



Ergonomics

North Carolina Central University provides ergonomic assessment and guidance to improve the health of its employees and prevent injuries. The use of proper ergonomic measures can eliminate or mitigate the risk of work-related musculoskeletal disorders.

Definitions

Ergonomics

Fitting the job to the person. Scientific discipline concerned with understanding the interactions among humans and other elements of a system and the application of theories, principles, data and methods in order to optimize human well-being and overall system performance.

Ergonomic Stressors

Conditions that create biomechanical stress to the human body and are associated with an increased risk for development of musculoskeletal disorders.

Musculoskeletal Disorders (MSD)

Musculoskeletal disorders (MSDs) are disorders of the muscles, nerves, tendons, ligaments, joints, cartilage and spinal discs. MSDs do not include disorders caused by slips, trips, falls, motor vehicle accidents, or other similar accidents. Examples of MSDs include: carpal tunnel syndrome, rotator cuff syndrome, De Quervain's disease, trigger finger, tarsal tunnel syndrome, sciatica, epicondylitis, tendinitis, Raynaud's phenomenon, carpet layers' knee, herniated spinal disc, and low back pain.

Work-related Musculoskeletal Disorder Hazard (MSD Hazard)

Work activities and/or work conditions in which ergonomic stressors are present that are reasonably likely to cause or contribute to an MSD.

Ergonomic Process

The number and severity of MSDs in the workplace and their associated costs can be substantially reduced by applying ergonomic principles. The following are important elements of an ergonomic process:

- **Provide Training** - Training is an important element in the ergonomic process. It ensures that workers are aware of ergonomics and its benefits, become informed about ergonomics related concerns in the workplace, and understand the importance of reporting early symptoms of MSDs.
- **Identify Risks** - An important step in the ergonomic process is to identify and assess ergonomic problems in the workplace before they result in MSDs.
- **Encourage Early Reporting of MSD Symptoms** - Early reporting can accelerate the job assessment and improvement process, helping to prevent or reduce the progression of symptoms, the development of serious injuries, and subsequent lost-time claims.
- **Implement Solutions to Control Hazards** - There are many possible solutions that can be implemented to reduce, control or eliminate workplace MSDs.
- **Evaluate Progress** – Periodic assessment of the effectiveness of the ergonomic process is necessary to ensure its continuous improvement and long-term success. Assessments should include determining whether goals set for the ergonomic process have been met and determining the success of the implemented ergonomic solutions.

Training

Environmental Health and Safety is developing an online ergonomic training to all employees as part of the New Employee Orientation program. The training program will include but not be limited to the definition of ergonomics, ergonomic stressors, types of MSDs, symptoms of MSD, reporting, and work strategy controls. These programs will also be added to the EHS web site for reference and training. Job specific ergonomic training programs can be presented to Departments upon request.

Identifying Risks

Ergonomic hazards can occur in many workplace settings and are not limited to jobs or tasks thought to be physically demanding.

Common Risk Factors

- Equipment layout and operation
- Environmental factors – poor lighting, noise, etc.
- Awkward posture
- Repetitive movements
- Substantial repetitive force
- Workstations (sitting and standing)
- Computer systems
- Lighting

Identifying early signs and symptoms of MSDs can lead to a quicker and easier recovery. Most of the time, catching these early on results in minimal required medical intervention and loss of work time.

Pain is the most common symptom associated with MSDs. In some cases, there may be joint stiffness, muscle tightness, redness, and swelling of the affected area. Some workers may also

experience sensations of “pins and needles,” numbness, skin color changes, and decreased sweating of the hands. MSDs may progress in stages from mild to severe.

- **Early stage:** Aching and tiredness of the affected limb occur during the work shift but disappear at night and during days off work. No reduction of work performance.
- **Intermediate stage:** Aching and tiredness occur early in the work shift and persist at night. Reduced capacity for repetitive work.
- **Late stage:** Aching, fatigue, and weakness persist at rest. Inability to sleep and perform light duties.

Not everyone goes through these stages in the same way. In fact, it may be difficult to say exactly when one stage ends and the next begins. The first pain is a signal that the muscles and tendons should rest and recover. Otherwise, an injury can become chronic, and sometimes, irreversible. The earlier people recognize symptoms, the quicker they should report and respond to them.

It is important that you report any signs or symptoms of MSD to your supervisor and EHS. EHS can work with you obtain a medical assessment and follow up with an assessment of the situation and ways to mitigate or eliminate the cause of the injury.

Solutions to Control Hazards

When an ergonomic hazard has been identified, the Environmental Health and Safety will work with the supervisor and individual to eliminate or minimize the hazard. There are two general approaches to controlling ergonomic hazards: Engineering and Administrative. In general, engineering controls are preferred as their goal is to reduce or eliminate the presence of the hazard.

Engineering Controls are changes made to the workstations, tools, and/or machinery that alter the physical composition of area or process.

Administrative Controls are changes made to regulate exposure without making physical changes to the area or process, for example taking frequent breaks and job rotations.

Responsibilities

All employees are responsible for attending completing ergonomics trainings, following proper work practices, and reporting signs of any MSD to a supervisor.

Departments are responsible for providing sufficient resources to implement ergonomic recommendations in a timely manner as well as ensuring that employees are properly trained and using proper work practices.

EHS is responsible for evaluating and monitoring the ergonomic program including assessing the nature and extent of ergonomic hazards, recommending ways of minimizing or controlling these hazards, and supporting the University in consultation and direction regarding ergonomics. The Environment, Health and Safety Office is also responsible for ensuring that training on ergonomics is available to all employees.