	April 94
Human Medicine Dean	12	*	April 94
Philosophy	3	*	June 94
Student Life	14	*	June 94
Veterinary Medicine	18	2	August 1994
Alumni Association	25	1	August 1994
Teachers Education	15	1	September 1994
Counseling Center	12	1	September 1994
Chemistry	13	1	September 1994
English Research	10	1	November 1994
International Center	7	1	March 1995

* Insufficient data

Projected: July - December 1994 - group assessments tripled

MSU Occupational Health Service - Individual Assessments/Presentations

Fiscal Year July 1 - June 30	Individual Evaluations
1991 - 1992	15
1992 - 1993	37
1993 - 1994	33
1994 - 1995	74 (projected through May)

CAMPUS

Dear

Thank you for your interest in our ergonomic services. We offer two types of programs: the individual job analysis and the group presentation *"Working Smarter, Not Harder"*.

The individual job analysis focuses on a particular individual at his/her workstation. An ergonomic specialist will observe the employee for possible risk factors. During the observation the specialist will make recommendations regarding work habits as well as possible equipment changes and use of existing equipment. The employee will also be videotaped while at the workstation for the specialist to review. A detailed report describing the results of the assessment and the recommendations will be sent to the supervisor and the employee. The cost for this service is $150. The observation takes approximately one hour.

The ergonomic group presentation *"Working Smarter, Not Harder"* is a comprehensive program designed to educate employees about the risk factors associated with cumulative trauma disorders. Larry Rush, P.T. and David Whitney, O.D. are co-presenters of this program.

We have enclosed the following information for your review:

- ☐ Individual ergonomic request form and survey
- ☐ *"Working Smarter, Not Harder"* group presentation booklet

If you would like the individual job analysis, please fill out the request form and the survey. Return them together to:

Physical Therapy Clinic
Olin Health Center

After receiving the completed forms we will call the employee to schedule a mutually convenient meeting time.

If you are interested in the group presentation, please call us for further information. Our phone number is 3-5008.

Sincerely,

Olin Health Center Physical Therapy

Enc.

MSU Occupational Health - Ergonomics Survey

In order to improve the MSU Occupational Health Service, we depend on feedback from our clients. We value your comments and suggestions and would greatly appreciate your taking a few minutes to complete this survey. Please return the survey through campus mail to:

MSU Occupational Health
Olin Health Center Rm 253

Did you feel that the ergonomics program provided an adequate assessment of your work area?

- ☐ Yes, comment: _____
- ☐ No, comment: _____

Did you make the suggested changes to improve your work habits (posture, positioning, etc.)?

- ☐ Yes, I made most or all of the suggested changes
- ☐ Yes, I try but sometimes forget to use the new behaviors
- ☐ Yes, I made changes but discontinued them because: _____
- ☐ No, I didn't think the changes were necessary
- ☐ No, the changes were too disruptive/difficult
- ☐ Other _____
- ☐ I was not given suggested changes

Were the suggested changes to improve your work station (change desk, chair, monitor, temperature, etc.) implemented?

- ☐ Yes, most or all of the changes have been or will be made
- ☐ Yes, some changes have been or will be made, however _____
  _____
- ☐ No, changes have not been made because: _____
  _____
- ☐ I was not given suggested changes

Were the suggested exercises for you to do in your work area implemented?

- ☐ Yes, and I continue to do them
- ☐ Yes, but I stopped doing them because: _____
- ☐ No, because: _____
- ☐ I was not given exercise suggestions

Additional Comments: _____
_____
_____

Please tell us which department you are employed by: _____

Thank you for taking the time to complete our survey.

OLIN HEALTH CENTER

OLIN HEALTH CENTER

MICHIGAN STATE UNIVERSITY

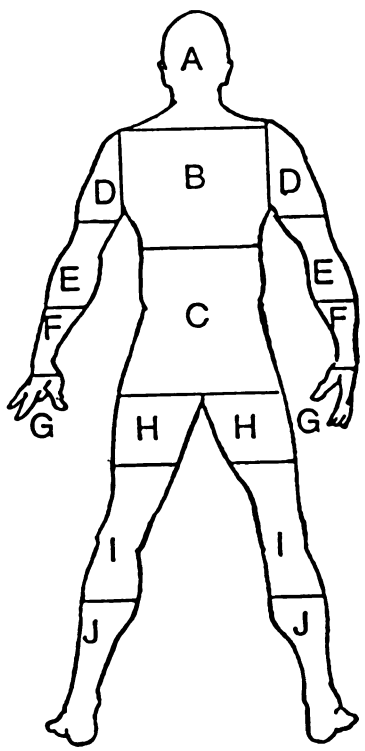
ERGONOMICS SURVEY

ID#_____
NAME_____
Birthdate_____
Date_____
Campus Phone_____
Job Title_____

Rate your comfort for each region (A-J) by writing a number (0 to 10) in the box provided. (Make no distinction between right and left.)

DISCOMFORT RATING

	Very Comfortable		Very Uncomfortable
A) Head/neck/eyes	0.....	☐	10
B) Upper/mid back	0.....	☐	10
C) Low back/pelvis	0.....	☐	10
D) Shoulder/upper arm	0.....	☐	10
E) Elbow/mid arm	0.....	☐	10
F) Forearm/wrist	0.....	☐	10
G) Hand	0.....	☐	10
H) Upper leg/hip	0.....	☐	10
I) Mid leg/knee	0.....	☐	10
J) Lower leg/foot	0.....	☐	10



ERGONOMICS SURVEY

ID#_____
NAME_____

Please respond to each of these questions in the boxes provided.

How well are your needs being met at work?	0..... ☐ .....10 Very poorly — Very well
How hard is your work?	0..... ☐ .....10 Very easy — Very hard
How much energy do you have left after work?	0..... ☐ .....10 Very little — Very much
How often is there a great deal of work to be done?	0..... ☐ .....10 Very rarely — Very often
How often does your job require you to work fast?	0..... ☐ .....10 Very rarely — Very often
How often does your job leave you with little time to get things done?	0..... ☐ .....10 Very rarely — Very often
How much influence do you have over the variety of tasks you perform?	0..... ☐ .....10 Very little — Very much
How much influence do you have over the pace of your work?	0..... ☐ .....10 Very little — Very much
How often does there seem to be a sense of urgency about everything?	0..... ☐ .....10 Very rarely — Very often
How often is there a significant increase in your workload (i.e., projects/proposals)?	0..... ☐ .....10 Very rarely — Very often
To what extent can you do your work ahead and take a short rest break during working hours?	0..... ☐ .....10 Very rarely — Very often
In general, how much influence do you have over work and work-related factors?	0..... ☐ .....10 Very little — Very much
In the past week or two, how would you describe how you have been feeling?	0..... ☐ .....10 Very fatigued — Very energetic

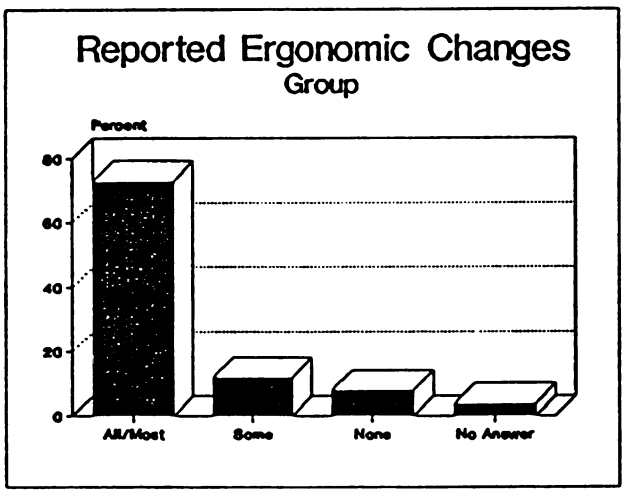
Ergonomics Follow up Survey

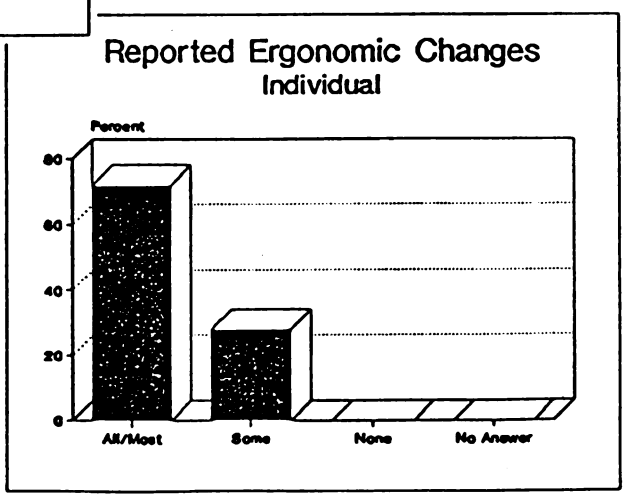
In November, 1993 a survey was sent to those who participated in an ergonomic group training or an individual work site assessment before June, 1993. The purpose of the survey was to assess the service provided by MSU Occupational Health Service and to determine if recommended changes were implemented. See attached sample.

One hundred seventy-six surveys were sent to those who participated in group training. Twenty-six surveys were returned for a response rate was 15%. Of those who responded 73% indicated that most or all of the suggested changes had been made to their work station, 12% indicated that some of the changes had been made, 8% indicated that none of the changes had been made, 4% indicated that there were no suggestions made and 4% did not respond to the question.

Thirty-eight surveys were sent to those who had individual work site assessments. Eighteen surveys were returned for a response rate of 47%. Of those who responded 72% indicated that most or all of the suggested changes had been made to their work station and 28% indicated that some of the changes had been made.

The plan is to send a similar survey in November, 1994 to those who participated in an ergonomic group training or an individual work site assessment from July, 1993 to June, 1994.





FOLLOW-UP ON INDIVIDUAL WORKSITE ASSESSMENTS

In the period from July 1, 1994 to November 30, 1994, Olin Health Center Physical Therapy performed forty-one individual worksite assessments. At the end of November, thirteen follow-up visits were made. These thirteen cases represented ten different departments. The initial assessments on these cases had been completed from four weeks to twenty weeks prior to the follow-up visit. A period of at least four weeks between initial and follow-up visits was provided to allow time for changes to be initiated.

On follow-up visits, compliance with recommended interventions was assessed along with reasons for lack of change. Additional suggestions and review of the original recommendations were also provided as needed during follow-up visits. Results were as follows:

Case #	Recommendations Followed
1	6 of 7
2	7 of 8
3	10 of 11
4	5 of 7
5	6 of 6
6	9 of 9
7	5 of 6
8	7 of 8
9	4 of 4
10	5 of 5
11	4 of 7
12	3 of 5
13	4 of 5

Reasons Cited For Not Completing Recommendations

Case #1 -	Management decision not to implement job rotation
Case #2 -	Task lighting order pending
Case #3 -	Tried foam grip on pen but felt it was uncomfortable
Case #4 -	Did not feel that document holder would work for her situation
Case #7 -	Did not feel that stretches were necessary
Case #8 -	Had not obtained a chair from Purchasing for trial use
Cases #11 & 12 -	Equipment changes not yet made as the department had just recently approved an amount to be spent per workstation
Case #13 -	Had not "gotten around" to ordering louvers for lights

Overall compliance with suggested interventions in the cases reviewed was 85%. In all but one case, general satisfaction with department/supervisor support for changes was reported.

MICHIGAN STATE
UNIVERSITY

ERGONOMICS ON MSU CAMPUS Through August 13, 1992

Ergonomics by definition is adapting the job to the employee. Under the umbrella of ergonomics, a variety of activities were initiated on the MSU campus which led to duplications with no coordination of efforts on campus.

MSU Occupational Health began individual and group workstation analysis in October of 1990. Larry Rush, Physical Therapist, provided the first group analysis. This gave the group of five employees information to assess their individual work stations and make modifications that were ergonomically sound. In February, 1991, L. Rush evaluated a work station at the MSU Development Fund and three at University Services.

Workstation analysis was underway when the Health and Safety Operations Committee appointed a task force to facilitate the coordination of efforts regarding ergonomics. The task force was composed of representatives from the Department of Safety, Human Resources and MSU Occupational Health Service. MSU Occupational Health Service chaired this task force.

The task force engaged the expertise of Dr. Timothy Springer, department chair of Human Environment and Design, to assist in needs identification and planning. The task force also reviewed the MIOSHA log compiled by Worker's Compensation to determine what are the primary job related injuries or illnesses. Arm, shoulder, wrist, neck and back complaints were identified as the major problems. Decreasing the number of worker's compensation claims for cumulative trauma disorders became the task force's goal.

To accomplish this goal, the employees would need to decrease their risks. The task force identified two areas of focus. First the supervisors needed a better understanding of ergonomics in order to help them support their employees in making necessary changes. Secondly, the employees needed information and resources to make changes.

To finance the educational process, a proposal was submitted to Healthy U for a seed grant. The supervisors would receive general education on ergonomics in lecture format and pilot behavior change groups would be established for specific employees.

OLIN
HEALTH CENTER
Michigan State University
East Circle Drive
East Lansing, Michigan
48824-1037
517/355-4510
FAX: 517/353-9531

Healthy U funded a portion of the proposal. Olin Health Center with Human Resources funded the rest.

During the planning phase, Marti Ricks B.S.N., M.A., Manager of MSU Occupational Health Services, and Paula Lux R.N.,B.S., Occupational Health Nurse, completed "Occupational Ergonomics" and "Ergonomics: Job Analysis & Field Studies" at the University of Michigan.

The education and behavior change programs began in February 1992. The supervisor education sessions were presented once a month for four months and the behavior change programs met weekly for sixteen weeks. The behavior change pilot programs, patterned after the Worksite Wellness template, were at AIS, Human Resources, the Library and Olin Health Center. Members of MSU Occupational Health Service attended all the supervisor education sessions and the behavior change program at Olin.

The behavior change programs had varying degrees of success. Each area had different concerns and availability of resources. Olin Health Center was the only site that completed the sixteen week behavior change program with minimal modifications. The success of Olin's behavior change program was due in part to qualified staff from MSU Occupational Health Service. They served as a resource and followed up throughout the week on concerns addressed by the participants.

For more detailed information on the behavior change program see attached graphs.

Prior to the implementation of the behavior change program, MSU Occupational Health Service developed a survey to evaluate a variety of chairs that were identified by the manufacturer as "ergonomic". In addition, an ergonomic and a pain survey were developed.

The ergonomic survey is given to individuals requesting an ergonomic assessment. It is to be completed and returned to MSU Occupational Health Service prior to the site visit. The pain survey was designed to identify particular areas and types of pain.

Along with the survey information, an on site workstation analysis specifically looks at job design, body postures and potential behavior changes the employees could accomplish and equipment necessary to adapt the workstation to the employee.

APPENDIX F

Computing and Technology Training Program

APPENDIX F

Agenda for AIS Ergonomics Basics and the Computer
Computing and Technology Training Program (CTTP)

1. Introduction/Welcome
2. Purpose of the class
3. Why is ergonomics important?
4. Show 10 minute video "User Friendly, The Guide to VDT Safety"
5. The importance of stretching, take a stretch break
   ** 5 minute break **
6. Workstation setup guidelines, practical hands on experiences using the computer workstations in the training room
7. Ergonomic accessories, wrist rests, keyboard trays and more
8. Ergonomic resources and expertise available on campus
9. Computer demonstrations:
   A. Demo AIS.ERGO.NEWS (over 200 items or ergo information selected from the internet)
   B. Demo EXERCISE BREAK (software reminds you to stretch and leads you through the exercise pre-elected by you)
10. Summary
11. Evaluation and distribution of handouts

1993 Ergonomic Course Statistics

Date	# Enrollees	Public/Special	Notes
Nov. 9	3 (1.5 hrs.)	Special	PILOT run of Ergo Class (Internal)
Nov. 13	5	Public	First class
Nov. 19	1	Public	
Dec. 3	8	Special	Session for ICTC
Dec. 16	4	Public	
Total sessions:		5	2 Special, 3 Public (completed)
Total attendees:		21	11 Special, 10 Public

1994 Ergonomic Training Statistics

Date	# Enrollees	Public/Special	Notes
Jan. 25	6 (2 hrs.)	Public	Changed from 1.5 hours to 2 hours
Feb. 22	0	Public	Cancelled/low enrollment
March 22	3	Public	
April 12	2	Public	
May 23	8	Special	Session for OFA
June 14	0 (2.5 hrs.)	Public	Changed to 2.5 hours/Cancelled due AC
July 12	1	Public	
July 21	9	Special	Session for Admissions
July 26	9	Special	Session for Admissions
July 27	9	Special	Session for Admissions
July 28	9	Special	Session for Admissions
Aug. 9	2	Public	
Aug. 18	9	Special	Session for Admissions
Aug. 25	7	Special	Session for Admissions
Sept. 16	9	Special	Session for Admissions
Sept. 18	8	Special	Session for Admissions
Sept. 22	0	Public	Cancelled/low enrollment
Oct. 18	0	Public	Cancelled/low enrollment
Nov. 10	0	Public	Cancelled/low enrollment
Dec. 14	3	Public	
Total sessions:	15	9 Special, 6 Public (completed)	
Total attendees:	94	77 Special, 17 Public	
Cancelled sessions:	5	All Public	

1995 Ergonomic Training Statistics

Date	# Enrollees	Public/Special	Notes
Jan 25	0 (2.5 hours)	Public	Cancelled/low enrollment
March 7	9	Special	Session for OFA
March 14	9	Special	Session for OFA
March 17	9	Special	Session for OFA
March 21	7	Special	Session for OFA
March 22	0	Public	Cancelled/low enrollment
March 23	9	Special	Session for OFA
April 3	8	Special	Session for OFA
April 6	9	Special	Session for OFA
April 18	0	Special	Cancelled/low enrollment
July 11	4	Public	
Total sessions:	8	7 Special, 1 Public (completed)	
Total attendees:	64	60 Special, 4 Public	
Cancelled sessions:	3	1 Special, 2 Public	

General Information

Introduction

The Michigan State University Computing and Technology Training Program (CTTP) offers a variety of non-credit courses and workshops on computing. Courses cover a wide range of topics on computing for the purpose of job training, career development, and/or personal improvement.

The Computing and Technology Training Program Catalog describes educational and training course offerings. Course topics, descriptions and costs are listed in this annual Fall publication.

A companion publication, the Computing and Technology Training Program Schedule contains specific scheduling information on a semester basis. The dates, times, and location for each section of each class are listed, along with registration information. CTTP classes are also listed in the MSU Faculty-Staff News Bulletin.

For copies or additional information, contact:

Help and Support Center (H&SC)
Administrative Information Services
2 Administration Building
353-4420 ext. 311
Email: AIS311@msu.edu

or

Computing Information Center (CIC)
Computer Laboratory
305 Computer Center
353-1800
Email: consult@msu.edu

Registration Information

Registration is required for all courses. Most courses require a fee. A valid MSU student or employee ID must be presented to receive discounted registration fees. For those authorized, MSU departmental accounts may be charged for course fees. Educational Assistance may also be used. Refer to the Educational Assistance section below for more information.

Exact registration dates for CTTP courses are published in the CTTP Schedule and typically coincide with the beginning of each semester. Registration hours are Monday-Friday, 8 a.m. - noon and 1 - 5 p.m.

Registration by Phone or In Person

Phone registrations are accepted at both the AIS Help and Support Center at 353-4420 extension 311 and the Computer Laboratory Computing Information Center at 353-1800. Walk-in registration is available at the Computing Information Center, room 305 Computer Center, Monday through Friday, 9 a.m. - 5 p.m.

To register for Student Information System courses, contact your unit coordinator, who will contact the Client Advocacy Office at 353-4856.

Using Emc²

If you are charging course fees to a departmental account and have an Emc² ID to use, you may submit your registration electronically. While in Emc², access the Training bulletin board. Use the Registration Form letter to complete your registration. A confirmation message will be sent to you via electronic mail when your request is processed.

Special Requests

To better serve our clients, departments who wish to enroll numerous staff members (five or more) in one section of a course are encouraged to contact the Help & Support Center at 353-4420, ext. 311, AIS311@MSU.EDU.

Waiting Lists

If you are interested in registering for a course that has been filled, call the CIC at 353-1800 to leave your name and phone number on the waiting list. If enough additional people express interest in taking a course we will make an effort to offer another section in a timely manner.

Course Availability

All courses are open to all members of the University community. Some courses have special sessions or cover specialized topics and are geared to specific audiences. Special sessions cover the material detailed in the corresponding course description.

APPENDIX G

Administrative Information Services Ergonomic Activity

APPENDIX G

AIS ERGONOMIC ACTIVITY

In early 1992, AIS participated in a Healthy-U pilot initiative on workplace ergonomics. The goal of the initiative was to use the Healthy-U behavior modification model to improve awareness of ergonomic considerations among staff and to improve the personal ergonomically-related behaviors of staff members. After the team's first meeting, it was determined that the goal set by Healthy U did not fit the needs of the pilot team very well. Dr. Tim Springer was asked to worked with the team to help tailor the goal better. The new goal of the team was to build a sound understanding of the concepts and principles of ergonomics, the benefits which could result from their proper application in the workplace, and the consequences which could result from ignoring ergonomic considerations. Dr. Springer was asked to deliver a series of four presentations on ergonomics to the pilot team. This was the same series he offered campus-wide to University managers and supervisors during the same period. It was well received by the team and thus the beginning of our education and training program within A.I.S.

The pilot team felt that more needed to be done beyond the Healthy-U pilot if the full benefits of an ergonomically sound workplace was to be realized. A task force was developed to look at how we could best apply the knowledge gained by the group to the benefit of staff within the department. This group's mission was to act as an A.I.S. contact point on ergonomic issues with other campus ergonomic groups, act in an advocacy and advisory capacity on ergonomics issues to the Director of A.I.S. and educate and support A.I.S. staff on ergonomic issues. The team developed a general overview program for all staff members that included the following things:

1. Raise the level of awareness about CTD's, identify early warning signs and teach self help precautions such as stretching exercises and the importance of early detection and treatment.

2. Teach staff the importance of ergonomic workstation setup and show them how to adjust their workstation accordingly.

The A.I.S. Ergonomic Task Force has initiated and carried out a number of specific activities in support of its mission since its beginning. Below is a list of some of these activities.

Identifies and provides specialized office equipment:

* Identifies modestly priced office equipment (e.g., wrist rests, glare screens, foot rests) that could reduce the physical stress on people who sit at computer workstations.
* Seeks and receives, management support for acquisition of these items.
* Orders variations of each type of equipment to accommodate a range of needs and circumstances. Staff are encouraged to evaluate more than one type of glare screen, or which ever item they have selected. Items are then ordered for the individual once they have determined which design works best for them.

Evaluates and Recommends purchase of ergonomic video:

* Evaluated a series of general ergonomic videos that would teach the basics of sound ergonomic arrangement of furniture and equipment for a computer workstation.
* Upon approval, purchased video for department.Effective Fall Semester 1992, the showing of the video will be incorporated in all the Introductory computer classes taught to our customers by A.I.S. staff.
* This video will also be incorporated into the standard orientation of new A.I.S employees.

General Ergonomic Information Sessions for staff:

* Hold general sessions within the department to review and update staff on ergonomic issues. Activities include: showing the ergonomic video tape; display various office equipment items available for trial; review recommended stretching exercises.

* See Attachment A for handouts for general ergonomics session for staff.

Adjusts/reconfigures workstations based upon ergonomic guidelines:

* Reviews, recommends, adjusts and aligns staff workstations.
* We have developed an "ergo checkup" program that evaluates each staff's workstation and equipment. This is completely voluntary but to date we have had more than 60% our staff participate in it.
* All staff have follow-up visits to ensure that the adjustments are working and that equipment is being used correctly.
* This is an ongoing activity for all staff members.
* See Attachment B for ergonomic checkup sheet.

Liaison with campus ergonomics groups:

* A.I.S. has representation on an ad hoc committee to review and recommend coordination of campus ergonomics activities. This is coordinated by the Human Resources Department.

* A.I.S. has representation on an ad hoc committee to review and recommend details for a University useability lab.

* A.I.S. has informal information sharing relationships with the internal ergonomics support groups:
    - MSU Libraries
    - Human Resources
    - Olin Health Center
    - Computer Lab

* See Attachment C for list of ergonomic resources at MSU

In November of 1993, another ergonomics program was developed. This program has been developed into a class that is offered through our Computing and Technology Training Program (CTTP) which is available to any one on or off campus. A.I.S's goal, in offering this class, was to support the University's Ergonomics Policy by offering training suitable for individual staff members as well as whole departments. Our goal was that departments would take advantage of the class as a component of meeting their obligations under the University policy, and that we would reach many staff members with preventive information before cumulative stress disorders (CSDs) began to develop.

Attendance Statistics for 1994 are as follows:

Number of Public Sessions:	13
Number of Special Sessions:	17
Total Number of Sessions:	30
Attendance/Public Sessions:	28
Attendance/Special Sessions:	148
Total Attendance:	176

A copy of the course outline is attached for your information. (see Attachment D) Most class participants seem to attend because of personal interest, rather than at departmental initiative. Regrettably, participants' interest seems most often to have been triggered by existing cumulative stress disorder symptoms. Most participants have been staff, rather than students or faculty. A few participants have attended from professional interest. It is our hope that in 1995 we can broaden class participation and get more departments to integrate this program into their department in support of the University Ergonomics Policy.

ERGONOMICS AND THE COMPUTER: A PRACTICAL APPROACH

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East Lansing, MI 48824
(517)353-4420, ext 240
Internet: ADP2C@MSU.EDU

Michigan State University
East Lansing, Michigan
Enrollment: 40,000
Public
4-year institution

This paper presents the major components of an ergonomic program Administrative Information Services (AIS) is developing to provide its staff with a general knowledge of sound ergonomic principles as they relate to the use of computers. Our efforts to date have been geared toward increasing the awareness and understanding of the need to follow sound ergonomic guidelines during computer use. The goals of our ergonomic efforts are to increase the individual's comfort level and reduce the severity of Cumulative Trauma Disorders. This results in a decrease in both human suffering and health care costs while it actually increases productivity. This *classic win-win situation* also addresses management's responsibility to provide a work environment that is as productive and healthy as possible. Aspects of the program developed at AIS will be helpful to others desiring to achieve the same goals.

ERGONOMICS AND THE COMPUTER: A PRACTICAL APPROACH

INTRODUCTION

This paper presents the major components of an ergonomic program Administrative Information Services (AIS) is developing to combat Repetitive Stress Injuries by providing its staff with a general knowledge of sound ergonomic principles as they relate to the use of computers. Our efforts to date have been geared toward increasing the awareness and understanding of the need to follow sound ergonomic guidelines during computer use. The goal of our ergonomic effort is to increase the individual's comfort level and reduce the severity of Cumulative Trauma Disorders. This results in a decrease in both human suffering and health care costs while it actually increases productivity. This *classic win-win situation* also addresses management's responsibility to provide a work environment that is as productive and healthy as possible.

BACKGROUND

As the nation's first land grant institution, Michigan State University (MSU) continually strives to improve the lives of all it serves. Toward this end, MSU has assembled a committee consisting of representatives from across the campus to address ergonomic issues that affect those within the campus community. Our department, Administrative Information Services (which reports organizationally to the Vice Provost for Computing and Technology), plays a key role in this effort.

A campus-wide ergonomics policy was established, and areas of responsibility were outlined. In support of the spirit of this policy, AIS has worked internally to develop an ergonomic program for the 120 employees within its own departmental jurisdiction. This paper limits its discussion to the ergonomic efforts of AIS.

AIS' ergonomic efforts have proven beneficial not only for our departmental employees, but also for the campus at large. We share our knowledge through a class we designed and teach about ergonomics and the computer workstation, and have been invited by several divisions to participate in their ergonomic efforts as well. This sharing of information and expertise supports the mission of AIS to provide leadership in the use of information technology as well as contributing to the University's overall mission of teaching, research and service.

THE NEED FOR ERGONOMICS

Each of AIS' 120 employees uses a computer workstation of some sort in their daily work. Because of a growing number of physical ailments experienced with the continual use of these workstations, the need for ergonomic information became apparent. This initially served as the motivation for AIS' ergonomic efforts.

There is increasing speculation that impending legislation will soon mandate that employers provide employees with both an ergonomically sound work environment and ergonomic training. This has motivated a growing number of businesses throughout the country to begin offering ergonomic programs for their employees. An increasing number of workers compensation claims and disabilities associated with long-term computer use was also a great motivator to address these problems.

COMPONENTS OF AIS' ERGONOMICS EFFORT

To date, the approach AIS has taken in its ergonomics program includes many elements. The key components are:

1. Training via "Ergonomic Basics and the Computer" Course
2. Ergonomic Equipment
3. Equipment Loaner Program
4. Ergonomic Workstation Check-Up
5. Electronic Resources and Communications

The following sections elaborate on the specifics of these components and the importance each one plays in the total ergonomic effort.

COMPONENT ONE: TRAINING VIA "ERGONOMIC BASICS AND THE COMPUTER" COURSE

AIS designed a two and one-half hour course entitled "Ergonomic Basics and the Computer" that builds a foundation of ergonomic information. The course offers a forward-thinking, practical introduction to the principles and "do's and don'ts" of ergonomics, and increases awareness of ergonomic guidelines as they apply to the computer workstation. Each individual uses ergonomic guidelines to adjust their classroom workstation with the assistance of the instructor. Each attendee is given several handouts including a flyer listing ergonomic resources on campus, along with a synopsis of their services and their contact numbers. Additionally, students are introduced to some of the ergonomic equipment and software available in the marketplace today. We take great care to set a positive, upbeat tone to the content and delivery. This helps encourage the attendees to view the class as a positive opportunity to improve their personal workstation instead of just complaining.

In an effort to ensure correctness and timeliness of the material included in the course, AIS invited several members of the MSU community with ergonomic expertise to critique the material. The course is intended to be a starting point in one's ergonomic education, upon which the other MSU ergonomic services can easily build.

The course, which debuted in November 1993, has received excellent feedback from those who have attended. In particular, clients who are currently experiencing some type of Cumulative Trauma Disorder (CTD) are especially appreciative of the course material and positive approach. Clients who are not currently suffering with symptoms of CTDs are not always enlightened as to the importance of preventive measures to ward off potential problems. In reality, the aspect of human nature that allows some to say "I am not in pain today so I do not need to worry about ergonomics" is really a large contributor to the problem. The continuing challenge AIS faces is to encourage all clients to recognize the importance of education and awareness of proper ergonomic principles.

While getting the word out to individuals around the MSU campus continues to be a challenge, some MSU departments--the Office of Admissions, for example--have been very forward-thinking in their ergonomic efforts. Admissions has taken the initiative to work with AIS to facilitate ergonomic training for all of their support staff (approximately seventy people). Working together with the management team from Admissions, AIS customized the basic ergonomics course to best meet the needs of the department and staff. These sessions

were deemed a great success, and many staff members expressed their appreciation to their management for caring enough to have them attend the class. AIS is currently customizing and teaching the ergonomics course for another large MSU department, in support of their pro-active approach toward ergonomic awareness.

COMPONENT TWO: ERGONOMIC EQUIPMENT

A computer workstation still has limitations on how effectively and easily it can present, and accept, information from a human being. It is the challenge of ergonomics to make the machine/human interface as effective and painless as possible. Several pieces of equipment have come out in the recent past to try to improve this process. Some of it makes a meaningful contribution while others are marketing gimmicks only intended to make a buck. The equipment that we have found, to date, to be most beneficial to our employees is as follows:

- Anti-glare screens

  The most common visual problem among our department's workforce today is too much light coming from the wrong direction. This light can easily create glare on the computer screen. The purpose of the anti-glare screen is to reduce as much unwanted light as possible.

- Adjustable ergonomically designed chairs

  Although replacing all the chairs in our department with new ergonomic chairs is not part of our program, we support the replacement of an individual's chair when the situation warrants it. We feel that a well-adjusted chair is the basis of comfort at the workstation. Significant improvements in chair design have been made in the last few years.

- Keyboard trays

  The keyboard tray has two main functions in our environment, they are; first to allow the keyboard to be placed directly in front of the monitor (most worksurfaces are only 24" deep), and second to lower the keyboard to the recommended height for keying while leaving the main surface at the correct height for writing.

- Document stand or holder

  It is important for people who spend significant amounts of time entering information from a source document, to have the source document at the same height and distance as the monitor screen. The document stand or holder addresses this need.

- Wrist Rests

  Wrist rests have also been found to be helpful to many people within our department. The purpose of the wrist rest is to provide a comfortable surface on which the heel of the hand can be rested when NOT typing.

- Footrests

  A footrest is a device to provide a solid foundation for a person's feet when they would otherwise not touch the floor. This product has proven to be beneficial for some employees within our department.

- Pointing Devices (mouse, trackball, etc.)

  It is becoming more and more necessary to use a pointing device with today's software. The problem is that the two most popular pointing devices--the mouse and the trackball--continue to cause significant physical discomfort for some of our employees.

  We are currently testing a new pointing device that combines the best features of the mouse and the trackball, while eliminating both of their shortcomings. Although our analysis is not yet complete, we feel this product holds great promise for our employees.

- CPU Floor Stand

  A large clamp (usually plastic) that allows the main processor to be stood on end and held stable. While not ergonomic in nature itself it promotes keeping the monitor at a lower level and removes clutter from the worksurface supporting correct ergonomic placement of other equipment.

- CRT Stand

  This device allows the Monitor to be placed at the correct height for the individual. The kind we prefer so far is designed like twelve inch square interlocking "LEGGO" blocks that are one inch thick so the monitor height can be fine tuned inch by inch if necessary.

COMPONENT THREE: EQUIPMENT LOANER PROGRAM

Because of the variety of equipment available in the marketplace today, we have developed an "equipment loaner program" whereby ergonomic equipment described above is loaned to individuals for trial use as part of their workstation. This not only reduces equipment costs making sure the person likes the item before we order it but it also eliminates the stigma of returning items that just didn't work out. Ultimately each person selects the brand of equipment best suited to their particular needs. We have found that personal preference plays an important role in use and acceptance of the equipment.

All the above Ergonomic Equipment is in our loaner program plus a couple additional items listed below. One of the things that makes the loaner program necessary is the need to have several design variations of some items, for example:

- wrist rests (currently offering four different types)
- keyboard trays (currently four types, some of which accommodate the mouse)
- document stands (currently two types)
- anti-glare screen
- padded desk pad (for people who spend a lot of time with their elbows on the desk)
- footrests (currently available in two different heights)

We are currently testing various pointing devices and ergonomic keyboards, which may be included in our loaner program if deemed appropriate. When the situation warrants, we also participate in the ergonomic

chair loaner program sponsored by MSU's Purchasing Department. Currently, they have at least six different versions of adjustable chairs for trial by university employees.

Our department's loaner program has been very successful for several reasons. It helps us save money by making sure that the person likes the item before purchase, and it allows us to offer various options of a particular item to allow for personal preference. This program has been a real boost to morale by helping staff members feel that management understands their needs and is willing to work with them to find the best solution possible for their particular situation. Some funding has been specifically allocated for the purpose of purchasing ergonomic equipment.

COMPONENT FOUR: THE ERGONOMIC WORKSTATION CHECK-UP

In order to help our employees customize their workstation to fit them, we have developed what we call the "ergonomic checkup" which is based upon ergonomic guidelines. Any individual can request that an ergonomic checkup be performed on their workstation. In order to be successful, the ergonomic checkup must be both non-judgmental and positive in its approach.

Included in the checkup are such things as:

- establishing correct chair height, keyboard height, and monitor height.
- a discussion of the role played by posture and the benefits of appropriate stretching exercises.
- various ergonomic equipment is discussed and recommendations are made (reference the section below entitled "COMPONENT FOUR: EQUIPMENT LOANER PROGRAM).
- documentation of all the necessary heights and distances within an individual's workstation setup, as well as any changes that have been made. Because one of the most important things in an ergonomic program of this nature is follow up with the individual after changes have been made, this documentation helps us fine tune later adjustments.

It is very important to conduct follow-up visits to learn how the adjustments are working. Our ergonomic checkup effort calls for both a 60-day and 6-month follow-up visit. When each checkup is completed, the employee and their manager receive a copy of our ergonomic checkup worksheet which contains findings and recommendations.

In our experience, an ergonomic checkup can take from twenty minutes (for a follow-up visit) to two days (conducted for a person just returning from carpal tunnel surgery who needed a complete redesign and onsite training).

COMPONENT FIVE: ELECTRONIC RESOURCES AND COMMUNICATIONS

The networking of individual computer workstations and the Information Highway (INTERNET) have given us some powerful tools to assist in our ergonomic effort. The mediums we make use of currently are:

- Monitor Internet resources

  In an effort to provide the most current information in the area of computer-related ergonomics, we monitor the Internet listserve called Computers Plus Health (listserve name is "C+HEALTH"). This

is a large international group of people interested in ergonomics as it applies to the computer. Many are professionals and practitioners in the field of ergonomics, medicine, or occupational health. This represents an amazing resource of current and emerging information. Anyone can submit a question that is then discussed and input provided by all interested members of the group.

On a daily basis, we monitor this listserve and select all items considered worthwhile and appropriate to our audience. These selected items are then posted to an electronic mail bulletin board that is available to everyone in the department and elsewhere on campus. We currently have several hundred documents divided into different categories (e.g., exercise, cumulative trauma disorders, hardware, office equipment, general health, software, office environment) that have been established for the convenience of our audience.

- Maintain alumni mailing list and communicate electronically

  We maintain an electronic mailing list of all alumni of our "Ergonomic Basics and the Computer" class. As particularly interesting or important items or announcements come to our attention, they are distributed to all of the alumni to keep them abreast of ergonomic developments. This is important for two reasons: it keeps them up to date, and it also keeps them thinking about ergonomics and the role it plays in their worklife.

- Send ergonomic tips electronically

  The electronic mail system is used to keep the employees of our department thinking about ergonomics by sharing late breaking news items and information of general interest. This avenue of communication is excellent for reinforcing the development of positive ergonomic work habits. For example, a recent ergonomic tip was sent to remind employees of the importance of lifting one's hands off the wrist rest while keying--a habit that can be difficult to break.

- Participate in Internet forum for ergonomics

  We also recently joined "ErgoNet" an on-line, computer based, discussion forum for ergonomic practitioners and researchers sponsored by the University Of Michigan. Communications are organized by discussion topic, and are stored chronologically for ease of reference. We expect ERGONET will make a significant contribution to our knowledge of workstation ergonomics.

- Ergonomic software

  It is very common--but unhealthy--to spend hours at a time without a break at one's workstation. One interesting, effective and relatively inexpensive solution is the use of exercise software that can be loaded on one's computer. The software can be set to activate periodically to remind the operator to do stretching and relaxation exercises. Some products then lead the operator through a set of stretches that they have selected, illustrating the stretching and counting down the appropriate time interval. We are currently evaluating several of these products to identify the one most appropriate for our department.

CONCLUSIONS

It is the objective of all our ergonomic efforts to increase an individual's comfort and significantly reduce the seriousness of any Cumulative Trauma Disorders. Early detection of a problem, identification of the causes, and on-going monitoring of the situation can lead to complete elimination of discomfort. Without exception, the earlier a problem is identified and resolved (including medical treatment when necessary) the less it costs in both

human suffering as well as lost time and dollars.

The support of upper management is critical to the success of an ergonomic program. We are fortunate at MSU that the university has adopted a progressive ergonomic policy. Recently our Vice Provost for Computing and Technology announced a matching funds program that will encourage and enable many university departments to pursue ergonomic efforts and purchase equipment directly related to computer workstation ergonomics. Additionally, the Vice Provost has taken an active and supportive role in sponsoring on-going, leading edge ergonomic training for those of us directly involved in our ergonomic effort. This vote of confidence and support is critical to the continued success of our ergonomic efforts.

We are on the way toward achieving our objectives and have established credibility with MSU administrators and staff. It is rewarding to be involved with a program that is not only concerned about productivity but equally concerned about providing a safe and healthy environment where people perform their daily work.

APPENDIX H

OSHA 200 Log

Bureau Of Labor Statistics — U.S. Department Of Labor — Page 1 of 132

Log Of Summary Of Occupational Injuries And Illnesses — For Calendar Year: 93

Company Name: MICHIGAN STATE UNIVERSITY

Establishment Name:

Establishment Address: 1407 S. HARRISON, 140 NISBET

Injury
(1) Date Of Death
(2) Injury Involves Days Restricted And/Or Away From Work
(3) Injury Involves Days Away From Work
(4) Number Of Days Away From Work
(5) Number Of Days Restricted Work
(6) Injury Without Lost Work Days

Illness
(7a) Occupational Skin Disease Or Disorder
(7b) Dust Disease Of The Lungs
(7c) Respiratory Conditions Due To Toxic Agents
(7d) Poisoning(Systemic Effects Of Toxic Material)
(7e) Disorder Due To Physical Agents
(7f) Disorders Associated With Repeated Trauma
(7g) All Other Occupational Illnesses

Illness
(8) Date Of Death
(9) Illness Involves Days Restricted And/Or Away From Work
(10) Illness Involves Days Away From Work
(11) Number Of Days Away From Work
(12) Number Of Days Restricted Work
(13) Illness Without Lost Work Days

Case Or File Number (A)	Date Of Illness Injury (B)	Name (C)	Occupation (D)	Dept (E)	Description Injury Illnesses (F)	(1)	(2)	(3)	(4)	(5)	(6)	(7A)	(7B)	(7C)	(7D)	(7E)	(7F)	(7G)	(8)	(9)	(10)	(11)	(12)	(13)
					Previous Totals:	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	01/01/93		CLERK\RECEPTION	02210	CTD,BODY-MOD												X					0	0	X
	01/01/93		SECRETARY III	04746	CTD,BODY-MOD												X					0	0	X
	01/04/93		STUDENT COOK	78952	CUT,L FINGER		X		0	4														
	01/04/93		ACCT CLK II	58302	CTD,WRISTS												X					0	0	X
	01/04/93		SECRETARY III	20324	CTD,L ARM												X					0	0	X
	01/06/93		SEC II	22641	BRUISE,BODY-MI				0	0	X													
	01/07/93		ENGR II	72660	BRUISE,R FOOT				0	0	X													
(A)	(B)	(C)	(D)	(E)	(F)	(1)	(2)	(3)	(4)	(5)	(6)	(7A)	(7B)	(7C)	(7D)	(7E)	(7F)	(7G)	(8)	(9)	(10)	(11)	(12)	(13)
					Accumulative Totals:	0	1	0	0	4	2	0	0	0	0	0	4	0	0	0	0	0	0	4

OSHA NO.200 CERTIFICATION Of ANNUAL SUMMARY TOTALS BY: TITLE: MANAGER, WORKERS' COMPENSATION DATE 07/29/94

APPENDIX I

Number of Academic and Support Staff 1990 - 1994

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Number of Academic and Support Staff 1990-1994.

Year End	Academic	%	Support	%	Total
1990	4143		5324		9467
1991	4123	.48	5338	.26	9461
1992	4006	2.83	5366	.52	9372
1993	3997	.22	5283	1.5	9280
1994	3996	.03	5297	.26	9293

*Totals from MSU Annual Report of Affirmative Action, Year September 30 - October 1.
Academic Positions: Professors, Assistant and Associate Professors, Continuing Staff, Temporary Staff and Temporary Faculty
Support Staff: Administrative Professionals, Clerical Technical, Labor
%: Increase/decrease from previous year, percent

APPENDIX J

Mean Number of Days Away/Restricted From Work by Three Month Time Frames

APPENDIX J

Mean Number of Days Away/Restricted From Work by Three Month Time Frames

Average Days Away From Work by Three Month Time Frames

Pre-Intervention Interval n	Time Frame		Mean Number of Days
1	4	July 1, 1991 - September 30, 1991	86
2	7	October 1, 1991 - December 31, 1991	133.43
3	6	January 1, 1992 - March 31,1992	211.33
4	6	April 1, 1992 - June 30, 1992	26
5	4	July 1, 1992 - September 30, 1992	31
6	2	October 1, 1992 - December 31, 1992	23
7	1	January 1, 1993 - March 31, 1993	5
Post-intervention Interval n	**Time Frame**		**Mean Number of Days**
8	2	April 1, 1993 - June 30, 1993	24
9	3	July 1, 1993 - September 30, 1993	40.33
10	2	October 1, 1993 - December 31, 1993	9.5
11	4	January 1, 1994 - March 31, 1994	15.25
12	4	April 1, 1994 - June 30, 1994	17.25
13	2	July 1, 1994 - September 30, 1994	6.5
14	1	October 1, 1994 - December 31, 1994	28

Average Days Restricted From Work by Three Month Time Frames

Pre-Intervention Interval Days	n	Time Frame	Mean Number of
1	3	July 1, 1991 - September 30, 1991	38
2	7	October 1, 1991 - December 31, 1991	85.33
3	6	January 1, 1992 - March 31,1992	29.17
4	14	April 1, 1992 - June 30, 1992	12.93
5	10	July 1, 1992 - September 30, 1992	11.10
6	7	October 1, 1992 - December 31, 1992	61.43
7	5	January 1, 1993 - March 31, 1993	46.20
Post-intervention Interval Days	**n**	**Time Frame**	**Mean Number of**
8	7	April 1, 1993 - June 30, 1993	24.71
9	6	July 1, 1993 - September 30, 1993	12.17
10	5	October 1, 1993 - December 31, 1993	26
11	1	January 1, 1994 - March 31, 1994	54
12	0	April 1, 1994 - June 30, 1994	0
13	0	July 1, 1994 - September 30, 1994	0
14	0	October 1, 1994 - December 31, 1994	0

APPENDIX K

Central Matching Funds for Ergonomic Improvement Memo

APPENDIX K

MICHIGAN STATE
UNIVERSITY

Date: November 15, 1994

To: Vice Presidents, Deans, Directors & Chairpersons

From: Dr. Robert F. Banks, Asst. Prov. & Asst. VP for Acad. Human Resources RFB
Dr. C. Keith Groty, Asst. Vice Pres. for Human Resources CKG
Dr. Paul M. Hunt, Vice Provost for Computing & Technology PMH

Re: Central Matching Funds for Ergonomics Improvement

This memorandum announces the creation of a new matching fund to assist MSU academic and support units with ergonomics improvements, outside of the area of computer usage.

In December 1993, Michigan State University established an institutional policy on ergonomics. In part, it provides that MSU *"strives to maintain a safe and healthy workplace for all University employees"*. Policy implementation *"is a shared responsibility of various administrative units and of all University employees."* Further, *"Departments/MAUs are responsible for individual work stations, once established"* and *"...the work station should be considered to include...electronic and other tools...."* Further information about the policy may be obtained from the Offices of the Assistant Vice President for Human Resources (355-0290) and the Assistant Provost and Assistant Vice President for Academic Human Resources (353-5300). Your familiarity with the full policy is assumed below.

OFFICE OF THE
PROVOST

Michigan State University
Administration Building
East Lansing, Michigan
48824-1046

FAX: 517/355-9601

To assist units in implementing the ergonomics policy in instances specifically involving use of computers by faculty and staff, on July 1, 1994 Computing & Technology announced availability of special, central matching funds. Requests for assistance continue to be accepted at 400 Computer Center, and are being funded by C&T within the parameters established in July. However, the unit requests received to date include a substantial number of needs outside of the area of computer usage, with a particularly heavy emphasis on the issue of improved seating.

Implementation of the ergonomics policy must include consideration of all other aspects of jobs and work places. To facilitate this, a similar matching fund, budgeted in the amount of $100,000, has been established under the joint administration of Human Resources and Academic Human Resources. The funding level will be reviewed in light of actual demand. One-to-one matches are expected to be typical, but unit circumstances will be considered individually.

Requests for ergonomics improvement matching funds from units reporting to the Provost or the Vice President for Research & Graduate Studies may

be submitted in letter form to Academic Human Resources, 422 Hannah Admin. Bldg. Requests for ergonomics improvement matching funds from all other units may be submitted in letter form to Human Resources, 140 Nisbet Bldg.

Requests should include a concise description of the expenditures contemplated and the need assessment used to generate the plans. If expenditure plans derive from an evaluation made by the MSU Occupational Health Center or various evaluation providers approved by Human Resources, the evaluation should simply be attached and further justification need not be included. The justifying rationale for other requests will receive detailed review.

Unit requests previously received by Computing & Technology, but falling outside the parameters of the C&T program, are automatically being forwarded for consideration under the new funding program. New requests that combine both computer-related and other needs may be submitted to any participating office, and will then be retransmitted for comprehensive consideration.

Requests for matching funds will be received on a rolling basis. Department administrators are asked to comply with any locally applicable expectations for MAU-level clearance of financial requests.

For more information, please call any of the participating offices.