Guide to Laboratory Ergonomics

General Guidelines

Some lab tasks increase the risk for repetitive strain injuries. Common lab equipment (such as computers, microscopes, and pipettes) may also increase risk. Awkward posture, excessive reaching and lifting, and repetitive motions are factors affecting your comfort and productivity.

Awkward posture is a large source of problems.

- ☐ Keep posture in mind especially when bending, lifting, or remaining static.
- ☐ Consider padding equipment to ease gripping.
- ☐ Padding to the edge of work surfaces reduces the effects of resting on hard edges.

Tasks that involve standing in one place for long periods increase pressure in the legs.

- ☐ Ergonomic mats can reduce fatigue related to standing.
- ☐ Shift your weight often. Placing one foot on a stool relieves pressure on your back.
- ☐ Shoes with good support will also reduce the hazards of prolonged standing.

Sit with your back against the chair and your feet on the floor.

- ☐ This position provides optimal support.
- ☐ Sit close to your work and keep frequently used materials within reach.
- ☐ Adjust the chair up or down to the proper height of the bench or desk.
- ☐ Work at a cut out in the lab bench. This allows you to work close to the bench.

Maintain neutral wrist/arm postures as much as possible.

- ☐ The wrist should remain straight, as if in a handshake.
- ☐ Keep work at about wait level.
- ☐ Avoid prolonged working with your arm elevated.
- ☐ Keep frequently used items in close reach.

Avoid long sessions of repetitive motion by varying your activities.

- ☐ Change your position and work tasks frequently.

Microscopes

Microscope use can involve long periods of time in awkward, static positions. Reducing repetition and awkward postures related with scope use are key steps. Other changes can be made to your environment, work tools, and personal work habits.

Prior to using a microscope, verify the position is correct.

- ☐ Proper placement reduces the need to extend your neck when observing.
- ☐ Sit against the back of the chair to keep your back supported.
- ☐ Pull the microscope close to the edge of the work surface; try to look into it in an upright position.
- ☐ If the scope height causes you to bend your head downward to look into the viewing tube, raise the equipment.
- ☐ Attempt to obtain an upright posture when observing. This reduces head tilt and shoulder rounding.

Maintain neutral wrist/arm postures as much as possible.

- ☐ Armrests should not stop you from getting close to your microscope.
- ☐ If they do, consider mobile arm supports attached to the workbench to support your arms.
- ☐ Avoid awkward finger and wrist positions when turning knobs on the microscope.

Pay attention to the amount of time spent at the microscope.

- ☐ Prolonged prone positions fatigue the body.
- ☐ Avoid using the microscope for more than five hours per day.
- ☐ Combine microscope work with other tasks so that you can change your position frequently.
- ☐ Develop periodic rest intervals for frequent and extended tasks.

Pipetting

Pipetting is a common repetitive task performed in research labs. Repetitive strain injuries can occur when pipetting for long periods of time. Warning signs include pain in the thumb, forearm, and elbow, and shoulder. Persons pipetting more than 2 hours a day are at greater risk.

Risk factors related to pipetting include repetition, force, and postures associated with the tasks.

Keep your wrists straight when pipetting.

- ☐ The neutral posture for the wrist is as if you are shaking hands.
- ☐ Do not twist or rotate your wrists.
- ☐ Consider the size and weight of the pipettor in relation to your hands.

Use little pressure when pipetting.

- ☐ Pay attention to the amount of force used on the trigger mechanisms.
- ☐ Newer pipette dispensers require less force.
- ☐ Do not use too much force to get the tips on.
- ☐ Drop used pipette tips into a low beaker.
- ☐ Consider combining pipetting with other tasks to reduce static positions. Vary the task by switching hands to control the pipette.
- ☐ One more factor is to alter the position of hand held objects.
- ☐ This does not get rid of the need for task breaks.
- ☐ Micro-breaks of 2 minutes should occur for every 20 minutes of pipetting.