

Stanford University - Laboratory Ergonomics Guide

General Work Tips

For any continuous/repetitive task (e.g. pipetting):

- Take frequent microbreaks away from the primary activity (every 10-15 min for 1 min)
- Arrange work scheduling to allow occasional alternating of tasks
- Rotate tasks intermittently between left and right hands to avoid overuse of any one side
- Consider employee rotation to help safely distribute workload
- Use automated processes to reduce/eliminate high repetition or forces

Postural considerations:

- Sit, stand, and walk tall – maintain the natural curves of the back
- Keep the head on the shoulders (i.e. avoid protracting the head forward)
- Avoid hunching, excessive reaching with the shoulders
- Keep the elbows close to the body
- Keep the wrists straight

Equipment considerations:

- Seek models that adjust in size
- Use equipment that allows neutral work postures
- Know how to properly use laboratory equipment
- Ensure proper tool maintenance
- Where possible, increase size of tool handles to minimize gripping effort

Workstation Setup

Seating:

- Before starting work, make sure chair is properly adjusted
 - Set the height to allow the shoulders to relax
 - Chair should provide adequate low back and thigh support
 - If back support is not adequate or if the seat pan is too deep, try a rolled up towel or a back support cushion to provide support.
 - Feet should rest flat on the floor or on a footrest/footring
 - Remove or adjust armrests that hinder work activities
- Avoid sitting at the edge of the seat; sit all the way back to improve back support
- Alternate sitting and standing; get out of the chair at least once every hour

Workbench/desk:

- Place frequently used items close
- Sit close to the benchtop edge (i.e. avoid reaching and leaning)
- Clear out leg cutaways to improve bench/desk access

Pipetting

- Rotate pipetting tasks with other employees
- Choose pipettes that require minimal hand and finger effort
- Use shorter pipettes and pipette tips
- For highly repetitive jobs, utilize automated processes like electronic multi-channel pipettes.
- Keep waste bins, beakers, etc., as close as possible

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Test Tube Handling

- Arrange tubes to minimize reaching/ twisting
- Use both hands or levers to open tubes
- When needed, use upside-down containers to raise tube racks
- Use computer generated labels to minimize pinch gripping
- Use vortexer mixer rack instead of holding tubes by hand
- Avoid resting forearms on the benchtop edge

Microscopy

- Avoid tilted head/neck postures. As needed, elevate the microscope to allow a more upright head/neck posture
- Take frequent microbreaks to rest eyes (momentarily close eyes or focus on objects ~20 ft away)
- Spread microscope work throughout the day or rotate microscope work among several employees
- Use video systems to view microscope images
- Keep scopes clean and in good condition
- To avoid forearms resting on sharp edges, pad edges or use a cushion to pad forearm.

EH&S Pre-Approved Laboratory Products

No one product will guarantee proper ergonomics or necessarily be an improvement for every individual or situation. Proper selection, adjustment, and use of equipment are essential practices for reducing the risk factors commonly associated with repetitive motion injuries.

Product Type	Manufacturer	Item	Vendor Contacts (NOTE: many of the products listed can be ordered through Smart Mart.)
Laboratory Stools	Office Master	CLS53 (basic lab stool)	Office Relief– visit ergostanford.stanford.edu and click on the Approved Products Catalog
Microscope Accessories	Bay Optical	Ergo Adapter, extensions, Optical Wedge	Michael Barbieri Caroline Smullen Fisher Scientific Michael.Barbieri@ThermoFisher.com caroline.smullen@thermofisher.com
	Cole Parmer	Microscope armrests	
Pipettes	VistaLab	Ovation BioNatural Pipettes	David Wobbler – VWR International (408) 206-3540 or david_wobbler@vwr.com Katarina Short - Rainin (415) 846-8712 or katarina.short@rainin.com
	Finnpipette	Focus, Novus	
	Eppendorf	Research Plus, Electronic Research Pro, Repeater Pro	
	Biohit	mLine, eLine	
	Rainin	LTS, EDPS, PipetteLite XLS Adjustable Spacer	
Ergonomic Accessories	NuAire	5 & 10" elbow rests for safety hood, turntable, footrest	Kyle Blanton -Pacific Science (925) 849-6447 or kblanton@pacificscience.com
Other	Wedge-Ease	Forearm supports	Alimed http://www.alimed.com/alimed/product/Wedge-Ease-Ergonomic-Forearm-Supports,14426,129.htm

For other ergonomic laboratory/office product options, Laboratory Equipment Reimbursement Fund information, or to schedule Laboratory Ergonomics training contact EH&S at 723-0448.

Additional Resources

- SU Ergonomics Program – ergostanford.stanford.edu
- SU Environmental Health and Safety – ehs.stanford.edu
- SU Occupational Health Center – suohc.stanford.edu
- Vaden Health Center (for students) – vaden.stanford.edu
- BeWell @ Stanford – bewell.stanford.edu
- SU Bicycle Program – transportation.stanford.edu

Contact EH&S at 723-0448 for additional assistance.