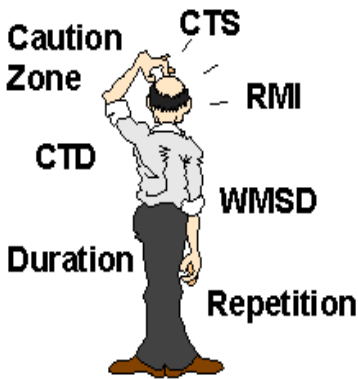




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ERGONOMICS: Working Smarter, Not Harder!

By SeaBright Insurance Loss Control



Proposed Federal and State Ergonomics Rules have been about as welcome as a toothache to most employers. Critics argued that there wasn't enough scientific data to support these regulations. Others believe musculoskeletal disorders are too often caused by off-the-job factors. The construction industry has been especially concerned about having to analyze and modify work operations that change on a daily, if not hourly, basis. Compliance is viewed as complex and very costly, with little certainty of how effective it will be. Many of these complaints are understandable from the point of view of employer groups who continue to fight proposed ergonomic regulations. Nevertheless, since OSHA took its first steps toward an ergonomic standard nearly

twelve years ago, meaningful statistics have been collected and analyzed, nationwide and locally. About 1.7 million injuries a year are reported on the job, with about one-third of these attributed to repetitive-motion stress. Depending upon the industry and work specialties, some statistics claim 60-70% of injuries and claim costs involve back and neck strain, shoulder and arm strain, tendonitis and carpal tunnel syndrome. There is no ignoring the fact that sprains, strains and muscle tears caused by work-related tasks are physically and financially painful—and that something must be done. Ergonomics is the process of designing jobs, equipment and work tasks to fit human physical characteristics and energy limitations. It strives to make the work fit the person, rather than the other way around, or in other words—working smarter, not harder!

The New Safety Focus - Control of “sudden and traumatic” accidents has improved in recent years, thanks to safeguards like fall protection, machine guarding and PPE. Today’s challenge is to prevent “gradual onset” injuries by considering limitations of the human body. The body can be pushed beyond its limits either suddenly or slowly over time. A single day’s work may not cause an injury, but the cumulative effect of repeated tasks can end in pain, strain and a debilitating injury—the proverbial straw that broke the camel’s back. We have to remember that machines have overload switches, fuses and shear pins to protect them—humans do not.

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People are Equal But Different - Tolerance for strain also varies with individuals, based on height, weight, gender or age. For example, physiologists have measured the decline of human working capacity, as we get older. With age, our lungs, heart and circulation have less ability to supply our working muscles with oxygen and nutrients. Today's aging workforce increases the risk of gradual onset injuries. But regardless of individual physical factors, research has shown that many ergonomic-related injuries can be prevented for all types of workers in all industries, through job analysis and creative strategies. To do so, we must find ways to eliminate or reduce awkward work postures, unnecessary force, highly repetitive motion, heavy, frequent or awkward lifting, and excessive vibration.

Rules are Different But Similar – Just how this is to be done varies between jurisdictions. Ergonomic rules have been proposed by Federal OSHA, Washington State, Oregon, California, Alaska and Minnesota, and many other states are most likely in the planning stage. In nearly all cases, years of vigorous legal and political challenges have caused delays, revisions or ultimate defeat. Some of the differences between jurisdictions involve the size of the firms or types of industries who must comply with ergonomic standards. Written programs may or may not be required. Claims statistics may or may not be used for assessment of employees at risk. Actual enforcement will inevitably result in protests, given the many ways ergonomic risks can be interpreted.

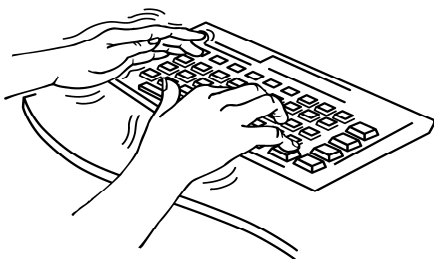
As a result of pressure from lobbyists in Washington State, enforcement of the WISHA Rule, which was signed into code in May, 2000, has been put on hold for two years. Employers are required to implement ergonomic analysis and controls, but will not receive citations during that period. It will take more time and more accumulation of statistics to confirm the ergonomic problem and cost-benefit solutions before hard fast rules will be broadly accepted by heavy industry. After all, remember how long it took to overcome resistance to simply wearing hard hats?

Some Employers Are Not Waiting - Although companies are usually given plenty of time to put their ergonomic program together, many have moved ahead. Enough data now exists to show that ergonomic strategies can be very cost effective. Claim statistics indicate that a carpal tunnel surgery claim can range from \$5,000 to \$25,000, and one surgical back case can cost \$100,000, excluding indirect costs and personal pain. The smaller the company, the harder it is to absorb the impact of such workers' compensation costs, so smart employers are reducing their risks.

Success Stories - Many ergonomic program success stories exist; what is needed is more sharing of these to encourage other companies. A paper plant in Port Townsend, Washington reports that its work-related musculoskeletal injuries accounted for 70 percent of the mill's claims and 80 percent of the costs. After implementing a comprehensive ergonomics program, they significantly reduced both injuries and claim costs. Days lost from worker injuries dropped from 368 in 1996 to only 70 the following year. Direct medical costs fell from nearly \$28,000 to \$4,000 the following year. A link to their Web page and details about their ergonomic program will be found at the end of this article.



Not only field and plant workers benefit from ergonomic interventions. People who use computers on a daily basis are at great risk for cumulative trauma injuries that sometimes force them to change their occupation. Workers in the Office of Information Technology in New Jersey received ergonomic training and technical improvements in their computer workstations, leading to a 40 percent reduction in repetitive stress injuries. Employees reported substantially fewer problems with their backs, elbows, arms, hands, necks and eyes. Morale and productivity improved as well.



Although much controversy exists over the value of back support belts, one international construction company's back injury prevention program used back support belts, flex and stretch exercises and training worldwide to reduce their back injuries by 50% and their loss costs by 47%. This meant over \$10 million in savings.

Of course, this U.S. construction company has a good number of safety personnel to carry out programs for their large workforce, while small construction companies must use available resources for training and education. Fortunately, these resources have become more and more plentiful.

Many Sources of Help - Ergonomic products, equipment, training films and sample programs are offered in a wide variety of choices today. It doesn't necessarily take a trained Ergonomist to identify risk factors or solutions, but it does take research, learning from others and good organization.

Experience shows that the most important source of help can come from participation of the workers who are at risk. Although the skill and experience of outside consultants can be valuable, the best ideas for reducing risks of injury will often come from the workers themselves. The workforce should *always* participate in analyzing both the problems and the solutions. People want to feel they can take part in deciding things that affect their life and their work! Since ergonomics is bound to change the way things are done, success hinges on employee "buy-in" of any changes that are made.

A Few Solutions – In addition to employee input, research on ergonomic tools and equipment may provide answers to problem work tasks. Safety Supply vendors may recommend ergonomic tools, PPE or equipment. The Internet offers a world of ideas and valuable links are listed at the end of this article. Just a few of the strategies that have worked for companies include:

- Reducing the weight of a load or the capacity of a container;
- Using slides or gravity chutes to eliminate lifting;
- Utilizing material handling equipment and team lifting;
- Reducing the duration of vibration exposure;
- Using vibration dampening tools and gloves;
- Rotating jobs with other workers, varying the types of motion;
- Improving the work process layout so the need to manually move material is minimized;
- Changing tools, work surface orientation, or worker location to reduce bent wrist postures.



A SAMPLE ERGONOMICS PROGRAM PLAN

The best way to tackle an ergonomics program is the same way they say one should eat an elephant—"one bite at a time!" There are no quick fixes. Ergonomics is an ongoing commitment that pays off in the long run. The sample Seven-Step Plan that follows is basically modeled after the Washington State (WISHA) ergonomic code. This includes a system for identifying work tasks that pose significant ergonomic risks that may lead to work-related musculoskeletal disorders (WMSD). Standards that have been proposed in other jurisdictions may have different requirements than Washington State's.

However, the focus of this article is not upon code compliance. It suggests a systematic way to develop and customize an ergonomics program for your company, step by step. The first phase calls for a simple, brief inventory of work tasks. The second phase requires a more complex analysis of jobs when tasks are found to be in need of ergonomic intervention.

STEP ONE: Develop a Steering Committee to Plan and Oversee the Program:

- The committee might consist of safety personnel, safety committee members, the claims administrator, foremen, stewards, superintendents, or project managers, etc. The role of this committee will be to determine the best implementation process for the company and its divisions, and to evaluate progress. It would meet periodically throughout the project.
- Complete and share a claim history analysis, identifying the types of injuries that have taken place by division, department, body part, cause, time of day, day of week, etc., so the committee can set priorities and consider the idea of a pilot program in one of the divisions. Plan to monitor your claims analysis over time.
- Provide committee members with basic ergonomic education (e.g., video, film or slides).

STEP TWO: Conduct an Inventory to Identify Caution Zone Jobs:

- Use an inventory checklist to determine if any Caution Zone jobs exist in your operations. A sample worksheet that lists ergonomic risk factors (e.g. awkward postures, highly repetitive motion, frequent or heavy lifting, etc.) is provided at the end of this article.
- A “caution zone” job is a job where an employee’s *typical work activities* include any one of *specific risk factors* that are carried out for a specified *duration of time*.
 - *Typical work activities* are defined as:
 - a regular and foreseeable part of the job,
 - occurring on more than one day per week,
 - occurring more often than one week per year.
 - *Duration* of the work activity refers to:
 - the total amount of time per day employees are exposed to the risk factor, not how long they spend performing the work activity that includes the risk factor.
 - Schedule Ergonomic Awareness Training for employees *who carry out* or who *supervise* Caution Zone jobs.

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NOTE: If no Caution Zone jobs exist, by the Washington Standards you are not required to provide employee training or carry out an ergonomic program. You may nevertheless choose to do so in order to improve productivity and for the well-being of employees.

STEP THREE: Conduct Ergonomics Training at Regular or Special Crew Meetings:

- The first group(s) of affected employees may be trained *jointly* by a foreman or supervisor and an outside trainer, at regular safety meetings.
- Given experience, the foreman or supervisor could train subsequent groups alone.
- Show a video, slides, body mechanics demonstrations or handout materials with discussion.
- Discuss work tasks *and* non-work related activities that contribute to musculoskeletal injuries.
- Discuss physical strength, endurance and flexibility necessary for heavy work.
- Discuss the list of the company’s identified Caution Zone Jobs. Encourage employee ideas and suggestions.

- Awareness training can be given to office workers at a “brown bag” lunch which the company supplies. After the training, a consultant may be hired to survey selected workstations and make specific recommendations.

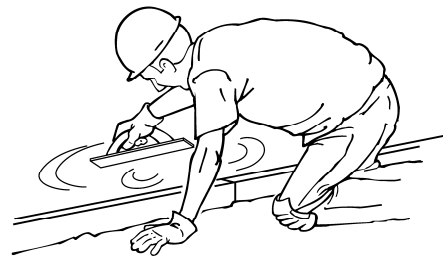
STEP FOUR: The Steering Committee Plans Analysis of Identified Caution Zone Jobs:

- The steering committee should assign and schedule a formal analysis of identified Caution Zone jobs to determine which of these involve hazards with criteria that requires ergonomic controls.
- The analysis may be completed by the steering committee, by a selected team of workers or by a combination of personnel.

NOTE: Under this plan, all Caution Zone jobs will not require ergonomic control. Only when the job risks, frequency and duration *exceed* a specified level of criteria is it classed as a hazard.

*Example: Work while squatting more than **2 hours** total per day identifies a Caution Zone job. Not until work while squatting totals more than **4 hours** per day is ergonomic control required.*

- The steering Committee should tally and list priority job tasks for risk reduction.



Safety

STEP FIVE: Invite Crew Member Input on Risk Reduction at Meetings:

- Discuss Caution Zone jobs in need of modification with affected crewmembers.
- Provide a checklist for employee discussion and brainstorming of hazard reduction ideas:
 - Changes in tools or material handling equipment;
 - Use of Personal Protective Equipment;
 - Reducing the size and weight of loads being handled;
 - New policies for task variety or job rotation;
 - What’s being done on other jobsites that works?

STEP SIX: The Steering Committee Plans & Prioritizes Hazard Reduction Strategies:

- Include senior management representatives, if they are not already on the steering committee.
- Discuss crewmembers’ hazard reduction ideas as well as general research recommendations.
- Estimate and consider feasibility and the cost/benefit of suggestions.
- Prioritize and assign risk reduction strategies for trial groups (by craft, crew or project).
- Establish a time period for trial tests of new equipment, procedures or policies.
- Reduce ergonomic exposures below hazardous levels or to the extent technologically and economically feasible.

NOTE: Under the Washington Code, employers are not required to change work procedures if they can show this would create a significant financial hardship on the firm.

STEP SEVEN: Announce Company Wide Application of Successful Trial Teams:

- Assign successfully tested ergonomic practices to be carried out company-wide.
- Emphasize continued employee suggestions (be sure to *respond* to all suggestions!)

- Include ergonomic awareness training for all new and transferred employees in Caution Zone Jobs, unless training has been received within the past three years.

A Sample Caution Zone Inventory Checklist – The checklist that follows this article can be used during an inventory of tasks in order to identify Caution Zone jobs. This checklist will also be found on the Washington State Internet address listed at the end of this article. A second “Hazard Zone Checklist” provides a worksheet for determining if a “caution zone job” is classed as a “hazardous job” and qualifies as one that requires ergonomic intervention (i.e. the criteria for hazard intervention relates to *duration* of the work task).



Ergonomic Web Resources:

<http://www.eig.com/healthsafety.html> : SeaBright’s Health & Safety links, provide you quick access to many sites relevant to ergonomics.

http://www.lni.wa.gov/wisha/ergo/eval_tools: This Web address will lead you directly to the Caution Zone and Hazard Zone checklists which are appended to this article.

<http://www.lni.wa.gov/wisha/ergo/>: In addition to the worksheets listed above, Washington State’s Ergonomic Web Page provides many links to ergonomics information both from inside the agency as well as from nationwide sources.

www.ergoweb.com: This resource center offers case studies in correcting ergonomic hazards, software for assessment and documentation, training services and a long list of reference materials.

<http://www.osha.gov/ergonomics/> : Ergonomics Strategies for Success. This is OSHA’s main page to their ergonomics data and information.

www.cdc.gov/niosh/elcosh/: The Electronic Library of Construction Occupational Safety & Health offers a wealth of ergonomic information.

<http://www.ergonomicsafety.net/>: The Port Townsend Paper Corporation’s Website describes the history, methods and successes of their ergonomics program that is specific to construction. If you look under “hazard” then “musculoskeletal,” you’ll find many links to articles, abstracts and specific ergonomic solutions.