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A Comprehensive Back Education Program in Industry

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University of North Dakota

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A COMPREHENSIVE
BACK EDUCATION PROGRAM
IN INDUSTRY

by

Julie L. Hamalainen
Bachelor of Science in Physical Therapy
University of North Dakota, 1992

An Independent Study

Submitted to the Graduate Faculty of the
Department of Physical Therapy
School of Medicine
University of North Dakota
in partial fulfillment of the requirements
for the degree of
Master of Physical Therapy

Grand Forks, North Dakota
May
1993
This Independent Study, submitted by Julie L. Hamalainen in partial fulfillment of the requirements for the Degree of Master of Physical Therapy from the University of North Dakota, has been read by the Faculty Preceptor, Advisor, and Chairperson of Physical Therapy under whom the work has been done and is hereby approved.

Beverly Johnson
(Faculty Preceptor)

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(Graduate School Advisor)

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(Chairperson, Physical Therapy)
PERMISSION

Title A Comprehensive Back Education Program in Industry

Department Physical Therapy

Degree Master of Physical Therapy

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ABSTRACT

Chronic low back pain is not a new phenomenon plaguing the medical community. Eighty percent of the adult population will at some time be affected by low back pain. Back pain is the leading cause of compensable injury in industries nationwide, with related cost projections ranging from 16-30 billion dollars per year being spent on health care, workers' compensation, and lost work time.

The industrial community has been responding to these facts with various programs. Literature supports programs with a comprehensive approach versus those with a limited or more narrow focus. The purpose of this paper is to evaluate the success of a local industry's (Company X) comprehensive back education program. Specific components analyzed in this study include: savings attributed to the modified return to work program, physical pre-screening specifics, ergonomic changes in the working environment, specifics of back training and safety committees, and worker's compensation savings incurred following program implementation.
A positive economic impact has been observed with the Modified Return to Work Program, through job modification and ergonomic adaptation. Worker's compensation costs and claims related to back injuries have also both decreased. The overall success of this specific comprehensive program not only supports it's efficacy, but enables it to serve as a model program for other industries interested in implementing such a program.
CHAPTER I
INTRODUCTION

Impact of Back Injuries

Low back pain (LBP) is the leading cause of compensable injury in industries nationwide.\(^1\) It is estimated that 16-30 billion dollars per year is spent for health care, worker's compensation, and lost work time related to LBP.\(^1\) Workers compensation costs have steadily been on the rise. In 1960, 2.1 billion dollars per year was spent on workers compensation.\(^2\) In 1986, that figure was 34.3 billion dollars per year, and in 1991 it increased to 62 billion dollars.\(^2\) Not only are the costs staggering, but the number of those afflicted is also significant. Eighty percent of the adult population will experience LBP at some point during their working life, however, 80 to 95% of those recover within three months.\(^3\) It is with these remaining few where the prognosis is somewhat grim.
The probability of an employee returning to work is inversely proportional to the length of time away from the job. Following six months of work-related disability, 50% of the injured workforce will return to previous employment. After one year of disability, 25% will return to work; and following two or more years, re-employment is less than 2%. The cost of back injuries comprise 90% of total occupational costs and account for only 20-25% of all occupational injuries. Because such a small number of workers accounts for the overwhelming majority of costs, an efficient, cost-effective means of managing LBP is imperative.

Patient Education as a Treatment Method

The industrial community has been responding to these problems with various solutions. Many companies implement a back school for employees. Using education as a form of treatment in LBP is not a new phenomenon. It was first introduced in Vancouver, BC, in 1958 by Fahrni and Orth. They focused on the importance of a posterior pelvic tilt in all postures, claiming positive results with their patients. Zachrisson and Forsell also used education as an effective treatment modality by teaching patients facts about LBP and what they could do to compensate for stresses placed on their
backs. Deyo and Diehl, in a 1986 study, claimed the chief complaint of patients with LBP was dissatisfaction in the explanation of their problem. Patients stated they were more concerned with being informed about and understanding their condition rather than with the actual time spent with the physician. When treating patients with LBP, it is imperative to remember the fear associated with back pain and to provide an adequate and thorough explanation of their condition. The less they are informed, the more they assume that no knowledge exists; therefore creating a mood of uncertainty with a disease beyond their control.

Comprehensive Back Education Programs

The programs that reap the most successes in decreasing work-related injuries, decreasing lost work time, and decreasing workers’ compensation costs are those that include a comprehensive approach to managing back-related injuries. The comprehensive approach can include a variety of components including prescreening of potential employees, identifying employees at risk for injury, back schools, counseling, on-site treatment, work hardening, modified work programs, ergonomic adaptations, and safety committees. The purpose of this paper is to evaluate the success of a local industry’s comprehensive back education program.
CHAPTER II
REVIEW OF LITERATURE

History of Comprehensive Back Education Programs

In 1974, Hall developed one of the earliest back schools in North America: The Canadian Back Education Unit (CBEU). Although he did teach basic anatomy and ergonomics, the primary aim of his program was to change the attitudes of LBP patients to a more responsible role in their health status. Hall used group education about spinal anatomy, body mechanics, flexion exercises, pain and stress management, and relaxation techniques to enhance an attitude change. Hall claimed high rates of both symptom reduction and patient satisfaction with his program.

The California Back School was founded in 1976 by White and Matmiller. White’s approach used three weekly 90-minute training sessions to educate his patients. He also implemented an obstacle course as an evaluative tool for determining physical performance. Not only did they employ physical training and
ergonomic assessment in managing LBP, but they also applied more aggressive techniques such as epidural injections and facet blocks.9 Treatment techniques were accomplished through individual sessions focused on eliciting patient compliance.11 Following treatment of 300 patients, 95% were able to return to normal activities, 89% sought no further medical treatment, and 64% claimed no significant change in their lifestyles.12

Moffet, Chase, Portek, and Ennis compared chronic LBP patients receiving a back school vs. an exercise-only program. The back school groups education included basic anatomy and biomechanics of the spine, exercises, ergonomic counseling, and practicing the methods taught with functional activities. The exercise-only group was taught and practiced the same exercises as the back school groups. Although patients in both treatment groups improved, patients in the exercise-only regimen reverted to their original levels of disability at 16 weeks, while the back school patients continued to improve.13

Another study, by Hurri, also concluded that subjects who received back education combined with exercise improved significantly when compared to the control group. Measurements
including a visual analog scale (measuring back pain at the moment, in the morning, after the working day, and in the evening), a low back pain index (measured on a verbal scale), and the Oswestry Low Back Pain Disability Questionnaire all showed significant differences ($p<0.05$) in favor of the treatment group at both six and twelve month follow-ups.\textsuperscript{14}

One of the most promising studies combined functional restoration with behavioral support. Patients in this study were disabled for an average of 19 months and observed for one year following program implementation. Daily treatment included stress management, behavior-oriented counseling, and physical and occupational therapy exercises for three weeks. Patients were re-evaluated after three weeks and given a follow-up program of one to two days per week for three additional weeks. They were then evaluated at six to twelve weeks and at twelve months following program graduation. After twelve months, 81\% of program graduates, 40\% of those who dropped out prior to completion, and 29\% of those initially denied the program had returned to work.\textsuperscript{3}

A study by Lindstrom, Ohlund, and Eek also supports the comprehensive approach to treating back injuries. One hundred three patients, all blue-collar workers who were on sick leave for at least
eight weeks because of non-specific LBP, were assigned to an activity group or a control group. The control group received traditional care as recommended by their physician, consisting of sick leave with rest, analgesics, available physical therapy, and so forth. The activity group, directed by a physical therapist, received functional capacity measurements, work-place visits, back education, and an individualized exercise program with an operant-conditioning behavior approach. Results indicated the activity group returning to work significantly earlier than the control group (p=.03). Occupational function, measured by an early return to work and a decrease in sick leave, was improved in the activity group in comparison to the control group.15

Psychosocial factors are considered to play a large role in LBP. Pain, a perception, reflects not only bodily events but also thoughts and emotions.16 People suffering from chronic LBP are often depressed; therefore, it is of value to have a complete evaluation, including a psychological assessment, performed on all chronic LBP patients. Sandstrom and Esbjornsson concluded that a patient's attitude towards work should be carefully evaluated before a rehabilitation program is initiated. A correlation was demonstrated between a positive attitude and the motivation toward a successful
rehabilitation. They also concluded that the rehabilitation team can positively influence the patient's attitude, ultimately influencing whether or not the injured employee will return to work. Other psychosocial factors correlated with LBP include: increased age, lower educational level, and divorced and widowed persons. The primary goal of the back school emphasizing a psychological approach is to change attitudes and increase independence and self-reliance in the client.

When treating patients for a back injury, it is important to recognize those receiving worker's compensation. Studies have repeatedly shown that individuals currently receiving compensation, and especially those involved in litigation, fare poorly in treatment outcomes. A study by Lancourt and Kettelhut examined both nonorganic and organic factors in predicting return to work for LBP patients receiving worker's compensation. Nonorganic factors include life events and coping skills, while organic factors relate to objective physical findings. Their results suggested nonorganic factors were indeed better predictors of return to work than organic or physical signs. Factors associated with a negative outcome (failure to return to work) included: increased stress, poor coping
skills, financial problems, personal/family conflicts, and an increased length of time off the job. Implementing a Back Education Program

Involving management in the implementation of a back program is the first vital step towards developing a successful program. Administrative commitment and compliance are an absolute must from the onset. Only if a program has the long-term support and financial backing of administration will it succeed. This can be accomplished by increasing management's awareness of existing problems and expenses incurred to the company due to back injury. Supervisors also need to promote the back care program in the workplace. This can be accomplished by allowing workers time to attend the sessions, promoting an environment of health fitness, and serving as a role model in the proper usage of body mechanics and lifting techniques. Only after the support of management is secured, should one proceed with putting the back education program into action.

Initiating the specific program is the next logical step. Most programs are aimed at the already injured worker; however, a trend is beginning to include in the back school all employees and/or
employees at high risk for injury. Through ergonomic adaptations and early education, it is hopeful that injuries can be prevented before they happen. Gates and Starkey report a specific back education program aimed at both prevention and rehabilitation. Workers at greatest risk were first identified and an audio-visual program designed for large groups was implemented. For employees already injured, monthly classes in small groups were held for practice and reinforcement of proper back care. In addition, also stressed was the importance of good nutrition, stress management, and early identification of injury. In a twelve month time frame following implementation, no low back injuries were reported by new hires. Although the specific data for the twelve months preceding the initiation of this program was not provided, an improvement was clearly demonstrated following implementation.21

A study by Ryden, Molgaard, and Bobbit stresses the effect of back care programs in preventing problems. Their program was created by the Physical Therapy Department and Employee Health Services. The program was divided into two components: one for employees who had a work-related back injury and an annual one for all employees of the hospital. The classes for the already injured worker met twice monthly and focused exclusively on activities
which caused the injury and methods to correct work habits. The other class focused on general information concerning posture, body mechanics, and prophylactic measures for overall good health. Results indicated a dramatic decrease in frequency, severity, and lost work time due to back injuries. In addition, no back re-injuries occurred in a one year follow-up period. Although each specific back program may vary in form and content, the preceding examples suggest that preventative measures can be an effective means of reducing injury.

Work Hardening

Work hardening differs from other back programs in that a work hardening program is an individually designed exercise and work simulation program with the primary goal of returning a worker to his/her previous employment status or an alternative work placement within the company. To first qualify for work hardening, a clear diagnoses and impairment description must be obtained from the attending physician or occupational health specialist. The work-site analysis expert, typically a physical therapist, evaluates the injured worker's work capacity and devises a specific program for that individual. It is then determined
whether an employee will be able to safely return to their previous job-site or if alternative placement is warranted.

Work hardening programs hold the client in a very responsible position. The program is set up to closely simulate their job. The majority of programs require participants to punch time clocks and wear appropriate work clothing, including any special equipment needed on the job. Workers are taught symptom management and symptom control versus symptom relief. Various symptom control strategies utilized by workers include pacing of work, applying acquired knowledge of body mechanics and posture in the working environment, and substituting productivity despite symptoms.22

One current trend in work hardening includes work-site programs. A return-to-work program at the Mazda Motor Manufacturing Cooperation in Flat Rock, MI, is one such example. The therapy department there, located on plant grounds, provides acute therapy, ergonomic evaluation, and a return-to-work program. The savings to the company have been substantial. At this facility, the worker is treated on company time, while continuing to be paid 100 percent of his or her salary. Paying the therapists to work at the plant “costs a fraction of sending employees to outside clinics for treatment.”23
Advantages to an on-site program include: minimal time off from work; retraining occurs in a safe, non-threatening environment; isolation from coworkers is prevented; a positive peer support system is provided; and the worker does not get used to being home and away from the workplace. Arthur H. White estimates that “in 10 years there will be back programs virtually in every major industry, and in 20 years back care will be as common as hard hats, protective eye goggles, handicapped parking, wheelchair curbs, and use of seatbelts. None of these were in common use 10 years ago.”
CHAPTER III
CASE STUDY

Food service distributors are very susceptible to on-the-job injuries. From delivery drivers to warehouse workers, the potential for back injury is very real. The purpose of this paper is to evaluate the success of a local industry's comprehensive back education program. Variables such as lost work time, workers compensation claims, and savings incurred following program implementation will be analyzed. It is proposed the results of this study will support the efficacy of this specific program, thus enabling it to serve as a model program for other facilities. Effective prevention programs within industry could ultimately result in decreased cost to industry and decreased health care costs.

A local food service distributor, which will be referred to as Company X, has implemented a comprehensive program to address safety and cost issues. The goals of their program include:

1. reduce injuries,
2. retain high quality workers,
3. increase productivity, and
4. decrease workers compensation costs.

To meet these goals, Company X has included in their program the following components: (1) modified return to work program; (2) pre-employment physical screening; (3) ergonomically safe working environment; (4) back safety training; and (5) joint employee-management safety committee.

Modified Return to Work Program

The modified return to work program (MRW) was first implemented in August of 1991. Whenever possible, modified work opportunities are provided to aid in the rehabilitation of employees who are injured on the job and unable to perform their normal responsibilities. The purposes of this program include: (1) reduce the cost of worker’s compensation; (2) keep employees actively involved in the day to day operations of Company X; (3) assist with the rehabilitation of injured employees; and (4) assist, not replace, current employees in performing particular or specified tasks.

Modified work assignments are exclusively and selectively assigned by management based upon the following criteria: employee’s skills, physical limitations, positions available, and any other factors relevant to a particular situation. All modified positions are temporary and the duration of the position is based on
the injury and medical recommendations of the involved physician. Positions will not exceed three months in duration unless circumstances and medical recommendations warrant an extension of time. In any case, modified assignments are not to exceed six months duration.

Failure of an injured employee to accept a modified work assignment results in termination of worker's compensation benefits as specified by the state where the claim is filed and termination of employment with Company X. Company X also reserves the right to restructure or terminate a modified position at any time for any reason. All current policies and procedures are in effect during modified work assignments and are expected to be followed in the customary manner.

Modified work positions are paid at the start range of Group A positions (currently $5/hour), with worker's compensation supplementing the difference in salary.

Analysis of a period of time from August 1, 1991 through April 17, 1992, shows the following savings to Company X:

Prior to MRW Program:

Lost Work Days: 169 days x ($6.28/hr x 8hr/day)= $8,490
Replacement Days:169 days x ($9.43/hr x 8hr/day)=$12,749
Total:$21,239
Following MRW Program:

Modified Work Days: 72 days x ($5.00/hr x 8hr/day) = $2,880
Lost Work Days: 97 days x ($6.28/hr x 8hr/day) = $4,873
Replacement Days: 97 days x ($9.43/hr x 8hr/day) = $7,317
Total: $15,070

Savings attributed to MRW Program:

$21,239 - $15,070
Total: $ 6,169

The above figures were derived at by the modified pay of $5.00/hr, the lost work day pay of 66% of average total pay equaling $6.28/hr, and the replacement day pay of 100% of the average salary equaling $9.43/hr.

Savings attributed to the MRW program during this time frame support the efficacy of this program. Although the benefits most easily quantified are the monetary savings, another potential advantage of the MRW program is keeping the employer/employee relationship a positive one, with both sharing a common goal of returning the employee to work as quickly and as safely as possible.

Pre-Employment Physical Screening

Pre-employment physical screening, conducted by an appropriately trained medical provider, was first tested on all route
drivers but now is expanded to include all new hires. The physical ability screening tests have the following objectives: (1) decrease the number and severity of injuries; (2) use a series of physical ability tests that are safe, reliable, job-related, predictive of performance, fair to members of any race, sex, or ethnic group, and can be implemented uniformly within the company; (3) have cutoff scores that reflect the physical demands of the job; and (4) fulfill the legal requirements of the Equal Employment Opportunity Commission (EEOC), the Age Discrimination in Employment Act (ADEA), and the Americans with Disabilities Act (ADA).

To insure validity of the physical ability tests, a study of existing physically healthy employees has provided many of the standards for the tests. Job analysis assisted in identifying the strength and endurance requirements, worker surveys identified lifting frequencies, and case movement reports documented load weights and handling frequencies. These test results were used to establish the mean and passing score requirements of the tested individuals. Following is a description of the physical assessment/screening tests employed by Company X and conducted by the appropriate medical personnel.

Spine Assessment: Range of motion (ROM) of the cervical spine and lumbar spine and repeated ROM in flexion movements for both
cervical and lumbar spines are tested. Signs can be reproduced with the repeated ROM testing as an onset of discomfort or loss of ROM in the reverse direction of extension. Satisfactory completion of the exam will exist when the individual can complete forty repetitions of flexion, with no loss of ROM or painful motion detected by the examiner.

Peripheral Joint Assessment: The individual is tested for stability, resisted ROM, impingement of the shoulder, and stability of the knee and ankle joints. Satisfactory completion of the exam requires no instabilities, impingement signs, or painfully resisted ROM.

Flexibility Testing: Flexibility is assessed for both lower and upper quarter peripheral extremities. Satisfactory completion will show no severe inflexibilities in major muscle groups. A sit and reach flexibility test is completed of lower quarter flexibility and a comparison is made to normal values as reported by professional standards.

Strength Testing: The individual is also tested for isometric, isotonic, and isokinetic capacity. Strength tests are compared to the standards set by the currently employed workers scores. Satisfactory completion is considered by scoring one standard deviation below the mean of scores of tested Company X workers.
Isometric tests are performed as outlined by the National Institute of Occupational Safety and Health (NIOSH) standards to include grip strength, arm pull, torso pull, and leg pull.

Isotonic tests define the lifting capacities for floor to knuckle and knuckle to shoulder lifting heights. The individual limits determined are not to be exceeded on a routine basis at work. Use of assistive devices, such as hand wheelers and lifts are recommended for safety and unusually heavy work loads. This recommendation helps the individual recognize their own safe lifting limits, potentially preventing overuse and strain to the body. Successful completion is considered at one standard deviation below the mean of the tested Company X workers.

Isokinetic tests are performed for trunk flexion/extension. With isokinetics, the speed (velocity) of the machine is held constant, therefore allowing the muscle or muscle groups to be maximally loaded at all points throughout the ROM. Subjects are tested at speeds of 120 and 60 degrees per second, which is comparable to test speeds of the injured population. Scores are recorded for peak torque, total work, and average power in comparison to body weight. Successful completion is considered at one standard deviation below the mean of the tested workers.
Lift task Simulated Lifting from Floor to Overhead Reach: This isokinetic test is designed to simulate lifting an object from the floor to an overhead reach or any position in between. It is performed at 30 inches per second and 18 inches per second. Scores are recorded at peak force, average force, and total work is then compared to body weight. Successful completion is considered at one standard deviation below the mean for the tested Company X workers.

The scores for the preceding tests are then analyzed. Weaknesses are assessed and feasibility for employment are weighed on the satisfactory completion of all test scores at an acceptable level, using the predetermined standards as described for each test. The follow-up report is shared with the employee and appropriate management staff and placed in their personnel file. The supervisor uses the results to work with the employee during their introductory period, stressing physical abilities and safety. Human resources utilizes the results to determine suitability of job performance on hiring.

It is imperative to note that the pre-screens are job relevant and specific to comply with the ADA of July, 1992. One of the basic premises of pre-screening is to select and match the best candidate
for the job. The objective medical information gathered allows Company X to reduce hiring unsuitable candidates who may be placing themselves at risk because of physical ability deficits, thus being unable to satisfy the physical demands of a specific job.

Ergonomically Safe Working Environment

An ergonomically safe working environment is another improvement in the Company X comprehensive program. Repetitive lifting of heavy products is a risk factor in low back injury. To minimize this risk, Company X has phased out both the purchase and selling of 100# products. The 100# items were converted to 50# items, increasing the safety of the working environment for both warehouse employees and drivers.

To decrease the amount of time workers physically handle a product, they are trained to minimize the amount of walking and carrying by making efficient use of equipment and machinery. Products are stored at the appropriate height for their weight to eliminate unnecessary stresses being placed on the back due to overhead reaching or bending forward.

Another method employed to decrease the physical stress of demanding jobs is to rotate the shifts between light and heavy activity. For example, workloads vary from sedentary duty (0-10#) to heavy duty (50+#). Shifts are rotated accordingly to insure an
employee does not only work during moderate or heavy activity. Job rotation reduces fatigue, allows an employee to use different muscle groups and movement patterns, keeps repetitive motion injuries at a minimum, and provides for a diversified employee.

Back Safety Training

Back safety training is taught to route drivers, warehouse workers, and delivery employees. Each individual is instructed in proper lifting techniques while undergoing their pre-screening physical. In addition to this instruction, on-the-job back safety is demonstrated annually to the various groups of workers by an appropriately trained medical provider. This instructor provides on-site training in proper lifting and in overall back safety and awareness.

Supervisors of the various departments are also responsible for setting adequate examples in correct lifting techniques. This instruction is ongoing in all departments. Not only are the supervisors expected to know the proper techniques and standards, but provide employee training and analyze employee techniques.

Employees are expected to actively participate in the back safety training and utilize the correct lifting techniques in their daily job demands. Employees are to avoid unsafe practices or short cuts which may lead to injury of themselves or a coworker.
Joint Employee/Management Safety Committee

A safety committee including employees and management is another addition to the comprehensive program of Company X. Goals of the above program include: (1) provide educational programs, processes, or incentives which heighten the employees awareness of workplace safety and documentation of those activities; (2) analyze and reduce work related accidents or near misses as reported on the investigation report form; (3) document and recommend corrective solution to senior management for reoccurring unsafe conditions; (4) implement corrective action(s) as approved by senior management; (5) periodically review impact and results which have or have not resulted from the development of the safety program; and (6) conduct regular safety inspections and walk throughs of the facility.

The committee is comprised of employees representing each shift and/or job in the Operations Department. The Operations Manager is chair of each committee and selects the members. In addition, the committee includes one supervisor plus five general staff of Company X. Each member serves a minimum two-year term with two members rotating off of the committee every two years.

Meetings are held on a quarterly basis following a specific agenda. Meeting minutes and subsequent recommendations are
documented and referred to the General Operations Director following each meeting. As a member of the senior management team, the General Operations Director acts as a liaison, reviewing and approving committee actions or recommendations.

Workers Compensation Savings

To derive at an estimate of savings incurred on workers compensation claims since implementation of their program, files of drivers employed by Company X were analyzed. Because back injuries are the most frequent type of industrial injury, the following figures are those pertaining specifically to back injuries and exclude all other injuries. Files of both current drivers and those no longer employed by Company X were included. The specific time period analyzed dates from 1-1-88 through 10-31-92. Before program injuries are considered from 1-1-88 to 10-31-91 (time period 1) and after program injuries are considered from 11-1-91 to 10-31-92 (time period 2). The costs were totaled for each time period and then divided by the total number of months in each time period (46 for pre-program data and 12 for post-program data) to derive at a per month average. The workers compensation claims relevant to back injuries were found in the various employee's personnel file. The specific claim number as well as the date of injury were matched with the worker's compensation payments on
the quarterly and monthly statement reports to derive at the cost projection.

Total number of drivers: n=47

<table>
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<tr>
<th>Time Period</th>
<th>Total Back Injuries</th>
<th>Worker's Compensation</th>
<th>Per Month Average</th>
</tr>
</thead>
<tbody>
<tr>
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<td>22</td>
<td>$103,776.39</td>
<td>$2,256.01/mo.</td>
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<tr>
<td>Time Period 2</td>
<td>5</td>
<td>$15,187.54</td>
<td>$1,265.63/mo.</td>
</tr>
</tbody>
</table>

It is of interest to note that 87.7% of the worker's compensation payments related to back injuries for time period 1 was comprised by only two workers. This further supports the idea that a very small majority of injured workers are responsible for a great majority of expenses. A similar comparison can be made during time period 2, where 1 worker constitutes 91% of the total costs.

A reduction has also been witnessed in the total number of back-related injuries since program implementation. The overall decrease in back injuries comparing the time periods is a 14% reduction for time period two. This decrease in injuries is most likely due to a combination of the various components in their comprehensive program. By employing those most suitable for the
job, modifying working environments, making ergonomic adaptations, and encouraging on-the-job safety, Company X has dramatically reduced the number and cost of worker's compensation claims related to back injuries.
CHAPTER IV

CONCLUSION

Due to the overwhelming socioeconomic impact of back injuries on society, the management of low back injuries needs to become more efficient and consistent. Although the majority of back problems subside spontaneously and rather quickly, the real cost lies with those who remain to have chronic or recurring injuries. Industries have suffered the greatest economic blows, with worker's compensation costs on a steady increase. To combat these expenses, many industries have implemented programs specifically targeted at reducing the incidence of back injuries in the workplace.

Back schools were among the first solutions put forth by industries. Early education programs ranged from one-on-one training sessions to group education. Various components of these early programs include: instruction in anatomy and function of the back, theory and practical application of body mechanics, and
teaching the value of physical activity to improve health. The success of these early programs led to the development of comprehensive programs, which focus on a wide array of injury prevention and management techniques.

Gates and Starkey used a holistic approach in treating not only injured employees but also those at risk for low back injury. Injured employees attended monthly classes stressing good nutrition, a fitness program, stress management, and immediate care for injuries. During a one year follow-up, no low back injuries were reported by new employees. Mayer, Gatchel, and Kishino developed a comprehensive program to restore function for patients with LBP. Their three week inpatient program was successfully repeated in 1989 by Hazard, Fenwick, and Kalish.

The comprehensive program put forth by Company X includes the components of a physical pre-screening of potential employees, a modified return to work program, ergonomic adaptations, back safety training, and joint employee-management safety committees. The physical pre-screening assures Company X that the appropriate employee is on the job and can meet the physical demands of that job, thus minimizing the risk of potential injury to the employee. It
should also be reiterated that the physical pre-screening is in compliance with the regulations of the EEOC, the ADEA, and the ADA. Following initiation of the pre-screening, Company X has observed a decrease in the number of injuries to employees, therefore decreasing worker's compensation costs and claims.

Savings have also been attributed to the MRW program. This enables employees to return to work as soon as possible while continuing to earn a salary and remain productive to the company. Through job modification and ergonomic adaptations, the MRW program is saving Company X money and supporting the efficacy of their program. Because of the overall success of Company X's comprehensive program, it not only improves the efficacy of their program but enables it to serve as a model program for other industries interested in implementing such a program.

Although no one ideal treatment method exists, a comprehensive approach to both managing and preventing back pain may prove to reap the most success in dealing with this substantial problem. With the demand to keep health care costs under control, comprehensive programs are becoming more popular in many industries. Effective preventative programs and programs for the already injured worker may be the answer to keeping a lid on health care costs, potentially saving society billions of dollars.
REFERENCES


