

ERGONOMICS: LABORATORY

Preventive Measures and Controls

Pipetting

- Use an electronic-operated or a latch-mode pipetter to replace manual plunger-operated pipettes. Both of these units reduce the need for excessive thumb force and repetition.
- Use shorter pipettes and shorter waste receptacles for the used tips to reduce reaching.
- Work at appropriate heights to minimize twisting of your neck and torso.
- Avoid elevating your arms and elbows above your shoulder for lengthy periods to prevent static arm and shoulder strain.
- Work with your arms close to your body to reduce the strain on your shoulders.
- Avoid standing for extended periods of time. If standing is unavoidable, considering using anti-fatigue mats.
- Limit periods of continuous pipetting. Change your activities or take short breaks.

Microscopy

- Use a fully adjustable ergo-task chair or stool with built-in solid foot rest.
- Adjust the eye pieces and angle of observation to prevent neck strain.
- Keep your elbows close to your sides, below a 45-degree angle.
- Work with your wrists in a straight position. Pad sharp edges with foam or pad your wrists and forearms to reduce pressure.
- Avoid raising your shoulders and bending your neck while looking through the microscope's eyepiece.
- Check that you have sufficient knee and leg space.
- Position the microscope as close to you as possible to ensure your head is in the upright position.
- Prevent repetition and alter prolonged awkward posture. Change your activities or take short breaks.

Biosafety Cabinets and Lab Hoods

- Position materials in laboratory hoods/biosafety cabinets as close as possible to avoid extended reaching. Perform work at least six inches back into the laboratory hood.
- Use a fully adjustable ergo-task chair or stool with built-in solid foot rest.
- Use an anti-fatigue mat if you will be standing for long periods of time while working in laboratory hoods/biosafety cabinets.
- Make sure that lights in the laboratory hoods/biosafety cabinets are working properly.
- Use proper sitting posture and positioning.
- Take short breaks to relieve your forearms and wrist pressure caused by leaning on front edge of the laboratory hoods/biosafety cabinets.

Laboratory Workbenches

- Use a fully adjustable ergo-task chair or stool with built-in solid footrest.
- Use anti-fatigue mats if you will be standing for long periods of time while working at the laboratory workbench.
- Remove drawers, supplies and other materials underneath workbenches to provide leg room.
- Use a footrest if your feet do not rest comfortably on the floor.

Micro-Manipulation & Fine Motor Skills

- Use plastic vials with fewer threads to reduce twisting motions during capping and uncapping lids.
- 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 out over a greater surface area and reduce the compressive forces on the soft tissue.
- Practice using forceps between your thumb and middle fingers and try alternating between the two positions to reduce the use of your thumb extensors and flexors.
- Tilt storage bins toward you to reduce wrist flexion while reaching for supplies.
- Take short breaks and perform hand, wrist and forearm exercises.

Centrifuge Rotors

- Use a team approach for lifting heavy centrifuge rotors.
- Use a cart to transport the rotors.