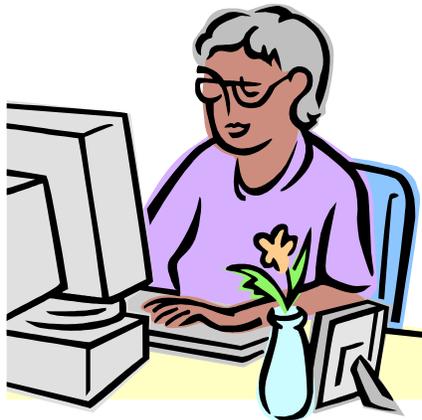




**Community Colleges of Ventura County  
333 Skyway Drive, Camarillo, CA 93010**

# **ERGONOMICS PROGRAM**



**May 2005**

# Ventura County Community College District

## ERGONOMICS PROGRAM

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### 1. PURPOSE

The purpose of this ergonomics program is to identify and eliminate potential work-related musculoskeletal disorder (**WMSD**) hazards in order to prevent employee injury. The program is intended to comply with California state regulations Title 8 CCR §5110 and selected sections of the current and proposed Federal regulations 29 CFR §§1910.900-1910.945 as well. Modifications to meet these requirements will be made to this program as changing laws dictate.

### 2. PROGRAM OVERVIEW

This program is divided into the following seven functional elements:

- **District and management leadership element**  
This element designates the responsible management personnel and summarizes the responsibilities of Risk Management, Human Resources and all managers and supervisors as described in this program.
- **Employee participation element**  
This element summarizes the responsibilities of employees in the program.

- **Hazard identification and information element**  
Describes procedures to identify work-related musculoskeletal disorders and hazards at District jobs and for providing information to employees.
- **Job hazard analysis and control element**  
Provides for job analysis on targeted job functions and measures to eliminate the hazards identified.
- **Training element**  
Provides for training supervisors and employees in targeted jobs.
- **Medical management element**  
This element describes the prompt and effective means to assure adequate medical care for injured employees in keeping with medical professionals' recommendations.
- **Program evaluation element**  
Describes the requirements for periodic program audits.

Additional information regarding specific work operations, program revision history, and current risk management procedures and forms are included in the appendices and maintained in the District Risk Management office.

The Ergonomic Workstation Evaluation sample forms also are part of this program and described within. Questions about this program can be directed to District Risk Management or District Human Resources.

### **3. DISTRICT AND MANAGEMENT LEADERSHIP ELEMENT**

#### Ergonomics Program Facilitator

The Ergonomics Program Facilitator is the person designated by the District Risk Manager who is responsible for the implementation and maintenance of this program as follows:

- Development and maintenance of employee training, self-evaluation, product recommendation, and product demonstration resources;
- Coordinating employee and supervisor training efforts;
- Conducting product reviews and answering employee questions related to ergonomics;
- Coordinating and prioritizing work-site evaluations throughout the District;
- Overseeing campus work site/ workstation evaluations by the Ergonomic Workstation Evaluators;
- Identifying and coordinating the evaluation of targeted work operations;
- Investigation of ergonomic injuries as necessary;
- Ensuring the implementation of corrective action plans resulting from targeted work operation and injury investigations;
- Conducting program evaluations;
- Communicating progress in the ergonomic program to management on a regular basis.

The Risk Management Department's procedures and this program are subject to review and modification by the Ventura County Community College District's Chancellor and Vice Chancellor of Human Resources.

### Supervisors and managers

Supervisors and managers are responsible for implementing and enforcing the provisions of this program, including:

- Understanding the risk factors associated with work-related musculoskeletal disorders and possible corrective actions;
- Ensuring employee participation in training efforts and self-evaluation procedures, including the provision of training for new employees;
- Working with employees to develop corrective actions and supporting their implementation through employee scheduling and the allocation of department funds;
- Applying reasonable accommodations for qualified injured employees, as necessary; and,
- Initiating employee self-evaluations or more formal Ergonomic Workstation Evaluations when ergonomic concerns are identified or reported.

Assistance for any supervisor or manager on ergonomic injury potential reduction is available from the Risk Management Department or through the Campus Ergonomic Workstation Evaluator on request.

### Ergonomic Workstation Evaluators

Campus Ergonomic Workstation Evaluators are volunteer employees, at each campus, who were specifically trained to understand symptoms and causes of work-related musculoskeletal disorders and are knowledgeable in the techniques of utilizing engineering or administrative solutions to correct problem workstations. The Ergonomic Workstation Evaluators are responsible for conducting employee workstation assessments in accordance with the following protocol:

- Formal employee workstation evaluation requests are directed through any of the following channels:
  - ✓ Requestor's immediate manager or supervisor (most usually)
  - ✓ Campus Human Resource Representative
  - ✓ Campus Safety Committee
  - ✓ District Risk Management office

Requests should be in writing and can be by memo or e-mail.

- Ergonomic Workstation Evaluator's review of employee's completed "Ergonomic Computer Workstation Self-Evaluation Checklist". (See Appendix A). The employee must complete and submit the self-evaluation checklist before any evaluation will be conducted.
- Assessment appointment is scheduled with both the Evaluator and Requestor's immediate supervisors' agreement.
- The completed evaluation report and recommendations are submitted to the evaluated employee's supervisor, and Ergonomic Program Facilitator.
- The supervisor may provide the requestor and management with a copy of the completed report.



The evaluation report and recommendations details are indicated in Section 10 and Appendix (B).

#### 4. EMPLOYEE PARTICIPATION ELEMENT



A key element in this program involves the employees' willingness to openly communicate problems and ability to cooperate with helping themselves. Employees are responsible for complying with the provisions of this program, including:

- Participating in training efforts and self-evaluation procedures;
- Working with the supervisor and Risk Management to develop corrective actions;
- Reporting ergonomic concerns and injuries to their supervisor as they arise;
- Following relevant safe work practices; and
- Understanding that activities both on and off the job can affect the potential for ergonomic injury.

Employees are encouraged to learn the ergonomic features of their tools and equipment. The best ergonomics workstation setup will be useless if the features are not utilized or worse defeated.

#### 5. HAZARD IDENTIFICATION AND INFORMATION ELEMENT

The purpose of this element is to proactively identify and correct ergonomic hazards before injury occurs. Ergonomic hazards awareness is addressed through the following process:

1. **Training.** The Risk Management office sponsors annual training to supervisors and employees which provides them with information on ergonomic risk factors, symptoms of injury, and how to identify and correct ergonomic hazards. Supervisors provide initial training for new employees until it can be supplemented with Risk Management or department sponsored sessions.
2. **Self-Evaluation.** After gaining knowledge of ergonomic issues, employees review their own work areas to identify problems and then work with their supervisor to develop corrective actions. Supervisors and employees are directed to the Risk Management office or Website or the Campus Ergonomic Evaluators for forms and additional information.
3. **Technical Assistance.** The Risk Management Office periodically reviews the latest ergonomic products on the market and develops purchasing guidelines and recommendations. Risk Management also makes selected products available for demonstration at selected campus workstations. Upon request, Risk Management provides product reviews and answers other questions related to ergonomic concerns.
4. **Work-site Evaluations.** If a supervisor and employee(s) cannot resolve ergonomic concerns in a given work area, the Risk Management office may be contacted to coordinate an evaluation and develop corrective actions. Evaluations are performed on an emergency or case-by-case basis and may involve outside experts and consultants.

##### General work operations

The above process applies to all employees involved in the following general work operations:

- **Office Operations.** Encompasses work associated with computers, desktop, phones, filing, and other general office tasks.
- **Industrial Operations.** Encompasses work associated with industrial trades, fine arts, and maintenance operations. Ergonomic hazards encountered commonly center around materials handling and repetitive motion tasks.
- **Lifting Operations.** Encompasses jobs requiring the lifting and movement of materials.

The resources developed to implement the hazard identification and information element are specifically tailored to each of the above general work operations.

### Targeted Operations

At the discretion of the Chancellor, Vice-Chancellor of Human Resources or the Ergonomics Program Facilitator, specific high-hazard operations may be targeted for evaluation. A record of these targeted operations and associated training and corrective action plans is maintained at the Risk Management office as a part of this program (see Appendix D).

### Risk Factors

Risk factors are those specific work place conditions and individual work practices and personal physical characteristics that contribute to the potential for work-related musculoskeletal disorders. While Ergonomic Evaluators are trained to assist managers and supervisors with identification of potential work-related musculoskeletal disorders, all employees are called upon to examine their job functions so as to reduce potential WMSD injury.

Risk factors may include, but are not limited to, the following:

- ✓ Excessive repetition and prolonged activities
- ✓ Forceful exertions
- ✓ Prolonged static posture of the body, trunk or extremities
- ✓ Awkward postures of the upper body including reaching above the shoulders or behind the back
- ✓ Continued physical contact with work surfaces, such as contact with the edge of a machine, desk or keyboard tray
- ✓ Activities in temperature extremes
- ✓ Inappropriate or inadequate hand or power tools
- ✓ Restrictive workstations, including workstations with inadequate clearances

Some jobs may include one or more of these factors and when combined with specific individual physical vulnerabilities, multiple causative factors need to be addressed.

### Employee Characteristics

Certain employee risk situations may have a higher probability of causing work-related musculoskeletal disorders and include:

- ✓ *New employee*: greater risk of musculoskeletal stress and injury because they are not physically conditioned for their new job and often push themselves harder to compensate. Additionally, such employees may be unfamiliar with the proper way of doing a job function.
- ✓ *Job transfer*: employee's new position may require the use of different muscles, tendons and joints than required by the previous job.
- ✓ *Overtime demands*: increase wears on the musculoskeletal system while reducing the body's opportunity to rest and repair.
- ✓ *Changes in work procedures*: changes in the physical demands made by automation, software programming, or retooling can put new and different demands on the body, especially when work changes become concentrated on specific body parts and tissues.
- ✓ *Personal factors*: include musculoskeletal risks outside the job. Cigarette smoking, previous injuries, alcohol use, aging, and diseases come with the employee from home to work.
- ✓ *Disabilities*: Consideration should be made for accommodating handicapped employees.



## 6. JOB HAZARD ANALYSIS AND CONTROL ELEMENT

The purpose of this element is to identify ergonomic hazards that have resulted in employee injury and ensure the development of corrective actions so that future injury can be avoided. Injuries are investigated through the following process:

1. **Identification.** The Ergonomics Program Facilitator reviews all new workers' compensation claims to identify injuries that may have been caused by an ergonomic hazard. Analysis of past claims is also factored into this review.
2. **Hazard Evaluation.** The Risk Management office performs an investigation of the injury and initial evaluation of the associated work operation.
3. **Corrective Action Plan.** The Ergonomics Program Facilitator develops a plan to control identified ergonomic hazards through training, workplace modifications and safe work practice procedures.
4. **Scope of Applicability.** The Ergonomics Program Facilitator reviews all other work operations within the District, which are similar to the operations associated with the injury. The corrective action plan is applied to these operations as appropriate.
5. **Follow-up.** The Risk Management office ensures that the corrective action plan has been successfully implemented in all affected work operations.

A record of Risk Management investigations is maintained as part of the Workers' Compensation claim files. Hazardous operations and associated corrective action plans developed through the hazard identification and information element are incorporated into the targeted operations section of the job hazard analysis and control element as appropriate (see Appendix C) maintained at the Risk Management office.

### Control Measures

Measures to correct or control ergonomic hazards may be:

- Appropriate engineering controls
- Appropriate work practices controls
- Personal protective equipment
- Administrative controls



All recommendations made to correct and reduce the potential for work-related musculoskeletal disorders will be in one or more of the above categories. They may include workstation redesign, equipment purchase or relocation, stress reducing devices, reassignment and rest pauses.

## 7. TRAINING ELEMENT

Training of employees overseen by the Ergonomics Program Facilitator and is achieved in several ways:

- All new hires that will be subject to work-related musculoskeletal disorders will receive initial training and awareness in WMSD hazards and control measures at the time of their new employee orientation.
- Voluntary annual training for all employees on how to recognize signs and symptoms of work-related musculoskeletal disorders and the importance of early reporting.
- At employee's request, specific re-training in workstation adjustments, proper posture, stretch exercises, lifting techniques and use of ergonomically designed products.

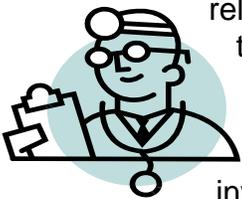
- As new work-related musculoskeletal disorders information becomes available it will be distributed to supervisors for inclusion into department safety meetings.
- Campus Safety Committee promoted work-related musculoskeletal disorders awareness programs, posters and flyers distribution.
- Distribution of ergonomic literature and changes in ergonomic regulations to all Ergonomic Workstation Evaluators, supervisors and Campus Safety Committees as it becomes available.
- Utilization of on-line ergonomics training modules.

### Stretch Break

The ergonomically designed “Stretch Break” computer program is available through Risk Management for any employee operating a computer workstation as a regular part of their job. The “Stretch Break” program automatically comes up at pre-programmed intervals and prompts the operator to take the planned 1-2 minute stretch exercises. This promotes greater ergonomic awareness, reduced stiffness and muscle aches. The software program may have to be installed by an Information Technology technician. See stretch exercises examples in this program.

## **8. MEDICAL MANAGEMENT ELEMENT**

Proper medical management is necessary to either eliminate or materially reduce the risk of work-related musculoskeletal disorders and symptoms through early identification and



treatment and to prevent future problems through development of information sources. Professional health care providers associated with the district are a vital part of the ergonomic team and response to their recommendations is considered essential to the proper application of this program. Health care professionals are invited to review their patient's work area for a better understanding of the specific job functions that may contribute to the employee injury.

This program establishes (or continues) the following management procedures for the prevention and treatments of work-related musculoskeletal disorders:

- A periodic workplace walk-through inspection to remain knowledgeable about operations and work practices, to identify potential problem jobs and to maintain close contact with employees.
- Symptoms surveys for identifying areas or jobs with potential work-related musculoskeletal disorder problems
- Identification of restricted duty jobs available to assist health care providers with potential temporary work assignments
- Employee ergonomic training and education
- Encouraging early reporting of symptoms
- Appropriate medical care
- Light-duty return-to-work program after an injury
- Periodic program evaluation

## **9. PROGRAM EVALUATION ELEMENT**

The Ergonomics Program Facilitator conducts a review of this program at least once every three years. This evaluation shall include at least the following:

- Some form of employee involvement and feedback regarding the effectiveness and practicality of the program;

- A review of regulatory changes to ensure the program is in compliance with current State and Federal regulations;
- An audit of the targeted operations listed in Appendix C to ensure that the associated corrective action plans are being implemented; and
- An assessment of the program's efficacy in reducing the frequency and severity of ergonomically related injuries.

## 10. ERGONOMIC WORKSTATION SELF EVALUATION PROCEDURE

See Appendix A. The self-evaluation of the employee's own workstation and can help discover areas in the work environment that may need ergonomic improvements. In the YES/NO space provided after each heading topic of the self evaluation form, the employee checks-off the opinion related to the topic to the best of his/her knowledge. The topic questions do not have a right or wrong answer since they are only observations and opinions. Discuss concerns with the supervisor. Add additional pages as necessary. This review must be completed before an Ergonomic Workstation Evaluator conducts an assessment of the workstation. This will assist the Ergonomic Workstation Evaluator with problem areas and potential solutions. Employees can find additional information in the Risk Management section of the District's website or contact your Campus Safety Committee.

To help with the employee's ergonomic self-evaluation, please use the following general guidelines:

**Work Surfaces:** If possible, all work surfaces should be the same height, so that one chair can be used for all the work surfaces.

**Chair:** Proper chair height should be determined by sitting in the chair with feet flat on the floor, dropping arms down to the sides, then lifting forearms up so that they are parallel to the floor. The keyboard should be at this level. A good chair has the ability to be adjusted up/down, and the back support should be adjustable up/down and forward/backward. A good chair should also have five legs with casters, be sufficiently padded for comfort and provide lumbar support. If the chair has armrests, they should be adjusted to just below the parallel forearm to lend support when not actually keyboarding.

**Footrest:** With the chair positioned at the proper height, feet should be flat on the floor and thighs should be parallel to the floor. Thighs may angle slightly downward to front. Too much of an angle will cause pressure and pain in the thighs, throw a person forward in the chair, and make it very uncomfortable to sit. Thighs angled oppositely (upward) will put undue stress on the spine.

**Mouse:** The standard mouse should be immediately adjacent and at the same height as the keyboard, and at a right angle to the monitor screen. The wrist/arm may need to be supported in order to reduce fatigue. A mouse pad is required. Grip the mouse lightly.



**Computer Position:** The computer keyboard and monitor should always be located directly in front of the user. The top of the screen should be at eye level so that the head does not have to be bent backward or forward to see the screen. Eyeglasses may alter your head angle and screen distance.

**Wrist Rest:** After keyboarding for long periods, the wrists tend to bend down and rest on the front of the keyboard or desk. The wrists should never be bent while keyboarding or rest on the sharp angled edge of the desk.

**Phone:** The telephone should always be located within forearm radius (that is, with elbows at sides, the distance that can be reached). If the telephone is located outside of forearm radius then reaching is necessary and this can cause back, neck and shoulder problems. A telephone headrest could be used if the phone is used extensively and the hands need to be free to type, write and/or handle books and manuals.

**Copyholder:** When typing from copy, the copy should be at screen level. This reduces the neck, back and shoulder strain of looking down at document flat on the desk, then up to the monitor.

**Lighting:** Improper lighting can cause poor posture resulting in muscle and eye fatigue. There should be no glare on your monitor from natural or artificial light.

**Personal Work Practices:** Do you

Take adequate task breaks? For example, a task break means changing from typing to filing

Have physical symptoms/pains? Note the specific body part for the Ergonomic Workstation Evaluator

Do stretch exercises? Regularly? How often?

Routinely work overtime? Extent?

Wear bifocal glasses?



## 11. PROGRAM NOTES AND REFERENCES

This space is reserved for Department notes pertaining to specific modifications to individual situations. Add pages as necessary.

### References:

This is NIOSH's ergo site, with links into specific ergo topics.

<http://www.cdc.gov/niosh/topics/ergonomics/>

Information is available with free online previews at

<http://www.ergonomicstrainingprograms.com/>

<http://www.ergonomics.org/>

Additional ergonomic equipment information is also available at

<http://www.alimed.com/>

<http://www.wrea.com/>

<http://www.workriteergo.com/ergonomics/>

## Ergonomic Computer Workstation Self-Evaluation Checklist

Employee		Date	
Job Title		Phone	
Dept/Div		Campus	
Supervisor		Phone	

*This is a self-evaluation of your computer workstation that is designed to help identify items that may benefit from ergonomic improvements. This questionnaire must be completed before an Ergonomic Workstation Evaluator can conduct an assessment of your workstation. Please submit questions and suggestions, as needed. Additional information is available in the Risk Management section of the District's website, or you may contact your Campus Safety Committee. Check YES or NO.*

Chair/Seating	YES	NO	Sitting Posture	YES	NO
Adjustable back height			Chair back seems correct		
Adjustable seat height			Chair seat height seems correct		
Adjustable armrests			Chair seat depth seems correct		
5-Caster chair base			Back and seat tilt seem correct		
My feet rest flat on the floor			Armrest support seems correct		
My feet rest on a footrest			Chair (or adjustments) are broken		
Comments:					
Workstation	YES	NO	Features	YES	NO
Rectangular desk			Writing space within easy reach		
L or U shaped desk			Desk supplies within easy reach		
Computer cart			Under-desk space clear		
Desk height seems correct			Overhead shelf or bin(s) in use		
Comments:					
Monitor	YES	NO	Monitor Viewing	YES	NO
Monitor is centered for use			Top of screen is at eye level		
Monitor tilt seems correct			Distance to screen is 24–34 inches		
Screen images are clear			Desktop image fills screen		
Comments:					
Keyboard	YES	NO	Mouse	YES	NO
Keyboard is centered for use			Mouse is within easy reach		
Keyboard seems at proper height			Mouse at same level as keyboard		
Keyboard wrist rest in use			Mouse pad and wrist rest in use		
Phone			Document viewing	YES	NO
Phone is within easy reach	YES	NO	I view documents while typing	YES	NO
Phone is used 2½ hours per day			Document holder in use		
Comments:					
Environment	YES	NO	Work Practices	YES	NO
Proper lighting			I take task breaks and rest breaks		
Proper temperature			I do stretch break exercises		
Comments:					
Discomfort or Symptoms:					
Additional Questions/Suggestions:					

**COMPUTER WORKSTATION ERGONOMIC EVALUATION**

**Employee Name:** \_\_\_\_\_

**Date:** \_\_\_\_\_

<b>Job Activities:</b> (in hours per day)	Computer Use		Mouse use	
Work hours per day	Sitting		Punch/Staple	
Work hours per 2 weeks	Standing		Typewriter	
Driving	Filing		Calculator	
Walking	Copy/Fax		Handwriting	
Meetings	Phone use		10 key	
Comments:				

<b>Ergonomic Considerations</b>				<b>Recommendations</b>	
Workstation			YES	NO	Workstation
Rectangular desk		Adequate work space			
L or U –shaped desk		Adequate desk depth			
Adjustable counter		Adequate leg clearance			
Computer work table		Adequate storage			
Comments:					

<b>Keyboard / Mouse</b>			Yes	No	Keyboard / Mouse
Keyboard Tray		Adjustable Keyboard Height			
Keyboard Drawer		Keyboard Centered to User			
Desktop		Custom Mouse Used			
Wrist Guide		Mouse Easily Reached			
Comments:					

<b>Monitor / Documents</b>			Yes	No	Keyboard / Mouse
Monitor at eye level		Adjustable Monitor Height			
“ Above Eye Level		Documents on Desk			
“ Below Eye Level		Document Holder Available			
Monitor Centered		Document Holder Needed			
“ Angled in Corner		Special-size Documents			
Comments:					

<b>Miscellaneous</b>			Yes	No	Miscellaneous
Vision		Telephone			
No Correction		Held by Hand			
Glasses/Contacts		Held on Shoulder			
Bifocals/Progressive		Phone Cradle Used			
Glare/Reflection		Phone Headset Used			
Comments:					

Evaluation Conducted by: \_\_\_\_\_ Phone: \_\_\_\_\_

Employee Name \_\_\_\_\_

Date of Assessment \_\_\_\_\_

Workstation Features:				Employee Characteristics:			
Tile Floor		Carpeting		Wt:<250lb.		Dominance	R L
Concrete		Chair Mat		Wt:<250 lb.		Height:	Ft. In.

See back of page 1 for measurement diagrams

	Seating	Current	Needed	Workstation	Current	Needed
A	Seatpan Height			K	Floor to desktop	
B	Seatpan Depth			L	Floor to below desktop	
C	Armrest Height			M	Flr to top of keyboard	
D	Armrest Width			N	Flr to below keyboard	
E	Base of Scapula			O	Fingertips to floor	
F	Top of Shoulder			P	Monitor top to desk top	
G	Chair Back Height			Q	View Height Variance	
H	Seatpan Width			R	Viewing Distance	
I	Shoulder Width			S	Seat / Back Cushion	
J	Feet Spread			T	Footrest	

**Note: The NEEDED items above that have an "X" in the box were adjusted and achieved today**

To allow for proper work posture, the following changes are also recommended		
1	Reposition Equipment	
2	Reorganize Materials	
3	Rearrange Furniture	
4	Repairs/ Maintenance	
5	Other	
6	Recommended Equipment	

Employee Training: The assessment today included employee instruction regarding:					
Task Breaks		Stretching Exercises		Neutral Posture	
Rest Breaks		Range of Motion Exs.		Reduce Reach	
Stress Reduction		Off-the-job Activities		Reduce Rotation	
Comments					

**Employee Details:**

Job Title: \_\_\_\_\_ Time at Job: \_\_\_\_\_

Division/Department: \_\_\_\_\_ Phone Number: \_\_\_\_\_

Supervisor: \_\_\_\_\_ Phone Number: \_\_\_\_\_

Date Report Submitted: \_\_\_\_\_

\_\_\_\_\_  
Ergonomic Evaluator

\_\_\_\_\_  
Phone

**TARGETED WORK OPERATIONS**

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Work Operation	Location	Action Plan Summary	Reference	Target Date	Date Accomplished



## GLOSSARY OF TERMS

Abduction	Movement of a limb away from the body's midline axis, such as elevating the elbow or raising the arm to the side
Administrative Controls	Any procedure that significantly limits daily exposure by control or manipulation of the work schedule or manner in which work is performed. Administrative controls include but are not limited to job rotation, use of rest breaks or alternative tasks, job enlargement to increase task variability, redesign of work methods, and adjustment of work pace or number of repetitions.
ANSI	The American National Standards Institute. ANSI has been responsible for the development of design guidelines for computer workstations (ANSI/HFS 100-1988), and draft guidelines for ergonomics (ANSI Z365)
Anthropometry	The study of physical dimensions in people, including the measurement of human body characteristics such as size, breadth, girth, and distance between anatomical points. Anthropometry also includes segment masses, the centers of gravity of body segments, and the ranges of joint motion, which are used in biomechanical analyses of work postures.
Anti-Fatigue Mats	Mats or padding on the floor designed to reduce stresses on the feet and leg when standing for long periods. Cushioned insoles for shoes can be viewed as "portable anti-fatigue mats."
Awkward Posture	Any stressful or non-neutral body posture needed to perform work.
Back	The trunk of the body from below the neck (cervical spine) to the tailbone (sacrum). The back includes the upper and lower back.
Biomechanics	The study of the effects of internal and external forces on the human body in movement and rest.
Bursa	A small fluid-filled sac or space that may be inside a joint or lie under a bone or a muscle.
Bursitis	Bursae are lubricating pads separating tendons from bones in parts of the body. Bursitis results when a bursa is inflamed. The inflammation may be the result of repetitive or forceful exertions at that joint.
Carpal Tunnel	A tunnel-shaped arch formed by seven "carpal" bones in the hand near the wrist joint through which tendons, nerves and blood vessels pass to the hand.
Carpal Tunnel Syndrome	Impingement on the median nerve as it passes through the carpal tunnel. Symptoms often include pain, numbness, tingling, and weakness in the hand(s).
Contact Stress	Exposure of a body part to a hard or sharp surface repetitively or forcefully at a workstation or tool. Contact stress has been associated with Cumulative Trauma Disorders.
Continuous Work	Work activities that are sustained and uninterrupted, e.g., in dynamic work, the sustained pattern of work without rest or light effort breaks. Continuous work, especially when the work is demanding, results in earlier fatigue than does intermittent work.
Cumulative Trauma Disorder (CTD)	A CTD is a bodily injury associated with repeated biomechanical stress over time.

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DeQuervain's Disease	Inflammation of tendon coverings on the side of the wrist and base of the thumb which can result in swelling or pain when moving the thumb.
Discs	Gelatinous plate-shaped protectors that act as shock absorbers for the bones of the spine. Disc-related injuries to the back result from the deformation of the discs, including bulging and rupturing of the discs.
Engineering Controls	Physical changes to work stations, equipment, materials, production facilities, or any other relevant aspect of the work environment that reduce or prevent exposure to risk factors.
Epicodylitis	Tendonitis of the elbow ("tennis elbow").
Ergonomic controls	Interventions to eliminate or reduce the risk factors for musculoskeletal injuries.
Ergonomic Evaluation	The process of examining job functions, work methods and layout in order to identify potential risk factors and ergonomic solutions.
Ergonomic Risk Factors	Elements of a job or the method with which a job is performed that could contribute to the development of a musculoskeletal injury.
Ergonomics	A discipline that involves fitting the job to the worker and not the worker to the job. It is the science of adapting workstations, tools, equipment and job practices to be compatible with the individual worker and thus reduce the risk of injury due to risk factors.
Ergonomics Program	Application of ergonomics in a system that includes the following components: health and risk factor surveillance, job analysis and design, medical management, and training.
Extension	To straighten any joint of the body, neck or spine.
Fatigue	The reduction in performance ability caused by a period of excessive activity followed by inadequate recovery time. Muscle fatigue is accompanied by a buildup of lactic acid in the working muscle.
Flexion	To bend any joint of the body, neck or spine.
Forced Exertion	Placing excessive loads on muscles, tendons, ligaments and joints in order to perform work.
Ganglionic Cyst	A fluid-filled lump under the skin that can occur in the wrist as a result of DeQuervain's Disease.
Heat (Extreme)	Exposure of the human body to temperatures greater than 100° F.
Hyperextension	Straightening of joint of the body to its maximum limit (beyond 0° of flexion).
Job Rotation	Alternation of a worker's tasks with other tasks as a means of reducing specific stresses of repetitive or physically strenuous jobs.
Joint	A body part where two bones meet and are connected by ligaments.
Ligaments	Fibrous structures that connect bones to bones, providing support while allowing flexibility and movement.
Lower Extremity	The entire leg, including thigh, lower leg, ankle, foot and toes.

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Manual Handling	Manual Handling refers to any handling task involving the human body as the "power source." Manual Handling includes lifting, lowering, pushing, pulling, carrying, and holding.
Mechanical or Contact Stress	Pressure resulting from a body part resting against a hard or sharp surface
Median Nerve	The nerve that travels through the carpal tunnel of the wrist and services the thumb and first three fingers of the hand. Inflammation of the median nerve is the definition of carpal tunnel syndrome.
Micro-Trauma	Minute injuries caused by minor stresses and strains to the body's muscles, tendons and joints.
Muscle	Body tissue which contracts to produce movement or force.
Musculoskeletal Disorder	Clinically diagnosed repetitive motion injury or cumulative trauma disorder that can affect the muscles, tendons, ligaments, nerves, joints or supporting structures in the neck, back or extremities.  Examples of musculoskeletal disorders that may be work-related include: <ul style="list-style-type: none"><li>• Bursitis (often at knee or shoulder)</li><li>• Cervical Strain</li><li>• Epicondylitis (medial or lateral, at elbow)</li><li>• Hand-Arm Vibration Syndrome</li><li>• Low Back Pain</li><li>• Nerve Compression (including Carpal Tunnel Syndrome)</li><li>• Tendonitis (often at wrist, elbow or shoulder)</li><li>• Tenosynovitis (including DeQuervain's Syndrome)</li><li>• White Finger (Raynaud's Phenomenon)</li></ul>
Musculoskeletal System	System composed of bones, ligaments, tendons and muscles.
Neck Rotation	Turning the head to either side or from side to side.
Nerve	Transmitters of feeling and movement from body to brain.
Neutral Position	The body position which minimizes stresses on the body. Typically the neutral posture will be near the mid-range of any joint's range of motion.
Peripheral Nerve	A nerve that is located in one of the extremities (arms or legs).
Peripheral Nerve Injury	Any injury such as trauma or compression to a peripheral nerve that results in numbness or weakness in the areas of the body supplied by the nerve.
Personal Protective Equipment	Gloves, padding, or eye glasses, for example, worn and used for the purpose of controlling risk factors.
Pinch Grip	One of several types of grips which do not allow the hand to fully encircle the object being handled.
Posture Break	Alternating body positions to prevent muscular fatigue or strain.
Power Grip	A grip allowing the four fingers and thumb to encircle the object. This grip will generally maximize power on the part of the worker.

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Pronation	The action of rotating the forearm so that the hand is palm down.
Range-of-Motion	The full excursion or movement that a joint in the body is able to make.
Range-of-Motion Exercise	Moving a joint in the body through its available range, usually without Resistance.
Raynaud's Syndrome	A progressive color change of the fingers in response to cold or vibration, due to decreased circulation (also known as vibration syndrome or white finger).
Recovery Time	Work periods when task demands are light or when rest breaks are scheduled, permitting a person to recover from heavy effort work such as prolonged fixed postures.
Redesign	Changes to an existing workplace or to production equipment to make it suitable for more employees; also, the reexamination of job requirements and their patterns of occurrence. Redesign is more expensive than incorporation of ergonomic principles in the initial design of a job.
Repetitive Motion	Rapid or constant motion or motion patterns that stress specific body parts.
Rest Break	Interruption or cessation of work for up to 15 minutes to give the body a chance to recover.
Shoulder Adduction	Using the shoulder muscles to move the arm toward the center of the body or across the chest.
Shoulder Retraction	Using the shoulder muscles to pull the arm to behind the body.
Static Exertion	Static exertions refer to physical exertions (gripping, holding a posture) in which the same position or posture is held throughout the exertion (also referred to as "static loading").
Supination	The action of rotating the forearm outward so that the hand is palm up.
Sustained Posture	Prolonged muscular effort, without movement of the joints.
Task	A subunit of a job or the group of activities that accomplishes the work objective or job.
Task Break	Alteration of muscle force and posture by changing from one work activity to another.
Tendon	A firm, narrow band that attaches a muscle to the bone.
Tendonitis	Tendons connect muscles to bones. Tendonitis is the result of the inflammation of tendons at a body part.
Tenosynovitis	Swelling and inflammation of the sheath that surrounds certain tendons. The sheath produces a lubricating fluid for the tendon; tenosynovitis results from a decreased capacity to produce this lubricating fluid.
Trigger Finger	Tendons in the finger joints can swell due to overuse, "locking" the finger into a fixed position.

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Trunk Rotation	Turning the upper portion of the body to one side or the other while the lower portion of the body stays in the midline or rotates to the opposite side.
Ulnar Deviation	Bending the wrist towards the little finger side.
Upper Extremity	The entire arm, including upper arm, forearm, wrist, hand and fingers.
Vibration	The oscillatory motion of a physical body. Localized vibration, such as hand-arm vibration, is produced by contact with powered tools or equipment or with vibrating structures. Whole-body vibration occurs while standing or seated in vibrating environments or objects, such as trucks or heavy machinery.
Work Cycle	The work cycle consists of an exertion period and a recovery (or smaller exertion) period necessary to complete one sequence of a task, before the sequence is repeated.
Work Methods	The physical methods used to perform the tasks of a job, such as reaching, gripping, using tools and equipment, or discarding objects.
Work Recovery Cycles	The job pattern that defines how work is organized with respect to lighter tasks or rest. High work/recovery ratios, measured as continuous time on each type of activity, have higher potential for fatigue.
Workstation	The entire area accessed by a worker when performing a specific task or job cycle.