Safetygram

NCI-Frederick

ISM-195 | Laboratory Personnel | December 2011

Tips for Laboratory Ergonomics

Is your laboratory work sometimes uncomfortable? Follow the tips below to increase comfort at your job, and reduce your risk for injury.

Pipetting:

To Control Awkward Postures:

1. Work with wrists in straight, neutral (unbent) positions. You may need to incline the sample holder or solution flask.
2. Reduce reaching by:
   - Keeping items as close to you as possible.
   - Working with elbows as close to your sides as possible.
   - Using low profile waste receptacles for used tips. The receptacle opening should be no higher than the top of the tubes being filled.
   - Using shorter pipettes. This decreases arm elevation and awkward postures.
3. Ensure adequate lower back and thigh support from the chair and make sure that feet are supported.
4. Ensure items are positioned to minimize twisting of the neck and torso.
5. Avoid elevating your arm without support for lengthy periods. Lab stools can be obtained with adjustable armrests.

To Control High Repetition:

1. Automate pipetting tasks.
2. Use multi-pipetters whenever practical.
3. Share workload between right and left sides.
4. Vary use of pipetter types having different activation motions (e.g. thumb controlled vs. finger controlled).
5. Take adequate breaks away from pipetting activity. Even short several second "micro-breaks" help.
6. Evaluate work processes to spread pipetting tasks throughout the day.
7. Rotate pipetting tasks amongst several employees and add personnel for peak periods.

To Control Excessive Force:

1. Choose pipetters that require minimal finger or thumb motion to activate, such as ergonomic friendly pipettes. Contact EHS at x1451 for more information and sample pipetters.
2. Choose pipetters that require less force to activate.
3. Use only the force necessary to activate.

To Control Contact Stresses:
1. Pipetters come in various sizes. Choose one that best fits your hand.
2. Do not rest forearms on sharp work surface edges. Pad edges or forearm if necessary.

Handling vials and Test Tubes:

To Control Awkward Postures:
1. If seated, ensure proper lower back and thigh support from chair and ensure feet are supported.
2. If standing, ensure work surface is at proper height to reduce need to reach upward or bend forward. Upside down containers can be used to create higher work surfaces.
3. Arrange test tube racks to minimize reaching and twisting.
4. Work with elbows close to sides.
5. Maintain straight wrist positions. This may require inclining test tube racks.

To Control High Repetition:
1. Automate processes when possible
2. Share workload between right and left sides.
3. Take adequate breaks away from handling activity-even short several second "micro-breaks" help.
4. Rotate handling among several employees.
5. Evaluate work processes to reduce steps requiring manual handling.
6. Add personnel for peak periods.

To Control Excessive Forces:
1. Automate test tube opening when possible.
2. Avoid using pinch (thumb working with index finger) except for precision activities that require minimal force.
3. Use full hand grip for activities that require greater force.
4. Use cap removers that change handling from pinch to full hand grip.
5. Request that samples be received in test tubes that allow improved ergonomics.
6. Contact EHS for a device that will snap open microcentrifuge caps with one hand (or search the internet for the “Drummond Decapitator 2”). Works with tubes 0.2mL to 2.0mL.

To Control Contact Stresses and Vibration:
1. Use two hands to open test tube samples
2. Do not rest forearms on a sharp edge of the work surface; pad edge or forearm or create a forearm rest pad.
3. Use a vortex mixer rack instead of holding tubes by hand on the vortex mixer.
4. Reduce vibration by padding the hand.

Microscope Use:

To Control Awkward Postures:
1. Ensure adequate lower back and thigh support with properly sized chair that provides foot support.
2. Ensure adequate thigh clearance under lab bench; removing low hanging false fronts can make a marked improvement.
3. Raise, incline, and move microscope as close as needed to ensure upright head/neck posture. Consider the purchase of an adjustable microscopy bench if microscope has limited adjustability.

4. Working with elbows close to sides.
5. Work with wrists in straight, neutral positions.
6. Investigate use of ergonomic microscopes and accessories. Contact EHS for more information.

To Control High Repetition:

1. Take adequate breaks - even short several second "micro-breaks" help.
2. Rotate microscope work amongst several employees.
3. Evaluate work processes to spread microscope work throughout the day.
4. Add personnel for peak periods.

To Control Contact Stresses:

1. Do not rest forearms on sharp work surface edges; pad edge or forearm or create a forearm rest pad.

To Control Eye Fatigue:

1. Take frequent short breaks to rest your eyes; focus far away or shut eyes to change eye focal length.
   *Contact EHS for information on ergonomic microscopes and microscope products.

Lab Ergonomic Seating: What to look for?

1. A 5 caster base and 360-degree swivel.
2. Large adjustable seat cushion with rounded front edge and adequate thigh support.
3. Adjustable lower back support (up/down, forward/backward).
4. Adjustable arm rests (up/down).
5. Adjustable footrest.
   *Contact EHS for more information on ergonomic chairs and a list of vendors.

If you have any questions, would like to request an ergonomic evaluation of your work area, or would like to borrow our ergonomic equipment, please call EHS at ext. 1451.