# SUCCESSFUL OUTCOMES OF DEVELOPING AN ERGONOMICS PROCESS USING AN ERGONOMICS TASK FORCE

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With the first state ergonomics regulation in place and more on the way, employers are now being held accountable for ergonomic compliance. Employers are increasingly interested in realizing benefits with ergonomics, despite regulations. In this study, an ergonomics process is introduced which includes a participatory approach through the development of an Ergonomics Task Force. This participatory approach using labor and management to apply ergonomic principals demonstrates significant and substantial benefits for a variety of organizations from a public safety agency to an educational facility (2) to a banking entity, a hospital and a bio-technology firm. This study identifies the numerous ways that organizations are benefiting from an ergonomics process using an ergonomics task force as the source of in-house expertise.

## INTRODUCTION

The problem of Cumulative Trauma Disorders in the workplace continues to plague business worldwide as a medical issue, a labor relations' issue and a regulatory concern. Significant progress has been made in the fight to reduce the number of repeated trauma cases. The Bureau of Labor Statistics is reporting a reduction in these claims for the 4th consecutive year (Workplace Ergonomics, 2000). In the most recent Bureau of Labor Statistics survey, disorders due to repeated trauma in 1998 accounted for 253,300 cases down by 8.4% in 1997 (CTDNEWS, 2000). Several factors are noted for influencing the recent reduction. Ergonomic regulations have moved into the international and national forefront (European Framework Directive, Fed-OSHA, California, Washington state and North Carolina). These regulations are attempts by government to further protect workers by improving working conditions and to reduce the financial and physical impact of CTDs and RMIs (repetitive motion injuries). However, they are not without substantial controversy. T o date, the regulations take a broad approach encouraging management leadership along with employee participation, early reporting systems, worksite analysis, control measures and employee training.

Along with the drive to regulate ergonomics, the concepts of participation in safety and ergonomics have grown considerably over the past 10 years. This can be related to the general revival of interest in more participatory and behavioral management styles as opposed to traditional hierarchical, battlefield mentality. By definition, participatory ergonomics consists of stakeholders taking part in ergonomics initiative or sharing ergonomics knowledge and methods. The stakeholders include anyone affected by the process or changes and involve more than just the users or workers. Noro describes the initiative as a new technology to disseminate ergonomics information and also as a procedure whereby ergonomists work together with non-ergonomists on a company wide basis (Noro, 1991).

One of the most critical elements noted by Nagamachi, Imada and Lewis is the importance of involving the worker or end-user in the problem solving process and as an active participant to improve their working conditions and/or product quality. Wilson has identified ergonomics management programs at work, as "the involvement of people in planning and controlling a significant amount of their own activities, with sufficient knowledge and power to influence both processes and outcomes in order to achieve desirable goals" (Salvendy,1997). Heibeker, et al. describes team processing as an optimal way to meld individuals with different talents and degrees of expertise to achieve critical organizational goals resulting in a "best practice" approach (Heibeker, 1998).

CTDs have become significantly more prevalent in the workplace, with many organizations over the last five years demonstrating an increased desire to take action in with or without regulations in place. Based on participatory ergonomics and team building concepts the ergonomics process includes developing an Ergonomics Task Force (ETF). In the process, the employees' responsibility is to report symptoms as part of an early identification program so that the ETF and the supervisor can address workstation analysis. An optional CTD medical screen for symptom assessment is available in some of the programs. If symptoms are rated moderate to high, medical management is implemented as needed with a physician referral (Heller, 1998). A summary of the process is presented below.

## METHODS

This study involves a diverse group of industry participants including a public safety agency; a biotechnology company, a financial institution, a large hospital, and two

community colleges. All of the organizations have established an ETF as part of the ergonomics process. They were all trained the same core curriculum. Each entity has taken the process and geared it to meet it's own needs with excellent results early on extending through a 5 year period. Table 1 demonstrates the current status of each team.

The members were selected through special appointment or volunteering their time on the Task Force. The teams were established with 5 to 12 primary members and are to serve two main functions:

1.To bring together different levels of the organization, workers and management for the goal of decreasing work injury and increasing productivity through ergonomic change.

2.To serve as an advisory body with internal ergonomics expertise to assist in the prevention and management of work injury onsite.

| Task Force | Start Date | Active | Turnover | ROI | Ongoing Support | Team # |
|---|---|---|---|---|---|---|
| College | Nov-97 | Yes | Yes | No | Yes | 7 |
| Hospital | Oct-99 | Yes | No | No | Yes | 12 |
| Bank | Apr-99 | Yes | Yes | Yes | Yes | 7 |
| Bio-Tech | Aug-99 | Yes | No | No | Yes | 10 |
| Sheriff | Mar-94 | Yes | Yes | Yes | Yes | 5 |
| College | Nov-98 | Yes | Yes | No | Yes | 10 |

Table 1. Status of each team in the study.

**Role Designations**

The Ergonomics Task Force is composed of the following designated positions (Heller, 1998):

**1. ETF Program Director:** An upper management position that supports, promotes and defends the underlying concepts of the Ergonomics Process by overseeing all operations related to the goals and implementation of the Ergonomics process.

**2. ETF Chairperson:** A middle management position that deals with day to day operation by moderating ETF meetings; acts as liaison between management and the committee; makes assignments to committee members and confirms completion of the assignments; coordinates committee activities with the affected personnel by tracking training issues; purchases and disability management of employees with CTD problems.

**3. ETF Surveyors (2 or more)**: Responds to any Ergonomic Evaluation Request Form to determine the cause of the concern through the use of the ergonomic analysis system. Performs an interview for history taking followed by an inspection or site analysis of the work area or workstation to identify unsafe work practices or procedures and general concerns related to known ergonomic hazards and risks. Educates the employee/supervisor of any serious safety or ergonomic hazards so corrective action can be taken at the time of the site visit or as soon as possible. Assists the ETF and management in complying with all applicable controls and recommendations, including follow-up.

**4. ETF Procurement Coordinator:** Responds to the Ergonomic Equipment Purchase Request by coordinating the purchasing and dissemination of recommended furniture, equipment and tools or accessories. Monitors costs associated with ergonomic equipment purchases. Communicates with ETF Chairperson to inform them of purchase status for each case.

**5. ETF Training Coordinator**: Coordinates the development (and implementation) of specific training programs that pertain to CTDs and ergonomics, assures that training programs are scheduled for affected employees and new hires.

**6. ETF Secretary:** Assists the ETF Chairperson by preparing and disseminating reports including meeting reminders, agendas, takes minutes of the meetings, and documents activities of the ETF.

**7. ETF Maintenance:** Installs, repairs, retrofits and assists with the moving and maintenance of office/industrial equipment as it pertains to improving workstation design and minimizing identified hazards.

**Program Components**

Each ETF underwent 13 to 24 hours of basic ergonomics training (by the author) as well as a refresher class during year 2 and 3 for the Sheriff's department. Start-up training included how to perform an office, laboratory or material handling ergonomic analysis using the ergonomic evaluation tools, anthropometrics, ergonomic product usage and other critical learning issues appropriate to each industry. Actual analysis was practiced in an ergonomics laboratory session as part of the training. Other highlights of the process included:

1. Ergonomics training annually for all high-risk employees of the organization, emphasizing self-correction of work areas and safer work practices.
2. Employees reporting ergonomic concerns to supervisors and triggering workstation analysis and recommendations by an ETF Surveyor.
3. Optional Voluntary CTD screen for employees with early symptoms performed by a healthcare provider.
4. Monthly, bi-monthly or quarterly ETF meetings to follow ergonomic activities and employees with concerns or injuries.
5. Implementation of recommended hazard prevention and control methods.

Ergonomic activities vary from team to team. In a feedback survey, the following table demonstrates the methods employed by each.

| Task Force Activities | Participating Teams |
|---|---|
| Select ergo products | 5 |
| Provide group training | 6 |
| Provide individual training | 5 |
| Evaluate worksites | 6 |
| Monthly team meetings | 2 |
| Bimonthly team meetings | 3 |
| Quarterly team meetings | 1 |
| Select training materials | 2 |
| Create/modify training | 3 |
| Create/modify forms | 4 |
| Expand/reduce team size | 4 |
| Other: Develop ergo library | 1 |

Table 2. Common Ergonomics Task Force Activities

## RESULTS

### Monterey County Sheriff

Since beginning the ergonomics process in March 1994, the public safety agency has most effectively measured its CTD workers' compensation costs and claims as well as the program's impact in other claim areas. Through 1998, a savings of $360,000 in workers' compensation medical and indemnity dollars have been saved by direct and indirect methods to manage CTDs, strains and sprains. Substantial cost reductions are noted in CTDs for the Sheriff's Department since the onset of the ergonomics process. Within the first year, a 75% reduction was noted and within 4 years, 83% reduction. CTD occurrences are down by as much as 32% overall.

As with most cost saving strategies that involve employee training, an increase in cost and frequency of the CTDs often is anticipated. However, this did not occur in the sheriff's case, or in any of the other teams within the first year start-up.

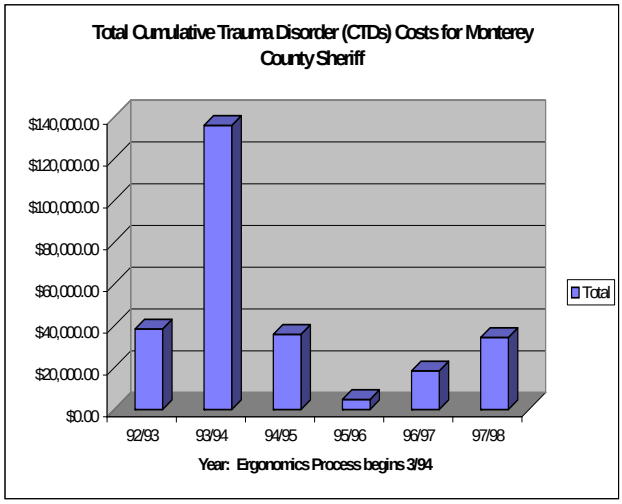


Figure 1. All CTD Claim costs from onset of program in March 1994 -98 for Monterey County Sheriff.

Occurrence has varied year to year as cases do continue to occur, but remain a relatively small percentage of the total injuries. At the Sheriff's department, chronic injuries that began prior to the start-up and early on in the process continue to bother longstanding employees often despite sound ergonomic strategies. These claims continue to incur annual costs. CTD claim activity in 1996/97,1997/98 (Fig. 1) and 1998/99 (not shown) are largely the result of acute aggravations of chronic CTD cases originating prior to the program onset. New onset of CTDs is well managed and relatively inexpensive. Eight cases were reported in the 97/98 fiscal years with only 4 having any cost impact. In 1999, another 8 claims were reported with one claim exceeding $20,000, and all others less than $6,000.00 with 5 of those under $1000.00.The last 2 claim years have resulted in relatively the same expense of approximately $35,000.00. It is important to note that no new hires (approximately 50 to 60 employees) have filed any CTD claims to date since beginning the program.

Financial return in the Sheriff's ergonomics process has been carefully monitored as well. Key areas tracked include consultation on process development, CTD training, ergonomic furniture and equipment as well as the average per person investment. Overall, $114,400.00 has been used to run the process investing $250.00-$275.00 per employee from 1994-98, or an average of $68.00 per person annually. Return on investment (ROI) for every dollar invested has been substantial. To determine annual ROI, the following formula was used:

$$\frac{\text{Net annual change in all injury/illness costs}}{\text{Annual investment in the process}}$$

The program ROI has paid annually $2.14 for year 2, $13.00 for year 3, and $5.50 for year 4 for every dollar invested using the formula above. Since beginning the process in March 1994, the Sheriff has invested 54% less the 2nd year and 74% less for the third year and another 55% less the 4th year relative to the start-up year 1994/95.

Other significant changes have occurred since the 98/99 fiscal years began. There was a change in leadership within the department, which has facilitated significant management change throughout the organization. Furthermore, the Ergonomics Process budget was reduced to its lowest at $5000.00. The Ergonomics Task Force reduced their meetings from monthly to quarterly as well. Concern regarding the viability of the program is being monitored at this time as it moves into its 6th year.

### Other Industry Results

The remaining task force participants in the study did not establish or benchmark their CTD/RMI claim and cost levels as accurately as the Sheriff. The process should run at minimum a full year before any comparisons can be made and at least 2-3 before any trends can be identified. Only two of the remaining five is likely able to do any cost comparison As a result, return on investment is not measurable at this time. However, other performance measures indicate each team is

achieving additional and substantial benefits from their ongoing efforts. Chairpersons report significant employee interest, willingness to change and value as a result of the ergonomics process. Table 3 demonstrates the employees impacted by each of the team's activities to date as it pertains to training and analysis.

| Task Force | # Months or Years Active | # Employees Trained | # Ergonomic Analyses |
|---|---|---|---|
| College | 2 yr. 2 mo. | 100 | 35 |
| Hospital | 3 mo. | 48 | 5 |
| Bank | 9 mo. | 40 | 40 |
| Bio-technology | 5 mo. | 70 | 6 |
| Sheriff | 5 yr10 mo. | 350 | 50 |
| College | 1 yr. 2 mo. | 120 | 25 |

Table 3. Employees impacted by the task forces' primary activities of ergonomics training and analysis since start-up.

## CONCLUSION

The results of the ergonomics process including the development of the Ergonomics Task Force demonstrates itself as a vital strategy to control workers' compensation losses. The process acts as a cost-savings strategy for the prevention and management of CTDs. Benefits improve with time, administrative and financial commitment to the process and are best justified through benchmarking and good record keeping. Improvement is noted in the following areas: increase in awareness of CTDs throughout the organization, integration of in-house expertise as an accepted management practice, safer work habits by a majority of employees, early reporting of signs and symptoms, better disability management by front line supervisors and management, improved multi-level communication and improved employee morale for the affected groups. The Ergonomics process including an ergonomics task force demonstrates itself as a flexible tool capable of achieving significant measurable outcomes.

Critical components include commitment from administration and middle management for team process and employee involvement, establishing budgets to support ergonomics change and benchmarking initial costs, claims, concerns and activities to measure future outcomes. In the more mature processes, retraining of the task force members or new members is useful. In addition, pre-existing CTD claims that were filed or employees' with longstanding symptoms that have not yet reported will likely continue to be aggravated, despite the best efforts of the team and organization. It is the pursuit of prevention and identifying the symptoms early that is most impacted by the ergonomics process. Furthermore, it is demonstrated that the participatory ergonomics approach has lead to a cultural change in the organization's advancement towards the prevention and management of all work injuries. This type of change integrates well into the organizations' mission, increasing employee value and job satisfaction for all those involved adding to the "best practices" approach.

## ACKNOWLEDGMENTS

The author would like to recognize the dedication and interest of the organizations discussed in this outcome study. Their hard work and dedication to the ergonomics process allows us all to benefit from the significance of sound ergonomic strategies contributing to an organization as a whole.

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