

Ergonomics

1. Ergonomics Defined

- Ergonomics is the science of fitting the job to the worker. The goal of ergonomics is supporting the health of the worker while getting the job done in the most efficient and safe way possible while reducing the opportunity for musculoskeletal disorders (MSDs). Persons applying ergonomics look at:
 1. the needs, physical and mental characteristics of the worker doing the work (for example: body size, strength, flexibility, and if red means stop)
 2. the layout of the workstation
 3. tools and materials being used
 4. how the job is performed
- The department encourages the design and arrangement of equipment and workspace so that staff will interact with the equipment in a safe and efficient manner. Where necessary, the department will provide ergonomic workstations, devices and instruments. Ergonomically engineered chairs, keyboards, foot rests, etc. will be considered for staff that perform repetitive tasks or sit at a desk or workstation for most of the day.
- Ergonomic work practices reduce occupational risk factors. These risks include improper stretching, bending, reaching and/or lifting, and incorrect posture for position and motion.
- Lighting must be sufficient to allow adequate illumination of the working area.

2. Ergonomic Resources

- [UMHHC Ergonomics website](#)
- [Safety Management Services Website](#)
- Safety Liaison (Departmental or section safety representative)
- Ergonomics In-services - Schedule of in-service offerings and ergonomics topics to be posted on above website.
- Initiating an [ergonomics service request](#) with Safety Management Services
By e-mail to: bmyers@umich.edu
By phone to: 764-4427
- Laboratory Ergonomic websites:
 - [National Institute of Environmental Health Sciences \(NIEHS\) Health and Safety Guide to Laboratory Ergonomics](#)

- [National Institute of Health \(NIH\) Laboratory Workstation Ergonomics](#)
- [Laboratory Ergonomics - UCLA Ergonomics Website](#)
- Laboratory Ergonomics Tips chart

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Laboratory Ergonomics Tips

Task	Body positions/ postures	Work Practices/ Processes	Proper equipment
Seating	<ul style="list-style-type: none"> • Feet should rest flat on the floor or a footrest • Chair should provide adequate low back and thigh support • Front edge of chair should not press up against back of knees. 	<ul style="list-style-type: none"> • Avoid sitting at the edge of the seat, sit all the way back into the seat to provide back support • Get out of chair at least every half hour to help relieve stress on back • Before starting work, make sure chair is properly adjusted. 	<ul style="list-style-type: none"> • Use a footrest if feet do not reach the floor • If back support is not adequate or if the seat pan is too long, try a rolled up towel or a back support cushion to provide support. • Remove or adjust armrests that hinder work activities
Pipetting	<ul style="list-style-type: none"> • Maintain straight wrists • Keep elbows close to body 	<ul style="list-style-type: none"> • Keep waste bins, beakers, etc., as close as possible • Take frequent microbreaks away from pipetting (at least every 15-30 minutes) • Share workload between right and left hands • Rotate pipetting tasks with other employees as feasible • Occasionally alternate activities to avoid continuous pipetting for long periods 	<ul style="list-style-type: none"> • Use shorter pipettors and pipette tips • Choose pipettors that require minimal hand and finger effort • For highly repetitive jobs, utilize automated processes or multi-channel pipettors where feasible. • See seating
Test Tube Handling	<ul style="list-style-type: none"> • Maintain straight wrists • Work w/ elbows close to body • Avoid reaching upward or stooping low 	<ul style="list-style-type: none"> • Arrange tubes to minimize reaching/ twisting • Share workload between right and left hands • Take adequate breaks away from handling activity (even short several second "micro-breaks" help) • Use both hands to open tubes 	<ul style="list-style-type: none"> • Use upside-down containers to raise tube racks when needed • Use vortexer mixer rack instead of holding tubes by hand • Use cap removers to help minimize pinch gripping • To avoid forearms resting on sharp edges, pad edges or use a cushion to pad forearm.
Microscope Use	<ul style="list-style-type: none"> • Maintain straight wrists • Avoid tilted head/ neck postures 	<ul style="list-style-type: none"> • Take frequent microbreaks to rest eyes (momentarily close eyes or focus on far away objects to vary focal length) • Keep scopes clean and in good condition • Spread microscope work throughout the day or rotate microscope work among several employees as feasible 	<ul style="list-style-type: none"> • Raise and stand microscope at a slight tilt to allow a more upright head/ neck posture • To avoid forearms resting on sharp edges, pad edges or use a cushion to pad forearm. • See seating (above)
Hand Tool Use	<ul style="list-style-type: none"> • Maintain straight wrists • Avoid pinch gripping tools when possible 	<ul style="list-style-type: none"> • Take occasional microbreaks away from tool use (at least every 15-30 minutes) • Share workload between right and left hands 	<ul style="list-style-type: none"> • Choose the right tool for the job • Ensure tools are in proper working order • Increase size of tool handles where possible to minimize gripping effort
General Work Tips	<ul style="list-style-type: none"> • Minimize use of awkward body postures 	<ul style="list-style-type: none"> • For any continuous/ repetitive task, take frequent microbreaks away from the primary activity • Arrange work scheduling to allow occasional alternating of tasks • Rotate tasks intermittently between left and right hands to avoid overuse of any one side • For highly continuous/ repetitive tasks, consider a rotation of employees to help safely distribute workload 	<ul style="list-style-type: none"> • When purchasing equipment, models that adjust in size are preferable • Use the proper equipment for the task • Know how to properly use the equipment • Where feasible, use automated processes to reduce/ eliminate high repetition or forces