



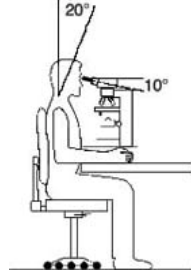




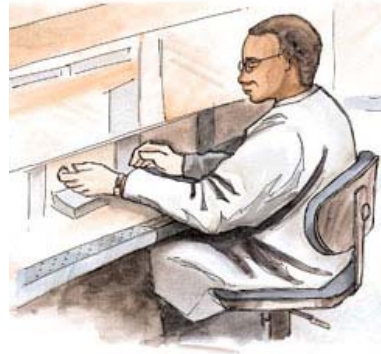



Laboratory Benches	Suggestions if Response is No	Pictures/Comments
If employees stand, is anti-fatigue matting or shoe worn anti fatigue covers supplied?	Order anti-fatigue matting or shoe worn anti fatigue covers for areas with prolonged standing.	
Is the height of the bench appropriate for the work that is performed?	Ensure appropriate height for majority of workers in the lab or for the particular piece of equipment being used. Use easily adjustable height chairs or lab stools when possible.	
Is there adequate leg and foot room at all seated work areas?	To create foot room, modify benches, remove drawers and/or move equipment	
Are work areas free of contact stressors, such as bench tops with sharp edges?	Apply padding to the edge of sharp work surfaces to reduce stress on arms and elbows.	
Are frequently used items within easy reach?	Rank items from most used to least and put the most frequently used items closest to you.	

Laboratory Chairs	Suggestions if Response is No	Pictures/Comments
Can all laboratory chairs be adjusted to accommodate all employees who need to use the chairs?	Chairs and stools should provide numerous adjustments, including adjustable backrest and seat height. If they don't, see recommended seating section of recommended products.	
Do employees rest their feet on the floor, a foot ring, or footrest?	Check foot rings for adjustability or supply adjustable footrests for taller lab stools. See recommended product list.	
Do employees know how to adjust chairs?	Read chair manuals or try the various levers and buttons. Check vendor website for downloadable adjustment instructions.	
Microscopes		
Do employees work with neutral shoulder postures (without rounded shoulders or in a hunched position)?	Move chair close to microscope and sit upright in chair against the backrest. Raise the microscope so the eye piece is eye level by using books or microscope adjuster shown in recommended products. Use a cut-out work table. This puts you close to the scope and gives an area for supporting forearms.	
Do employees work with neutral neck posture (not bending forward at the neck)?	Adjust angle of eye piece to allow for neutral neck posture.	
Is the microscope pulled out to the edge of the workbench?	Move microscope closer to edge of work bench.	

Microscopes	Suggestions if Response is No	Pictures /Comments
Is the work area free of contact stresses between sharp edges and the forearms?	Purchase edge padding and/or arm supports for non rounded edges. Provide arm rests to support the operator's forearms while using adjustment knobs See recommended products list for appropriate items.	
Are microscope work breaks provided?	Provide frequent short breaks to stretch and move around.	
Pipetting		
Is manual pipette use minimized?	Minimize manual pipetting. Consider options from recommended product list such as electronic or latch mode pipettes. Use pipettes with newer trigger mechanisms requiring less force to activate, and use the pointer finger to aspirate, and the thumb to dispense. Use shorter pipettes. This decreases hand elevation and consequent awkward postures.	
Are electronic pipettors provided?	If pipetting for more than 5-10 minutes at a time, consider electronic pipettes.	

Pipetting	Suggestions if Response is No	Pictures/Comments
Are latch mode pipettors provided?	If pipetting for more than 5-10 minutes at a time, consider latch mode pipettes.	
Is the pipettor designed to reduce contact with sharp edges?	See recommended products list for electronic and latch mode pipettes without sharp edges.	
Have employees been trained how to properly operate the pipettor (eg pickup tips eject tips, program electronic pipettor, etc..)?	Train employees on pipette use. Use thin-wall pipette tips that fit correctly and are easy to eject. Use minimal force when applying pipette tips. Use low profile waste receptacles for used tips. They should be no higher than the top of the tubes being filled.	
Is pipetting frequency minimized (less than 2 hours per day)?	Limit periods of continuous pipetting to 20 minutes or less. Vary activities and rotate pipetting tasks among several people. For tasks such as mixing or aliquotting, use an electronic pipetter with mixing functions	
Are frequent breaks provided?	Take frequent short breaks.	
Is the pipettor electric or multi-channeled to allow for computer-activated multiple dispensing instead of finger-activated dispensing?		
Fine Motor Skills		
Are vials with the fewest amounts of treads allowable used?	Use plastic vials with fewer threads to reduce twisting motions during capping and uncapping lids.	
Is dissection or micromanipulation tasks with forceps performed less than 5 hours per week?	Split micromanipulation tasks between lab workers and take breaks often to stretch and change postures. Use small pieces of foam similar to the type used on pencils and pens, to prevent soreness on the fingertips, where fingers and forceps articulate. This will distribute the force over a greater surface area, thus reducing the compressive forces on the soft tissue. If using forceps, consider the use of reverse forceps which could diminish sustained pinching.	

Microtomes/Cryostats	Suggestions if Response is No	Pictures/Comments
Do employees use neutral postures when operating the microtome or cryostat (without excessive bending of the wrist)?	Coach employees to use alternate postures. Retrofit the existing handle with an adapter that will allow the operator to use the hand wheel in a pistol grip position. This will alleviate repetitive wrist flexion and extension. Consider the use of an automatic foot operated cryostat when frequent cryo-sectioning is performed.	
Is the workstation at a height and distance that allows the arms to be as close to the body as possible?	If possible, move equipment closer to the edge of the counter.	
Do employees have access to an automatic microtome/cryostat?	Purchase an automatic microtome to replace manual unit.	
Are frequent breaks provided?	Provide frequent breaks.	
Are lighting levels inside the hoods/biosafety cabinets appropriate?	Make sure that lights in hoods/BSC's are working properly. Replace bulbs when necessary.	
Laboratory Hoods and Biosafety Cabinets		
Are materials inside the hoods/biosafety cabinets as close as possible so as not to require reaching?	Move most frequently used items closest to you to minimize reaching. Consult with the OSEH Biological and Laboratory Safety group for approval to apply closed-cell foam padding to the front edge of the bio safety cabinet (away from the downdraft) or workbench. Alternatively, factory-applied movable armrests may be installed external to the cabinet or edge of the workbench to provide support for the arms and still maintain the required airflow. This reduces contact forces by increasing the surface area that comes into contact with the forearm and therefore reduces the chances of impinging nerves, tendons, or blood vessels. If applying closed-cell padding to the front edge of the bio safety cabinet, make sure the material can be properly decontaminated. Use a turntable to store equipment near the worker.	

Glove Boxes or Anaerobic Chambers	Suggestions if Response is No	Pictures/Comments
Are user's repositioning items to reduce the amount of side bending?	Move all needed materials for the experiment from the side chamber to the main chamber at one time to reduce the amount of side reaching.	
Are employees working for long periods of time in the glove box?	Use highly absorbent hand powder for glove comfort. Utilize job enlargement to avoid long continuous use of glove boxes. Take frequent breaks to perform stretching exercises and relieve static loading from the shoulders.	
Manipulating Centrifuge Rotors		
Is assistance available to lift heavy rotor from centrifuge?	Look for manufacturers' that produce light weight rotors. Implement a pulley system, which would attach to the ceiling directly above the centrifuge. Use a second person to assist with the lift. Use a cart to transport rotors.	