# Ergonomic Program

## Purpose & Scope

The purpose of an ergonomic program is to apply ergonomic principles to the workplace in an effort to reduce the number and severity of musculoskeletal disorder (MSD), thus decreasing workers' compensation claims and, where possible, increase productivity, quality, and efficiency. Any ergonomically sound work environment maximizes employee comfort while minimizing the risk of undue physical stress.

A proactive approach focuses on making changes when risks have already been identified, as well as incorporating ergonomics into the design phase of a new facility or process, into purchasing new equipment or tools, and into the contemplation of scheduling change. This program applies to all FSU employees and all related jobs and job tasks

## Definition

Musculoskeletal disorder (MSD) - are soft-tissue injuries caused by sudden or sustained exposure to repetitive motion, force, vibration, and awkward positions.

## Roles & Responsibilities

**EHS Officer / Professional** is responsible for the following:

- Ensures that a written program is in place
- Reviews the program periodically and monitors to ensure compliance with this program
- Oversees the effectiveness of the Ergonomic Program
- Serving as the primary resource or ergonomic guidance and related best work practices
- Conducting ergonomic assessment for university employees upon request and providing recommendations to minimize ergonomic hazards if applicable
- Providing recommendations, as requested or deemed necessary by FSU, to applicable university departments regarding tool, furniture, and equipment selection
- Providing ergonomic-related information (e.g. how to identify risk factors, proper workstation setup, safe lifting technique, etc.) to employees through training and education

**Manager/Supervisor** is responsible for the following:

- Ensures that employees comply with the guidelines established by this program
- Encouraging employees to complete ergonomics training
- Taking appropriate corrective action to mitigate ergonomic hazards
- Notifies the EHS Officer / Professional when new ergonomic hazards are introduced
- Providing employees with human assistance or lift assisting devices as necessary
- Permitting employees to request and participate in ergonomic assessments

**Employees** are responsible for the following:

- Comply with this program
- Reports ergonomic hazards to supervisor
- Utilize safe lifting techniques when carrying or moving objects
- Cooperates with EHS during ergonomic assessments

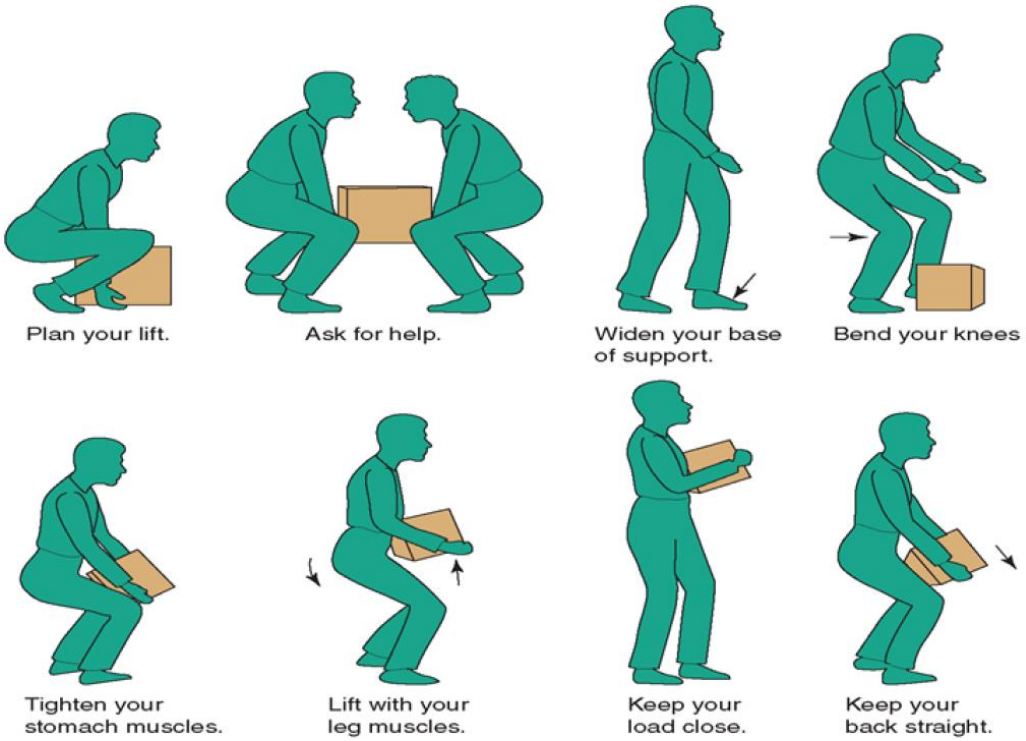
## Implementation

### Assessment and Control

*Self-Assessment*
FSU faculty and staff are encouraged to assess their workstation and/or job tasks using the Office (attachment 1), Laboratory (attachment 2), and/or Industrial Operations (attachment 3) Self-Assessment. If additional help is needed, employees may request an ergonomic assessment by contacting the EHS Officer / Professional at Safety@uncfsu.edu.

*Safe Lifting*
Consider the following when planning or performing manual lifting:

- Wear supportive shoes when lifting. Examples of unsupportive shoes include high heels, sandals, flip-flops, etc.
- Size up the load, its weight, shape, and position, and decide on the route and destination for the object prior to lifting.
- Human or mechanical assistance (e.g. team lifting, hand trucks, carts, dollies, forklifts, hoists, and wheelbarrows) should be used when carrying or moving heavy objects greater than 50 pounds or when an object is too large, awkward, or difficult to lift or move alone.
- If possible, reduce the size or weight of heavy or awkward objects by dividing the material or objects into more containers or pieces.
- Lifting belts or back belts shall not be used as personal protective equipment (PPE) for the purpose of preventing or reducing the risk of injury among uninjured employees. This requirement is based upon guidance specified by the National Institute of Occupational Safety and Health (NIOSH) Publication Number 94-127.
- Avoid carrying objects that obscure potential tripping hazards from view.
- Utilize safe lifting techniques.




*Worksite Evaluations*
Triggers for a worksite evaluation

- When an employee reports an MSD sign or symptom.
- 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 has uncovered potential MSD hazards.

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, contact stress, extreme temperatures, and vibration.
- Administrative issues including job rotation/enlargement, inadequate staffing, excessive overtime, inadequate or lack of rest breaks, stress from deadlines, lack of training, workplace, work methods, and psychosocial issues.
- Environmental risk factors including noise, lighting, glare, air quality, temperature, humidity, and personal protective equipment and clothing.
- Combination of risk factors such as, but not limited to, highly repetitive, forceful work with no job rotation or precision work done in a dimly lit room.

*Setting Priorities. Worksite evaluations will be scheduled based upon the following:*

- Any job, process, operation, or workstation which has contributed to a worker's current MSD;
- A job, process, operation, or workstation that has historically contributed to MSDs
- Specific jobs, processes, operations, or workstations that have the potential to cause MSDs.

*Ergonomic Assessment*
Upon request, the EHS Officer / Professional will conduct an ergonomic assessment (attachment 4) that may include employee interviews, walk-through and observations, evaluation of proper workstation setup, ergonomic equipment, the work environment, the rate and repetition of job tasks, an/or other work-related practices that may impact employee comfort or the likelihood of an ergonomic injury. If applicable, the EHS Officer / Professional will provide recommendations to minimize ergonomic hazards.

*Prevention and Control*
Departments shall implement feasible methods to mitigate ergonomic hazards. When correcting ergonomic hazards, departments shall prioritize controls or corrective actions in the following order:

- Engineering Controls: Implementation of a physical change to the workstation, tools, and/or machinery that eliminate/reduce the hazard of the job/task. Examples include using a device to lift heavy objects, repositioning tables, and redesigning tools.
- Administrative Controls: Changes made to regulate exposure without making physical changes to the area of process. Examples include job enlargement, job rotation, rest/recovery breaks, work pace adjustment, redesign of methods, and worker education.
- Work Practice Controls: Safe procedures and techniques such as proper lifting techniques, proper use of tools, and correct use of ergonomic equipment.
- Personal protective equipment (PPE): Protection to reduce exposure to ergonomic-related risk factors such as: kneepads, anti-vibration gloves, and thermal gloves.

*Ergonomic Office Equipment*
When University standards exist for specific furniture or equipment (e.g. chairs, sit-stand stations, keyboard trays), departments shall not purchase or acquire non-standard or restricted items without consulting with EHS and other applicable departments. They can also utilize the Purchasing Guide Checklist (attachment 5) to help them in their decision-making process.

**Ergonomic Injuries/Illnesses**

*Injury/Illness Investigation*
Employees shall report signs and symptoms of ergonomic-related injuries/illnesses to their supervisor. Ergonomic-related injuries/illnesses will be investigated by EHS in accordance with the Incident Prevention, Reporting, and Investigation Program. In addition, EHS may conduct a mandatory ergonomic assessment in response to reported ergonomic-related injuries/illnesses.

*Medical Treatment*
Employees who experience signs and symptoms of an ergonomic injury/illness shall communicate it to their supervisor. Supervisors will report this issue to HR who will initiate the incident reporting process.

## Information & Training

Ergonomic training is provided to all employees who may encounter workplace ergonomic hazards. At a minimum, training shall be given upon initial assignment, when employees assuming a new job assignment, when new jobs, tasks, tools, equipment, machinery, workstations, or processes are introduced, and when high exposure levels to ergonomic risk factors have been identified. The training includes the following information:

a) An explanation of FSU's ergonomic program and their role in the program.

b) A list of the exposures which have been associated with the development of MSDs.
c) A description of MSD signs and symptoms and consequences of injuries caused by work and non-work-related risk factors.
d) An emphasis on the importance of early reporting of MSD signs and symptoms and injuries to management.
e) The methods used by EHS to minimize work and non-work-related risk factors.

## Recordkeeping

The **EHS Officer / Professional** will:

- Provide ergonomic training and be responsible for maintaining training records. Records will include names of the individuals trained, type of training, date of training, and name of the trainer.
- Conduct Ergonomic Assessments and be responsible for maintaining records of those assessments. Records include the identity of the workplace or activity assessed, the name of the person(s) certifying that the assessment has been performed, and the date of the assessment.

## Annual Review

The Ergonomics Program will be reviewed by the **EHS Officer / Professional**. The annual review will include all documents associated with this program including completed Ergonomic Assessments. When new tasks, procedures, and/or positions are added or modified/revised which affect ergonomics, the Ergonomics Program will be updated immediately to reflect these changes.

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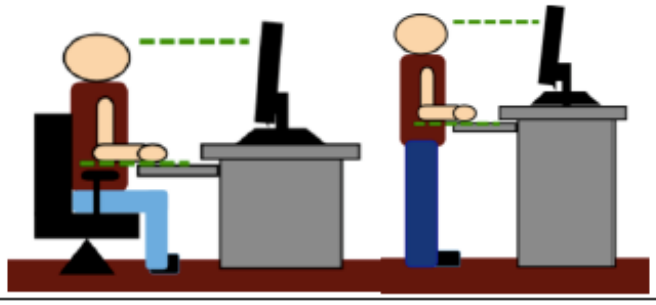
# Office Ergonomic Self-Assessment

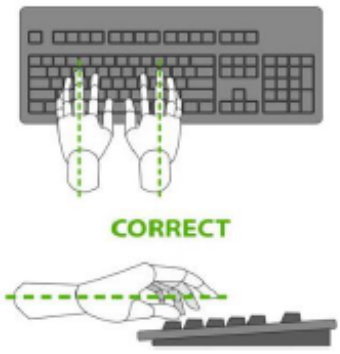
Go through this checklist while in your daily workstation and check "Yes" or "No" to the best of your ability. Any items checked "No" may need to be addressed and corrected according to the information provided in the Ergonomics Toolkit.

**Please Note:** By no means does this self-assessment substitute a medical diagnosis.

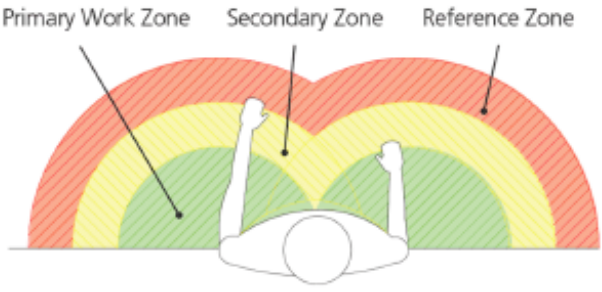
| **HEAD** | **YES** | **NO** |
|---|---|---|
| Are you facing straight ahead with your head in line with your shoulders? | | |
| Is your head about an arm's length away from your computer screen(s)? | | |
| **EYES** | | |
| Are your eyes level with the top 1/3 of your screen(s)? | | |
| Are your eyes free of strain due to glare or reflections from your screen(s)? | | |
| Do you rest your eyes using the 20-20-20 guideline? (Looking 20 feet away every 20 minutes for 20 seconds) | | |



| **SHOULDERS** | **YES** | **NO** |
|---|---|---|
| Are your shoulders relaxed? | | |
| **ELBOWS** | | |
| Are your elbows bent about 90° while typing? | | |
| Are your elbows level with your keyboard while resting on the chair armrests? | | |
| **HANDS** | | |
| Can you rest your hands evenly on the keyboard? | | |
| Is your keyboard centered directly in front of your screen(s)? | | |
| Is your mouse reachable and level with your keyboard? | | |
| Are you able to reach items that you use frequently without bending, twisting, or turning your whole body? | | |







| UPPER BACK | YES | NO |
|---|---|---|
| Can you rest your back comfortably against the chair's back rest at either an upright or slightly reclined angle? | | |
| **LOWER BACK** | | |
| Is your lower back supported by the chair's backrest? | | |

| HIPS | YES | NO |
|---|---|---|
| Are your hips pushed all the way back against the chair's backrest with the seat pan tilted slightly forward? | | |
| **THIGHS** | | |
| Are your thighs parallel with or slightly angled toward the floor? | | |
| Are the back of your knees about two fingers away from the edge of the seat? | | |
| **FEET** | | |
| Are your feet fully supported on the floor or on a foot rest? | | |
| **ENVIRONMENT** | | |
| Is your office appropriately lit and free from direct sunshine/glare? | | |
| Is your office kept at a comfortable temperature? | | |

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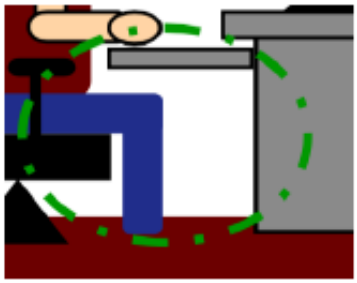
# Laboratory Ergonomic Self-Assessment

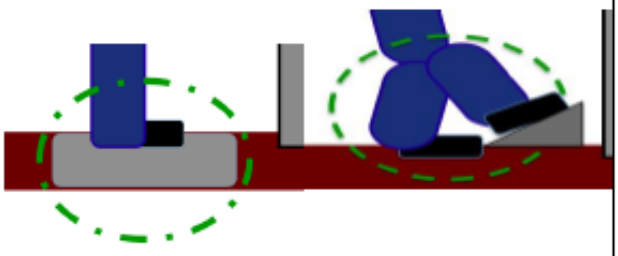
Go through this checklist while in your daily workstation and check "Yes" or "No" for applicable sections. Any items checked "No" may need to be addressed and corrected according to the information provided in the Ergonomics Toolkit.

**Please Note:** By no means does this self-assessment substitute a medical diagnosis.

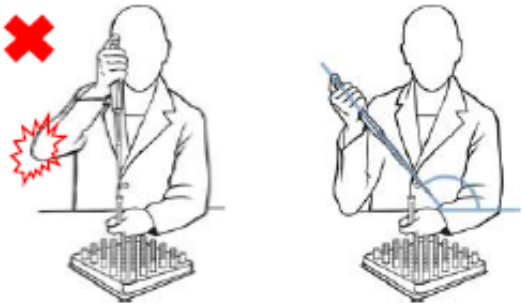
| BENCHWORK | YES | NO |
|---|---|---|
| Is the height of your bench about elbow height so that your shoulders are relaxed when working while sitting or standing? | | |
| Are frequently used tools and supplies within arm's reach? | | |
| Do the bench cutouts allow for foot and knee clearance both when sitting and standing? | | |
| Is your workstation free of sharp edges that may cause contact stress? | | |



| SEATED/STANDING WORK | YES | NO |
|---|---|---|
| Does your lab chair have a 5-leg base? | | |
| Do you use foot rails or foot props? | | |
| Do you use floor mats for tasks that require prolonged standing? | | |
| Are you able to adjust chairs to accommodate to the task? (height, backrest, armrests) | | |
| When seated, are your elbows in line with the surface of the bench? | | |

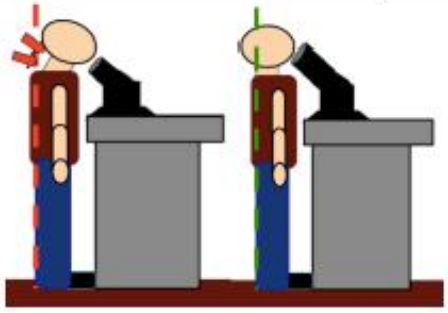


| PIPETTES | YES | NO |
|---|---|---|
| Have you been trained on proper use of pipettes? | | |
| Are your arm and wrist in a neutral position while pipetting? | | |
| Does your pipetting amount to 4 hours/day or less? | | |
| Do you use multi-channel, electronic, or latch mode pipettes for prolonged work? | | |
| Are pipettes, pipette racks, pipette tips, and other supplies placed within arm's reach? | | |

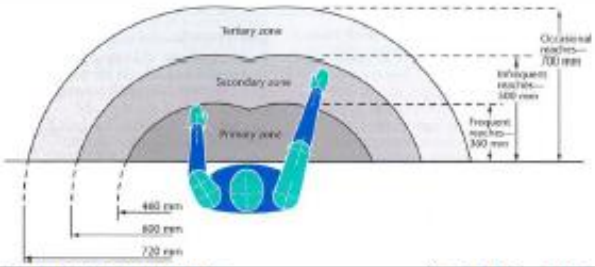


| MICROMANIPULATION | YES | NO |
|---|---|---|
| Do you use forceps with locking mechanisms or aides to reduce prolonged pinching? | | |
| Are vials easy to cap and thread? | | |
| Do you use cap openers when necessary? | | |
| Do you use clamps and holders to support materials for prolonged periods? | | |

| MICROSCOPES | YES | NO |
|---|---|---|
| Can you view the eyepiece with relaxed shoulders and back? | | |
| Can you view the eyepiece without excessively flexing your neck? | | |
| Can you comfortable reach microscope controls? | | |



| HOODS AND BIOSAFETY CABINETS | YES | NO |
|---|---|---|
| Are your shoulders relaxed and your elbows bent about 90° while working in the hood/cabinet? | | |
| Does the hood/cabinet have a waterfall design along the edge to reduce contact stress/tissue compression? | | |
| Do you place materials in hoods/cabinets within arm's reach? | | |


| MISCELLANEOUS | YES | NO |
|---|---|---|
| Do you take frequent breaks to stretch or rest? | | |
| Is your workstation properly lit and free of obstructions? | | |
| Is your work environment well ventilated and not too hot or cold? | | |
| Do you have access to bottle dispensers for easier liquid transfer? | | |
| Do you keep bench cutouts clear and free of items that may impede foot/leg clearance? | | |
| Do you store frequently used items in adequate bins or racks close to the area of use? | | |
| Do you store heavy items on lowest shelves? | | |
| Do you use temporary platforms for tasks that require elevating your arms above your chest for prolonged periods of time? | | |

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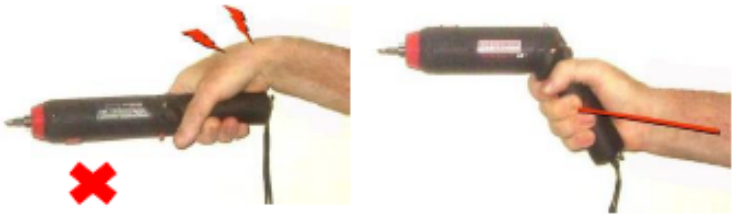
# Industrial/Operations Ergonomic Self-Assessment

Go through this checklist while in your daily workstation and check "Yes" or "No" for applicable sections. Any items checked "No" may need to be addressed and corrected according to the information provided in the Ergonomics Toolkit.
**Please Note:** By no means does this self-assessment substitute a medical diagnosis.

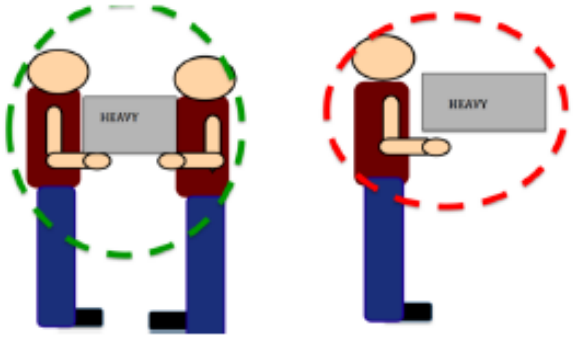
| TOOLS | YES | NO |
|---|---|---|
| Are you trained on proper tool use? | | |
| Do you use the appropriate tool for each job? | | |
| Do you use tools only for their intended purpose? | | |
| Can you use tools in neutral hand and wrist positions? | | |



| Do tools fit comfortably in your hand without uncomfortable contact from sharp edges or finger grooves? | YES | NO |
|---|---|---|
| Can you use tools without exerting excessive force? | | |
| Are you capable of using tools without shoulder strain from the tool's weight? | | |
| Do you only use tools that are free of defects, not damaged, and not excessively worn? | | |

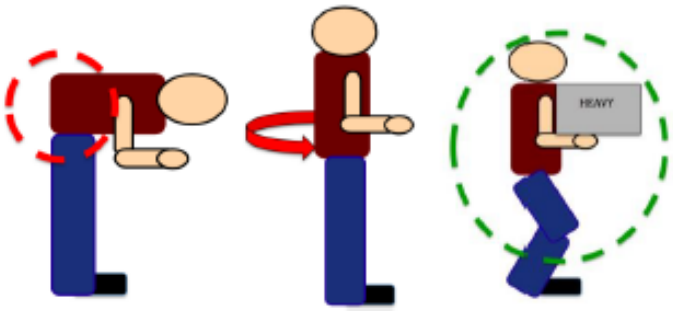

| Are all your work surfaces clean and slip-resistant? | YES | NO |
|---|---|---|
| Is your work station set up to minimize reaching, bending, and other awkward postures? | | |
| Do you use appropriate personal protective equipment (PPE)? | | |

| MATERIAL HANDLING | YES | NO |
|---|---|---|
| Are you trained in proper materials handling? | | |
| Do you ask for help when lifting heavy loads? | | |




| Do you avoid holding heavy loads for extended periods of time? | YES | NO |
|---|---|---|
| Do you alternate heavy-lifting tasks with tasks that involve lighter weight? | | |
| Do you pause to recover periodically? | | |
| Do you rotate tasks periodically throughout the day? | | |
| Do you avoid tissue contact pressure from leaning against sharp edges? | | |

| Do you handle objects that are easy to grip or have comfortable handles? | YES | NO |
|---|---|---|
| Do you lift items with a smooth and even motion? | | |
| Do you avoid twisting, overreaching, jerking and bending? | | |
| Is your workstation well-lit, ventilated and free of obstructions? | | |



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| Ergonomic Assessment Checklist | Date | Activity Assessed |
|---|---|---|
| Risk Ratting (circle one)<br>High Medium Low<br>*See Notes on bottom of form to obtain the Rating* | Organization | Point of Contact |
| | Personnel Observed | |
| | BLDG NO/Location | ROOM/AREA |

| Ergonomic Assessment Checklist | | |
|---|---|---|
| **Risk Factors** | **Yes** | **No** |
| 1. Have any shop workers been previously diagnosed with any of the following CTD's: Carpal tunnel, Tendonitis, Tenosynovitis, De Quervain's disease, Trigger Finger, White finger, Hand Arm Segmental Vibration Syndrome, Muscle strains, or Back ailments? | | |
| 2. Have there been any worker complaints concerning ergonomic issues? | | |
| 3. Do employees perform high repetition tasks? (100 reps/hour to 2000 per/day) | | |
| 4. Do the employee's routine tasks require repeated heavy lifting? (>20 lbs) or occasional heavy lifting (>50 lbs) | | |
| 5. Are employees using awkwardly designed tools, which cause the worker to operate the tool outside of a neutral position for an extended period of time? (> 1 hour) | | |
| 6. Do employees perform tasks with an awkward head or neck position for an extended period of time? (1 to 3 hours) | | |
| 7. Do employees perform tasks that require awkward back angles to be held for extended periods of time (2 to 3 hours)? i.e…hunching, bending, or squatting | | |
| 8. Do employees perform tasks with an awkward elbow angle for an extended period of time (1 to 3 hours) or with extreme force application? | | |
| 9. Do employees perform tasks with an awkward elbow abduction angle for an extended period of time (1 to 3 hours) or with extreme force application? | | |
| 10. Do employees perform tasks with an awkward wrist flexion angle for an extended period of time (1 to 3 hours) or with extreme force application? | | |
| 11. Do employees perform tasks with an awkward wrist extension angle for an extended period of time (1 to 3 hours) or with extreme force application? | | |
| 12. Do employees perform tasks with an awkward back/hip flexion angle for an extended period of time (1 to 3 hours) or with extreme force application? | | |
| 13. Do employees perform tasks with an extreme reaching distance for an extended period of time (1 to 3 hours) or with extreme force application? | | |
| 14. Do employees perform tasks with an odd work station height (either standing or sitting) for an extended period of time (1-3 hours) or with extreme force application? | | |
| 15. Are high impact tools used routinely? i.e., riveters, bucking bars, or impact wrenches | | |
| 16. Are high vibration producing tools used routinely? i.e., die grinders, sanders, weed eaters | | |
| 17. Do employees perform tasks at an extreme height (high or low) for an extended period of time (1 to 3 hours) or with extreme force application? | | |
| 18. Are there any other areas of concern either from your observations or employee complaints? | | |

*Note if there is a **Yes** checked in any block please use page two to give a brief explanation of what the activity is or what the worker complaint was.

**High Risk:** If you answered Yes to #1 (and the shop has done nothing to fix it), if Yes to #2 or 3 and two other Yes's in #'s 4 through 15, or if Yes to six or more in #'s 4 through 15.
**Medium Risk:** If you answered Yes to #1 (and the shop has made changes), if Yes to #2 or 3 and one other Yes in #'s 4 through 15, or if Yes to three to five in #'s 4 through 15.
**Low Risk:** If no Yes's in #'s 1, 2, or 3 and less than 3 Yes's in #'s 4 through 15.

| Ergonomic Survey Evaluation | Date | Activity Assessed |
|---|---|---|

| Ergonomic Survey Checklist Evaluation Explanation | | |
|---|---|---|
| Question number & Activity Name | Brief Explanation – use this section if you answered yes to any questions on page 1 (please list corresponding question number) and briefly outline any risks associated with an activity | Risk Factors |
| | | |
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| | | |

| Name of Assessor | Name of Reviewer |
|---|---|
| | |

# Risk Factor Guide

## Head & Neck

Optimal work Position
0° to 10°

Moderate Stress
10° to 15°

Severe Stress
15° to 20°

## Elbow Angle

Optimal work position
90° to 105°

Moderate Stress
105° to 120°

Severe Stress
120° to 135°

## Elbow Abduction

Optimal work position
0° to 10°

Moderate stress
10° to 20°

Severe Stress
20° to 30°

## Wrist Flexion

Optimal work position
0° to 15°

Moderate stress
15° to 30°

Severe Stress
30° to 40°

## Wrist Extension

Optimal work Position
0° to 15°

Moderate stress
20° to 35°

Severe stress
35° to 45°

## Hip/Lower Back Flexion

Optimal work position
0° to 5°

Moderate stress
5° to 10°

Severe stress
10° to 15°

## Reaching

Optimal work position
Male: 10" to 15"
Female: 8" to 12"

Moderate stress
Male 15" to 20"
Female 12" to 16"

Severe stress
Male: 20" to 25"
Female: 16" to 20"

## Task Height

Optimal work position
Male: 36" to 39"
Female: 35" to 38"

Moderate stress
Male: 39" to 41"
Female: 38" to 40"

Severe Stress
Male: 41" to 43"
Female: 40" to 42"

## Workstation Height

Optimal work position
PRECISION WORK
Male: 40" to 44"
Female: 38" to 42"

Optimal work position
SMALL, LIGHT WORK
Male: 36" to 38"
Female: 34" to 36"

Optimal work position
LARGE, HEAVY WORK
Male: 30" to 36"
Female: 28" to 34"

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# Purchasing Guide Checklist

| Monitors | ☑ |
|---|---|
| 1. Make sure the screen is large enough for adequate visibility. Usually a 15 to 20-inch monitor is sufficient. Smaller units will make it difficult to read characters and larger units may require excessive space. | |
| 2. The angle and tilt should be easily adjustable. | |
| 3. Flat panel displays take less room on the desk and may be more suitable for locations with limited space. | |

**Notes:**

| Keyboards | ☑ |
|---|---|
| 1. Split keyboard designs will allow you to maintain neutral wrist postures. | |
| 2. Keyboards with adjustable feet will accommodate a wider range of keyboard positions and angles. Adjustable feet on the front as well as the back will further aid adjustments. Increased adjustability will facilitate neutral wrist postures. | |
| 3. The cord that plugs into the CPU should be long enough to allow the user to place the keyboard and the CPU in a variety of positions. At least six feet of cord length is desirable. | |
| 4. Consider a keyboard without a 10-key keypad if the task does not require one. If the task does require one occasionally, a keyboard with a separate 10-key keypad may be appropriate. Keyboards without keypads allow the user to place the mouse closer to the keyboard. | |
| 5. Consider the shape and size of the keyboard if a keyboard tray is used. The keyboard should fit comfortably on the tray. | |
| 6. Consider keyboards without built-in wrist rest, because separate wrist rests are usually better. | |
| 7. Keyboards should be detached from the display screen if they are used for a long duration keying task. Laptop keyboards are generally not suitable for prolonged typing tasks. | |

**Notes:**

| Keyboard Trays | ☑ |
|---|---|
| 1. Keyboard trays should be wide enough and deep enough to accommodate the keyboard and any peripheral devices, such as a mouse. | |
| 2. If a keyboard tray is used, the minimum vertical adjustment range (for a sitting position) should be 22 inches to 28 inches from the floor. | |
| 3. Keyboard trays should have adjustment mechanisms that lock into position without turning knobs. These are frequently over tightened, which can lead to stripped threads, or they may be difficult for some users to loosen. | |

**Notes:**

| Wrist Rests | ☑ |
|---|---|
| 1. Wrist rest should match the front edge of the keyboard in width, height, slope, and contour. | |
| 2. Pad should be soft but firm. Gel type materials are recommended. | |
| 3. Wrist rest should be at least 1.5 inches deep (depth away from the keyboard) to minimize contact pressure on the wrists and forearm. | |

**Notes:**

| Desks and Work Surfaces | ☑ |
|---|---|
| 1. The desk area should be deep enough to accommodate a monitor placed at least 20 inches away from your eyes. | |
| 2. Ideally, your desk should have a work surface large enough to accommodate a monitor and a keyboard. Usually about 30 inches is deep enough to accommodate these items. | |
| 3. Desk height should be adjustable between 20 inches and 28 inches for seated tasks. The desk surface should be at about elbow height when the user is seated with feet flat on the floor. Adjustability between seated and standing heights is desirable. | |
| 4. You should have sufficient space to place the items you use most often, such as keyboard, mouse, and monitor directly in front of you. | |
| 5. There should be sufficient space underneath for your legs while sitting in a variety of positions. The minimum under-desk clearance depth should be 15 inches for your knees and 24 inches for your feet. Clearance width should be at least 20 inches. | |
| 6. Purchasing a fixed-height desk may require the use of a keyboard tray to provide adequate height adjustment to fit a variety of users. | |
| 7. Desktops should have a matte finish to minimize glare. Avoid glass tops. | |
| 8. Avoid sharp leading edges where your arms come in contact with work surfaces. Rounded or sloping surfaces are preferable. | |
| 9. The leading edge of the work surface should be wide enough to accommodate the arms of your chair, usually about 24 inches to 27 inches. Spaces narrower than this will interfere with armrests and restrict your movement. This is especially important in four-corner work units. | |

**Notes:**

| Desk Lighting | ☑ |
|---|---|
| 1. Good desk lighting depends on the task you're performing. Use bright lights with a large lighted area when working with printed materials. Limit and focus light for computer tasks. | |
| 2. The location and angle of the light sources, as well as their intensity levels, should be fully adjustable. | |
| 3. The light should have a hood or filter to direct or diffuse the light. | |
| 4. The base should be large enough to allow a range of positions or extensions. | |

**Notes:**

| Chairs | ☑ |
|---|---|
| **1.** The chair should be easily adjustable. | |
| **2.** The chair should have a sturdy five-legged base with good chair casters that roll easily over the floor or carpet. | |
| **3.** The chair should swivel 360 degrees so it is easier to access items around your workstation without twisting. | |
| **4.** Minimum range for seat height should be about 16 inches. | |
| **5.** Seat pan length should be 15 inches to 17 inches. | |
| **6.** Seat pan width should be at least as wide as the user's thighs. A minimum width of about 18 inches is recommended. | |
| **7.** Chair edges should be padded and contoured for support. | |
| **8.** Seat pan tilt should have a minimum adjustable range of about 5 degrees forward and backward. | |
| **9.** Avoid severely contoured seats as these limit seated postures and are uncomfortable for many users. | |
| **10.** Front edge of the seat pan should be rounded in a waterfall fashion. | |
| **11.** Material for the seat pan and back should be firm, breathable, and resilient. | |
| **12.** The seat pan depth should be adjustable. Some chairs have seat pans that slide forward and backward and have a fixed back. On others the seat pan position is fixed and the backrest moves horizontally forward and backward so the effective depth of the seat pan can be adjusted. **Beware** of chairs where the back only tilts forward and backward. These do not provide adequate adjustment for a wide range of users. | |
| **13.** The backrest should be at least 15 inches high and 12 inches wide and should provide lumbar support that matches the curve of your lower back. | |
| **14.** The backrest should widen at its base and curve in from the sides to conform to your body and minimize interference with your arms. | |
| **15.** The backrest should allow you to recline at least 15 degrees and should lock into place for firm support. | |
| **16.** The backrest should extend high enough to support your upper trunk and neck/shoulder area. If the backrest reclines more than about 30 degrees from vertical, a headrest should be provided. | |
| **17.** Armrests should be removable and the distance between them should be adjustable. They should be at least 16 inches apart. | |
| **18.** Armrest height should be adjustable between 7 inches and 10.5 inches from the seat pan. Fixed height armrests are not desirable, especially for chairs that have more than one user. | |
| **19.** Armrests should be large enough (in length and width) to support your forearm without interfering with the work surface. | |
| **20.** Armrests should be padded and soft. | |
| **21.** Most chairs are designed for weights under 275 pounds. If the user weighs more than 275 pounds, the chair must be designed to support the extra weight. | |

**Notes:**

| Document Holders | ☑ |
|---|---|
| 1. The document holder needs to be stable but easy to adjust for height, position, distance, and viewing angle. | |
| 2. If the monitor screen is your primary focus, purchase a document holder that will sit next to the monitor at the same height and distance. | |
| 3. If the task requires frequent access to the document (such as writing on the document) a holder that sits between the keyboard and monitor may be more appropriate. | |

**Notes:**

| Mouse/Pointing Devices | ☑ |
|---|---|
| 1. Choose a mouse/pointer based on the requirements of your task and your physical limitations. There really is no difference, other than preference, among a mouse, trackball, or other device. | |
| 2. A mouse should match the contour of your hand and have sufficient cord length to allow its placement next to the keyboard. | |
| 3. If you choose a trackball, avoid ones that require the thumb to roll the ball--thay may cause discomfort and possible injury to the area around your thumb. | |
| 4. A smaller mouse may be more appropriate especially if you have small hands. Caution should be taken if a mouse is used by more than one person. | |
| 5. A mouse that has sensitivity adjustments and can be used with either hand is desirable. | |

**Notes:**

| Telephones | ☑ |
|---|---|
| 1. If task requirements mandate extended periods of use or other manual tasks such as typing while using the phone, use a telephone with a "hands-free" headset. | |
| 2. The telephone should have a speaker feature for "hands-free" usage. | |
| 3. "Hands-free" headsets should have volume adjustments and volume limits. | |

**Notes:**