

Colorado State University

Ergonomics Process Procedure

Purpose Statement

Colorado State University (CSU) recognizes the importance of ergonomics and the prevention of musculoskeletal disorders (MSDs) and is committed to creating a safe and healthy workplace for its employees. In order to protect our most valuable resource -- our employees, CSU recognizes that appropriate ergonomic changes must be made to new and existing tools, equipment, environments, work stations and work practices and is committed to reducing and/or eliminating high MSD risk exposure to the extent that is financially and technically feasible. The ergonomics program applies to all work operations, regardless of where they take place.

Employees have a responsibility to maintain a safe work environment and to use tools, workstations and equipment appropriately, identify and report ergonomic related hazards and play a role in the ergonomics and injury prevention process.

A successful ergonomics process ensures that solutions to musculoskeletal risks can be implemented to improve the workplace. The Office of Risk Management & Insurance at Colorado State University has implemented an ergonomics process that includes the following components:

- A written ergonomics program
- Designated program administrator
- Process for identification and prioritization of high-risk jobs and tasks
- Training for management, supervisors, and employees
- Implementation of control measures and follow-up evaluation
- A process for early intervention and medical management

Suggestions for program improvement are encouraged regularly as we are dedicated to the success of the Ergonomics Process. We strive for safe and efficient work practices and involvement in the program from employees at all levels of the university.

Purpose

The National Institute for Occupational Safety and Health (NIOSH) defines ergonomics as designing tasks, workspaces, controls, displays, tools, lighting, and equipment to fit the employee's physical capabilities and limitations. The purpose of the CSU Ergonomics Process is to apply ergonomic principles to the workplace in an effort to improve the health and well-being of employees and reduce the frequency and severity of ergonomics related injuries [commonly called musculoskeletal disorders (MSDs)] while maintaining or increasing productivity, quality, and efficiency. An ergonomically-designed work environment maximizes employee comfort while minimizing the risk of undue physical stress that often leads to MSDs. All employees, including supervisors and managers, are responsible for making every effort to reduce the risk for injury to an acceptable level and should work collaboratively to ensure that workstations, tools, equipment, and work practices have been properly assessed for injury risks factors, that appropriate actions are taken, and proper controls are implemented to the extent financially and technically feasible.

All employees should understand and follow the minimum procedures outlined in this document.

Scope

Colorado State University strives to provide a safe and healthy workplace through the identification, evaluation, and control of risks factors in the workplace that lead to soft tissue injuries or musculoskeletal disorders (MSDs). Prevention of these ergonomic-related injuries occurs through the evaluation of workstations, tools, equipment, and work practices, the education of employees, and implementation of ergonomic control strategies. This proactive Ergonomics Process is a collaborative effort that includes employees at all levels of the university. The Administrator of the Ergonomics Program (housed in the Office of Risk Management & Insurance) is responsible for the program's implementation, management, and recordkeeping. Responsibilities are further outlined below.

Responsibilities

Upper Management Leadership

Upper management leadership teams at CSU are committed to the ergonomics process and support the efforts of the Program Administrator. Upper management leadership teams within individual departments will:

- Provide support (time, resources, etc.) for all employees to complete ergonomics awareness training.
- Provide support (time, resources, etc.) for employees to take part in ergonomic evaluations, attend meetings, brainstorming and solution finding and development sessions (as needed).
- Provide financial support (to the extent that is financially and technically feasible) to make necessary changes for the job improvement process.
- Provide leadership and support for the ergonomic evaluation process and the identification and control of ergonomic risk factors.
- Enable managers, supervisors, and employees to accomplish their objectives and fulfill their roles and responsibilities in the ergonomics process.
- Support a process of musculoskeletal disorder (MSD) reporting and respond promptly to reports.
- Regularly communicate with employees about the process.
- Ensure accurate record keeping and review and track the progress of the ergonomics process.
- Ensure that a system is in place for employees to report MSD signs or symptoms as well as suspected work-related injury risk factors.
- Review ergonomics documentation and provide support to managers and supervisors to implement necessary and feasible changes.
- Provide visible support and reinforcement of the process.
- Ensure supervisors and employees are held accountable for their roles and responsibilities of the program.

Program Administrator

The Program Administrator will be responsible for the ergonomics process and this procedure and will report progress to upper management in Risk Management & Insurance as well as upper management leadership teams within a department (as applicable). All evaluations and training will be coordinated under the direction of the Program Administrator in collaboration with department leadership teams as applicable. The Program Administrator will:

- Establish overall university wide program goals, objectives, and scope of the ergonomics process.
- Establish department specific program goals, objectives, and scope of the ergonomics process in collaboration with departmental upper management leadership teams (as needed).
- Monitor the results of the program to determine additional areas of focus as needed.
- Provide ergonomics awareness training to all employees (upper management leadership teams, managers, supervisors, and employees).
- Provide training to employees who serve on an ergonomics team to perform basic ergonomic evaluations (where applicable). Training will include but is not limited to, signs and symptoms of injury, proper reporting of pain, discomfort, and injuries, awareness of ergonomics, and use of ergonomic analysis tools.
- Facilitate meetings (where necessary) for departmental ergonomic champions and employees who serve on an ergonomics team.
- Collaborate with departments regarding the identification of risk and the implementation of mitigation strategies.
- Facilitate meetings and brainstorming/solution building sessions, discuss ergonomics evaluations performed, etc. with upper management leadership teams, managers, and supervisors.
- Provide in depth/comprehensive ergonomic analysis for difficult job tasks (where necessary) and provide recommendations for mitigation of ergonomic risk.
- In collaboration with departmental leadership, schedule ergonomics training and maintain records.
- Track ergonomic evaluations performed, injury risk scores, changes implemented, level of risk reduction, etc.
- Collaborate with departments to ensure roles and responsibilities of the ergonomics team have been assigned (if applicable).
- Follow up on the implementation of ergonomics strategies and/or solutions implemented to determine effectiveness of solutions.
- Help ensure that control measures are implemented in a timely manner.
- Ensure that a system is in place for employees to report MSD signs or symptoms as well as suspected work-related risk factors to managers and/or supervisors.
- Ensure accurate record keeping, review, and track progress of the entire ergonomics process.

Managers and Supervisors

Managers and supervisors will:

- Remain accountable for the health and safety of all employees within their departments through the active support of the Ergonomics Program.
- Attend ergonomics training to familiarize themselves with the elements of the program, recognition and control of work-related ergonomic risk factors, MSD signs and symptoms, early reporting requirements and procedures.
- Ensure that employees have received the appropriate training.
- Ensure that recommended controls are implemented and used appropriately.
- Provide employees with and ensure the use of the appropriate workstations, tools, equipment, etc.
- Support a process of musculoskeletal disorder (MSD) awareness and reporting and respond promptly to reports of exposure to risk factors, pain, discomfort, and injury.
- Provide appropriate workers' compensation documentation to employees as required by state regulations.
- Maintain clear communication with employees.
- Reinforce and recognize safe work practices.
- Provide support (time, resources, etc.) for all employees to complete ergonomics awareness training.

- Provide support (time, resources, etc.) for employees to take part in ergonomic evaluations, attend meetings, brainstorming and solution finding and development sessions (as needed).
- Provide leadership and support for the ergonomic evaluation process and the identification and control of ergonomic risk factors.
- Enable employees to accomplish their objectives and fulfill their roles and responsibilities in the ergonomics process.
- Regularly communicate with employees, provide visible support and reinforcement of the process.
- Review ergonomics documentation and provide support and assistance with the implementation of changes.
- Ensure employees are held accountable for their roles and responsibilities of the program.

Employees

Every employee of Colorado State University is responsible for conducting himself/herself in accordance with this procedure and program. All employees will:

- Use the appropriate tools, equipment, parts, materials and procedures in the manner established by managers, supervisors and the program administrator.
- Ensure that equipment is properly maintained in good condition and when not, report it immediately.
- Provide feedback to managers and supervisors regarding the effectiveness of design changes, new tools or equipment, and other interventions.
- Help identify ergonomic risk factors and promptly report ergonomic hazards/risk factors to supervisors, management, ergonomics program administrator or a departmental ergonomics team member (if applicable).
- Attend ergonomics training as required and apply the knowledge and skills acquired to actual jobs, tasks, processes and work activities.
- Have a clear understanding of the basics of occupational ergonomics and be able to identify ergonomics or MSD hazards.
- Promptly report work-related MSD hazards/injury risk factors to a manager, supervisor or the Ergonomics Program Administrator as early as possible to initiate proactive interventions.
- Promptly report MSD signs or symptoms to a manager, supervisor or the Ergonomics Program Administrator as early as possible to receive medical treatment if necessary.
 - Employees who file a workers' compensation incident or 1st report of injury should follow all applicable CSU and state of Colorado workers' compensation requirements.
- Assist upper management leadership teams, managers, supervisors and the ergonomics administrator with finding, testing, and implementing feasible solutions.
- Follow ergonomics guidelines and safe work instructions.

Employee involvement is an essential element to the success of the Ergonomics Program. Employees will be solicited for their input and assistance with identifying ergonomic risk factors, worksite evaluations, development and implementation of controls, and training. Employee participation in the program will occur only during work time.

Employee Training

Training is intended to enhance the ability of managers, supervisors, and employees to recognize work-related ergonomic risk factors and to understand and apply appropriate control strategies. Training should ideally take place in the following situations (where feasible).

- For new employees.
- For employees assuming a new job assignment.
- When new jobs, tasks, tools, equipment, machinery, workstations or processes are introduced.
- When high exposure levels to ergonomic risk factors have been identified.
- Any other situation deemed appropriate.

The training for all managers, supervisors, and employees should include but is not limited to the below elements.

Training for each group will vary based on role and responsibility level within their department.

- Knowledge of ergonomics and the process at CSU.
- Purpose of the ergonomics program (reduce ergo related injuries and associated costly claims).
- Roles and responsibilities within a department.
- Knowledge of how ergonomics injuries occur.
- Awareness of ergonomic injury risk factors and other causes of ergonomic related injuries or MSDs.
- Knowledge of MSD signs and symptoms and consequences of injuries caused by work and non-work-related risk factors.
- Recognition of how to report of MSD signs and symptoms and the importance of early reporting.
- The methods used by Colorado State University to minimize ergonomics injury risk factors (i.e., engineering controls, administrative controls and any appropriate personal protective equipment).
- Importance of early reporting and follow up.

Training will be provided in one, or a combination, of the following formats:

- Instructor-led training
- Online training
- Videos
- Hands-on equipment and work practice demonstrations

The Ergonomics Program Administrator will provide training for employees, supervisors, and upper management leadership teams. The Ergonomics Program Administrator will maintain record of all training sessions, dates, and employees in attendance.

Identifying Jobs with Ergonomic Risks

Colorado State University will use both passive and active surveillance to identify jobs with ergonomic risks.

- Passive surveillance involves conducting a records review, which looks at workers' compensation claims. Records may also indicate a frequency of worker complaints due to undue strain, fatigue or pain, or show a history of high turnover in certain departments or positions.
- Active surveillance uses observations, interviews, surveys, questionnaires, checklists and formal worksite evaluation tools to identify specific high-risk jobs tasks and activities.
- Ergonomic risks will be identified through both qualitative and quantitative evaluation techniques.

Ergonomic Risk Assessments (ERA's)/Ergonomic Evaluations

Ergonomic Risk Assessments (ERA's) or Ergonomic Evaluations are a critical component of the Ergonomics Program. The purpose of an ERA is to recognize and identify MSD hazards and quantify the risk (where feasible). When MSD hazards or ergonomic risks are identified, control measures should be implemented to minimize or eliminate exposure to the hazards to the extent financially and technically feasible. ERA's may be triggered by any of the following:

- An employee reports an MSD sign or symptom. Both written and verbal reporting are acceptable.
 - Employees who file a workers' compensation incident report or 1st report of injury should follow all applicable CSU and state of Colorado workers' compensation requirements. See the Medical Management section for additional details or the CSU Workers' Compensation website.
- Jobs, processes or work activities where work-related ergonomic risk factors have been identified which may cause or aggravate MSDs.
- Any change of jobs, tasks, equipment, tools, processes, scheduling or changes in work shift hours.
- When a safety walk-through or scheduled inspection or survey uncovers potential MSD hazards.

Employees and/or supervisors can request an evaluation on the ergonomics website.

<http://rmi.colostate.edu/ergonomics/ergonomic-evaluation-request/>

Risk Factors

Work-related risk factors to be considered in the evaluation process include, but are not limited to:

- Physical risk factors including force, postures (awkward and static), static loading and sustained exertion, fatigue, repetition, duration, and contact stress.
- Administrative issues including job rotation/enlargement, inadequate staffing, excessive overtime, inadequate or lack of rest breaks, stress from deadlines, lack of training, work pace, work methods and psychosocial issues.
- Environmental risk factors including noise, lighting, glare, temperature, humidity and personal protective equipment and clothing, extreme temperatures and vibration.
- Combination of risk factors such as, but not limited to, highly repetitive, forceful work with no job rotation.

Evaluation Priorities

Ergonomic evaluations should be requested and completed as quickly as possible; however, completion will depend largely on available time, resources, etc. When a constraint exists, ERA's should be scheduled based upon the following priorities:

- Any job, process, operation or workstation which has contributed to a work-related injury.
- A job, process, operation or workstation that has historically contributed to a work-related injury.
- Specific jobs, processes, operations or workstations that have the potential to cause a work-related injury.

ERA/Ergonomic Evaluation Methods

Various methods will be used to evaluate problem jobs including but not limited to:

- Walk-through and observational assessments including video
- Employee interviews
- Surveys and questionnaires
- Checklists
- Detailed worksite evaluations
- Picture and video analysis, motion capture, etc.
- Use of wearable technology (where applicable and feasible)

Controlling Ergonomic Hazards

Colorado State University will take steps to identify ergonomic risk factors and reduce hazards by using a hierarchy of control (in order of preference). This is a very common method of controlling any hazard in the workplace and is listed below:

1. **Engineering controls.** The most desirable and reliable means to reduce workplace exposure to potentially harmful effects. This is achieved by focusing on the physical modifications of jobs, workstations, tools, equipment or processes. Engineering controls should be implemented first, before other methods of control are investigated or implemented. When engineering controls are infeasible (technically or financially) alternative controls should be reviewed.
 - a. **Workstation Design:** Workstations should be made easily adjustable when possible either designed or selected to fit the task and meet the capabilities of employees, so they provide comfort and decrease the risk for injury.
 - b. **Work Method Design:** Work methods should be designed to reduce static, extreme or awkward postures, repetitive motion and excessive force.

- c. **Tool and Handle Design:** A variety of sizes should be available to achieve proper fit and reduce ergonomic risk wherever possible. The appropriate tool should be available and used to do a complete a specific job.
2. **Administrative controls.** This includes controlling or preventing workplace exposure to potentially harmful effects by implementing administrative changes such as job rotation, job enlargement, rest/recovery breaks, work pace adjustment, redesign of methods and worker education. Job rotation should ideally be used in conjunction with quantitative ergonomic risk assessments (ERA) or other means of quantify injury risk to ensure that rotation of employees between jobs does not create an unintended problem.
3. **Personal protective equipment (PPE).** Although not recognized as an effective means of controlling ergonomic hazards and does not take the place of engineering or administrative controls; however, there are forms of PPE which can make employees more comfortable, e.g., kneepads, anti-vibration gloves, etc.

Medical Management

Colorado State University provides Workers' Compensation for workplace injuries or illnesses and provides wage replacement and medical benefits to employees injured in the course and scope of employment. See the Workers' Compensation website for additional details. <http://rmi.colostate.edu/workers-compensation/>

Reporting

Should an employee feel that medical treatment is needed, they should follow the appropriate steps in filing a First Report of Injury via CSU's Workers' Compensation online reporting system - <http://rmi.colostate.edu/workers-compensation/>. Reporting should be done as quickly as possible following the employee's first signs or symptoms of injury. Employees experiencing signs or symptoms of ergonomic related injuries or MSDs are encouraged to report these to their supervisor *immediately*.

See the [CSU Workers' Compensation website](http://rmi.colostate.edu/workers-compensation/) for additional details or contact the Program Manager.

An ergonomic evaluation or ERA can be requested by submitting a request on the ergonomics website - <http://rmi.colostate.edu/ergonomics/ergonomic-evaluation-request/>. A work-related injury and workers' compensation claim does not need to be filed/deemed work related to have an ERA completed. ERA's are free of charge to faculty, staff, and students.

See the [CSU Ergonomics website](http://rmi.colostate.edu/ergonomics/) for additional details or contact the Program Manager.

Periodic Program Review

The Program Administrator will conduct a program review as needed to assess the progress and success of the program. The review will consider the following:

- Evaluation of training programs and records
- The need for retraining of managers, supervisors, and employees
- The jobs, processes, or operations which have produced a high incidence rate of work-related ergonomic injuries.
- The jobs, processes or operations which have the highest risk of work-related ergonomic injuries.
- The length of time between a request for an ergonomic evaluation and the actual evaluation.
- The length of time between the beginning and completion of implementation of controls
- The program's success based upon comparison to previous years (i.e. number and type of lost workdays), cost of workers' compensation cases related to ergonomics, employee feedback through direct interviews, walk-through observations, written surveys and questionnaires, and reevaluations
- Other areas deemed necessary

Record Retention

Colorado State University - Office of Risk Management & Insurance will maintain the ergonomics evaluation and training records for at least five years. All medical records will be maintained by the Risk Management Workers' Compensation office in compliance with the State of Colorado requirements.

Revision History

Tuesday, August 3, 2021

Appendix A – Glossary of Terms

Administrative controls: procedures for safe and proper work that are used to reduce the duration, frequency or severity of exposure to a hazard. They include work methods training, job rotation and gradual introduction to work.

Awkward posture: deviation from the ideal working posture of elbows at the side of the torso, with the wrists neutral. Awkward postures typically include reaching behind, twisting, forward or backward bending, pinching and squatting.

Engineering controls: a method of controlling worker exposure to risk factors by redesigning equipment, tools and work stations.

Ergonomics team: those responsible for identifying and correcting musculoskeletal hazards in the Industrial Ergonomics Program.

Fatigue: a condition that results when the body cannot provide enough energy for the muscles to perform a task.

Force/Forceful exertion: the amount of physical effort a person uses to do a task.

Vibration: vibration (generally from a hand tool) that goes through the hand then travels through the rest of the body.

Hazard prevention and control: eliminating or minimizing the hazards identified in the worksite analysis. It is changing the jobs, workstations, tools or environment to fit the worker.

Incidence rate: the rate at which new injuries and illnesses occur for a given job, production line, work area, department or company.

Contact stress: the contact of the body with a hard surface or edge that results in the compression of tissue. This can also result when using a part of the body as a hammer or striking instrument.

Medical management: the effective use of available healthcare resources to prevent or manage work-related musculoskeletal disorders.

Musculoskeletal disorders (MSDs): illnesses and injuries that affect one or more parts of the musculoskeletal system.

Musculoskeletal system: the bones, muscles, tendons, ligaments, cartilage, nerves and blood vessels in the human body.

Neutral posture: comfortable working posture that reduces the risk of musculoskeletal disorders. The joints are naturally aligned with elbows at the side of the body and wrists straight.

Personal protective equipment (PPE): gloves, kneepads and other equipment that may help reduce hazards until other controls can be implemented, or to supplement existing controls.

Records review: reviewing company records to identify patterns of injuries (or potential injuries) to help find the jobs and workstations that may contain musculoskeletal hazards.

Repetition: performing the same motions repeatedly. The level of risk associated with a particular task depends on the frequency of repetition, speed of the movement or action, the number of muscle groups involved, and the required force.

Risk factors: an aspect of a job that increases the worker's chance of getting a work-related musculoskeletal disorder.

Severity rate: the cost in terms of lost workdays (or dollars) of new injuries and illnesses occurring in a given job, production line, work area, department or company.

Static loading/sustained exertions: physical effort or posture that is held and requires muscle contraction for more than a short time. As muscles remain contracted, the blood flow to the muscles is reduced.

Ergonomic Risk Assessment (ERA) or Ergonomic Evaluation: an analysis that addresses work-related musculoskeletal disorders (in addition to other factors) which helps identify jobs, tasks, tools, equipment, and workstations that may contain musculoskeletal hazards, the risk factors that pose the hazards, and the causes of the risk factors.

Appendix B – Annual Evaluation Report

Date of evaluation:	Evaluated by (list all present):
Written program reviewed: Yes No	
Do injury records indicate a need for additional employee training on the Industrial Ergonomics Program? Yes No	
Have any jobs, processes, or operations produced a high incidence of work-related MSDs? Yes No	
If yes, list:	
Is there any record of excessive time between:	
1. A request for an ergonomic evaluation and the actual evaluation?	
Yes No	
2. The point at which the results of the evaluation are known and when implementation of controls begin?	
Yes No	
3. The beginning and completion of implementation of controls?	
Yes No	
If yes, what corrective action is needed?	
Comments:	

Appendix C – Ergonomics Training Record

All records of ergonomics training are kept electronically by the Office of Risk Management and Insurance. Individual employees may access their training records at the below website.

<http://www.ehs.colostate.edu/> (click *EHS's Portal Login* then click the *My Training* tab)