



Ergonomics for Laboratory Workers

If you are a researcher, chemist, or biology professor, you are performing many tasks in the laboratory that could potentially place you at risk for a musculoskeletal disorder. Activities such as pipetting or using microscopes, microtomes, or centrifuges can put stress on your body. Below are tips to lower the risk of musculoskeletal disorders.

Be Aware of Your Posture

- Make sure you sit against the back of the chair
 - If sitting on a stool, then sit with your feet flat on the floor or on the footrest
 - Have a 100- to 110-degree reclining position (if applicable)
 - Push your hips as far back into the chair as possible
 - Keep your knees at 90-degrees
 - Try to use a back support or lumbar support where possible
- Tilt the seat forward or use a seat wedge to work in a forward posture to avoid leaning forward
- Avoid extending your chin forward while working. Adjust the position of your work, workstation, and chair to sit upright in a supported position
- Keep frequently used trays and supplies within close reach (refer to “Work Zones” under “Body Mechanics”)
- If standing for long periods, wear supportive shoes and use anti-fatigue floor mats

Keep Arms and Hands Relaxed

- Keep your shoulders and elbows close to your sides while working
- Set up your workstation in zones (refer to “Work Zones” under “Body Mechanics”)
- Maintain neutral wrist and arm postures while working
- Sit close to your work area, organize your workstation by zones, and adjust your chair
- Avoid repetitive or forceful twisting and turning motions (i.e., opening valves or adjusting microscopes). Make sure valves and knobs are clean and working properly before use
- Use light pressure when performing tasks such as pipetting to avoid a decrease in grip strength
- Select equipment and tools that are the right size for your hand
- Use electronic pipettes or light touch models when applicable
- Use padding and tubing to reduce pressure and force in your hands while working. For example, use rubber tubing on forceps to increase diameter and

reduce pinch force. Soften sharp edges on work surfaces with padding to avoid injuries

- Use thin, flexible gloves that fit properly (after first ensuring they are compatible with the hazards you work with)

Avoid Static Positions

- Shift your weight often when standing to work. Alternate sit-stand every hour
- Take stretch breaks every 20 minutes to rest your muscles and increase blood flow
- Use a stool or shelf to prop up your feet to relieve pressure on your back
- If standing in one spot for a long period, use an anti-fatigue floor mat and wear supportive shoes
- Alternate how you hold the lab equipment, such as forceps or turning forks

Microscope

- Sit close to your workstation
- Organize your workstation by zones (refer to “Work Zones” under “Body Mechanics”)
- Avoid leaning on hard edges; place a cushion on the surface to prevent injuries to your forearms or elbows
- Adjust your chair and microscope to maintain an upright head position
- Elevate, tilt, or move the microscope close to the edge of the counter to avoid overextending your neck
- Use adjustable eyepieces or mount your microscope on a 30-degree angle stand for easier viewing
- Organize your schedule to allow breaks when using the microscope for long periods at a time
- Take rest breaks every 20 minutes by using the 20-20-20 rule
 - Every 20 minutes, looks 20 feet away for 20 seconds
- Every hour stretch, your body to avoid muscle fatigue or discomfort
- Keep scopes clean
- Check all microscopes are in working condition
- Wear appropriate personal protective equipment (PPE)

Pipetting

- Use anti-fatigue floor mats when standing for long periods of time
- Sit supported against the backrest of the chair
- Sit or stand close to your workstation
- Adjust the chair
- Avoid twisting or rotating your wrist while pipetting
- Alternate or use both hands to pipette
- Hold the pipetter with a relaxed grip
- Use minimal pressure while pipetting
- Use light force or two hands to change tips

- Use low profile tubes, solution containers, and waste receptacles
- Select light-weight pipettes that are appropriate for your hand
- Use pipettors with finger aspirations and thumb dispensers to reduce thumb strain
- Use latch-mode or electronic pipettors for repetitive pipetting
- Take breaks every 30 minutes for 1 or 2 minutes



Anti-fatigue floor mat

The information was provided by [UCLA - Ergonomics](#)