

## Bioscience Laboratory Ergonomic Check List

Laboratory workers should have a basic understanding of ergonomic principles, and be able to recognise risk factors and symptoms associated with poor ergonomic design. The design of the job itself (work/rest schedules, job rotation), work tools and the workstation (dimension/layout) all have a direct impact on the risk of injury. Incorporating ergonomic principles into the design of laboratory tools and workstations, and reviewing work processes to maximize efficiencies can help prevent work related injuries. Periodic review of the work environment, tools and procedures helps to assure that necessary modifications are made as processes change.

### Laboratory Checklist


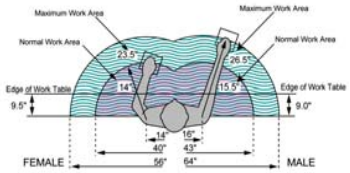

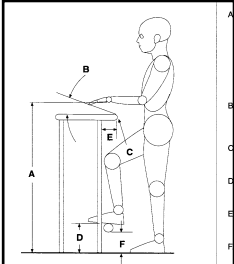
This document will help you consider some of the specific ergonomic hazards associated with laboratory environments. Designed for use by both safety specialists and laboratory workers, the checklist also includes information to help eliminate or reduce identified risks.




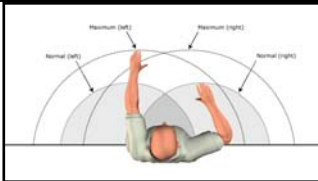

### How to Use the Checklist





Step One: Complete the Laboratory Checklist for the tasks being completed in your laboratory. Answer N/A if the question does not apply to the task. Include all meaningful comments for each area.






Step Two: *Each "NO" answer indicates a risk of injury or sub-optimal condition.* For each "NO" answer, consider changes or modifications to the workstation or task to result in a yes response. When considering changes, obtain input from the workers, supervisors, and other safety specialists if available. Whenever possible, evaluate equipment before making purchases and before modifying the work areas or tasks. This process will help increase product acceptance, test product usability, and durability, and take advantage of worker experience.






## Laboratory Ergonomics Checklist

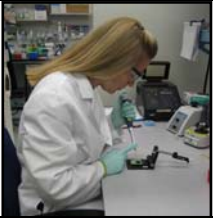





		Yes	No	Change/Modification	Comments
<b>Standing Bench</b>					
	<p>1. Is the height of the bench appropriate for the work performed?</p> <p>a. Work can be positioned close to elbow height</p> <p>b. Work can be performed with shoulders relaxed</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Adjustable height benches <input type="checkbox"/> Adjustable chair <input type="checkbox"/> Temporary standing platforms <input type="checkbox"/> Move the task to a seated bench with adjustable chair	
	<p>2. Are primary work tools and supplies located within arm's reach from table edge?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Reposition tools and supplies within easy reach <input type="checkbox"/> Provide tool organisers, turntable workstations, turntables, storage bins, pipette holders and carousels	
	<p>3. Is there knee and foot clearance when completing standing tasks in front of the bench?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Work at open bench cut outs <input type="checkbox"/> Remove supplies and equipment from bench cut out areas	
	<p>4. Is a foot rail or prop available</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Install rails or foot props <input type="checkbox"/> Use footrest	




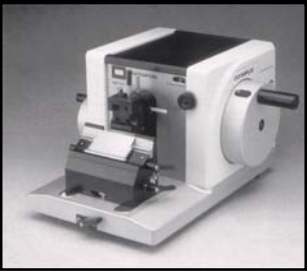
		Yes	No	Change/Modification	Comments
	5. Does the bench have rounded or padded edges to reduce contact stress?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Add edge rests and protectors to eliminate sharp edges <input type="checkbox"/> Use gel pads on surface to protect elbows <input type="checkbox"/> Wear custom padded sleeves under lab coat	
	6. Does the work require frequent movement between workstations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Review and, if necessary, redesign work to reduce movement between workstations to optimise workflow	
<b>Seated Bench</b>					
	7. Are bench cutouts available for seated workers?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Redesign benches to provide cutouts for seated work <input type="checkbox"/> Provide sit-stand chairs to improve knee clearance when working <input type="checkbox"/> Clear out cutouts if cluttered with supplies or equipment	
	8. Are work items within close reach?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Reposition tools and supplies within easy reach <input type="checkbox"/> Provide tool organisers, turntable workstations, turntables, storage bins, pipette holders and carousels	
	9. Is seated bench available for tasks requiring precision and close inspection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Provide arm supports for stability if not available <input type="checkbox"/> Provide sit-stand stools <input type="checkbox"/> Provide adjustable work platforms to position work at optimal height	

	<b>Laboratory Chairs</b>	<b>Yes</b>	<b>No</b>	<b>Change/Modification</b>	<b>Comments</b>
	10. Can the laboratory chairs be adjusted to accommodate all workers? a. Seat height appropriate for work at height of benches? b. Feet supported on floor, ring or footrest?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Provide chairs with adjustable height and angle seats and backrests <input type="checkbox"/> Provide chairs with foot rings <input type="checkbox"/> Provide footrests	
	11. Are armrests adjustable or removable if they interfere with work?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Adjust armrests to provide support with shoulders in neutral postures <input type="checkbox"/> Remove armrests	
	12. Are appropriate footrests or footrings provided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Provide industrial footrest <input type="checkbox"/> Install foot ring on chair <input type="checkbox"/> Install rail or platform	
	13. Do employees know how to adjust chairs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Train employees to adjust chair	
<b>Microscopes</b>					
	14. Can employees view the eyepiece with neutral neck, shoulder and back postures? (Neck flexion < 25°, shoulders relaxed, back upright and supported by chair? )	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Reposition microscope <ul style="list-style-type: none"> <li><input type="checkbox"/> Adjust height</li> <li><input type="checkbox"/> Adjust angle</li> </ul> <input type="checkbox"/> Reposition worker <ul style="list-style-type: none"> <li><input type="checkbox"/> Adjust posture</li> <li><input type="checkbox"/> Adjust seat height</li> <li><input type="checkbox"/> Adjust seat angle</li> </ul> <input type="checkbox"/> use arm support/pad	





		Yes	No	Change/Modification	Comments
	15. Is the microscope positioned within easy reach of the worker? (Generally close to the edge of the workbench)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Reposition microscope <input type="checkbox"/> Move closer to front of counter <input type="checkbox"/> Reposition worker <input type="checkbox"/> Adjust posture <input type="checkbox"/> Sit closer to bench	
	16. Can the microscope be positioned to promote neutral head, neck, shoulders and arm postures when used?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Reposition microscope <input type="checkbox"/> Use microscope adapters <input type="checkbox"/> Positioning plate <input type="checkbox"/> Ergo adapter <input type="checkbox"/> Optical wedge <input type="checkbox"/> Extended eyetube <input type="checkbox"/> Eyepiece adapter <input type="checkbox"/> Use video system	
	17. Are arms supported by worksurface, chair armrests, or pads for prolonged work?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Use arm supports <input type="checkbox"/> Use pads <input type="checkbox"/> Adjust armrests <input type="checkbox"/> Adjust worker position	
	18. Can the worker use the microscope controls with arms supported and relaxed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Reposition microscope <input type="checkbox"/> Use microscope adapters <input type="checkbox"/> Use arm supports/pads <input type="checkbox"/> Adjust armrests <input type="checkbox"/> Adjust worker position	
	19. Is there sufficient legroom and foot support when using the microscope?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Work at bench cut-out <input type="checkbox"/> Clear cut-out of clutter <input type="checkbox"/> Provide footrest <input type="checkbox"/> Provide foot ring	
	20. Are microscope work breaks provided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Institute work rotation <input type="checkbox"/> Institute work breaks	





		Yes	No	Change/Modification	Comments
<b>Pipettes</b>					
	21. Is use of pipettes managed so as to avoid long periods of pipetting?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Institute work rotation <input type="checkbox"/> Institute work breaks <input type="checkbox"/> Consider use of alternative pipettes	
	22. If long periods of pipette usage are unavoidable, are multi-channel, electronic or latch mode pipettes available?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Evaluate use of alternative pipettes <input type="checkbox"/> Electronic <input type="checkbox"/> Latch-mode <input type="checkbox"/> Multi-channel	
	23. Have employees been trained to select appropriate pipettes for pipetting task?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Employee training	
	24. Are racks, trays, beakers and supplies available and placed within easy reach?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Provide racks and trays <input type="checkbox"/> Position supplies within close reach <input type="checkbox"/> Use pipette racks and organisers	
	25. Are vials, tubes and receptacles as low profile as possible?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Provide short beakers and vials <input type="checkbox"/> Provide short tips and tubes <input type="checkbox"/> provide short/angled waste receptacles	





		Yes	No	Change/Modification	Comments
	26. Do workers pipette with shoulders relaxed, and arms and wrists in neutral postures?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Employee posture training <input type="checkbox"/> Adjust work position <input type="checkbox"/> Adjust workstation set-up	
	27. Are rest breaks provided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> provide work breaks or work rotation	
<b>Micromanipulation</b>					
	28. If forceps are used for prolonged periods, are locking mechanisms, o-rings or other adapted aides used to reduce prolonged or static pinch forces?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Provide adapted tweezers/forceps <ul style="list-style-type: none"> <li><input type="checkbox"/> O-rings</li> <li><input type="checkbox"/> Pads/foam grips</li> <li><input type="checkbox"/> Self-closing</li> <li><input type="checkbox"/> Low force tools</li> </ul> <input type="checkbox"/> Alternate fingers/hands	
	29. Are vials easy to cap and thread?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Provide easy opening caps <input type="checkbox"/> Provide vials with minimal number of threads	
 	30. Are cap openers available?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Provide decapping tools	
	31. Are clamps and holders available to support test tubes and other materials that must be held for prolonged periods?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Provide vial clamps <input type="checkbox"/> Provide racks, holders, shelves, or organisers	

		Yes	No	Change/Modification	Comments
	<b>Microtome/Cryostat</b>				
	32. Can workers operate the microtome with hands in a pistol grip position? (Wrist aligned with forearm and in handshake position)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Re-position worker <input type="checkbox"/> Re-position height, angle or position of microtome <input type="checkbox"/> Employee training in work postures <input type="checkbox"/> Use foot operated controls <input type="checkbox"/> Modify handle position	
	33. Is equipment placed in a bench cut out allowing for adequate leg and knee clearance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Work at bench cut-out <input type="checkbox"/> Clear area around microtome/cryostat of obstacles	
	34. Is an adjustable chair available at the microtome or cryostat that provides back and foot support?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Provide adjustable chair <input type="checkbox"/> Provide chair with head support if working in reclined position <input type="checkbox"/> Consider mirror system to improve view of samples	
	35. Do employees have access to a motorised microtome/cryostat for high intensity/volume work?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Consider electronic cryostat for high volume workloads	



		Yes	No	Change/Modification	Comments
<b>Lab. Hoods &amp; Biosafety Cabinets</b>					
	36. Is leg, knee clearance available to promote neutral sitting postures when using the hood or cabinet?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Clear knee area under cabinet or hood <input type="checkbox"/> Use sit/stand stool	
	37. Can workers work with shoulders relaxed when sitting or standing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Consider height adjustable hood or cabinet <input type="checkbox"/> Use height adjustable stool/chair	
	38. Is padding available to reduce soft tissue compression (edge padding or arm pads)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Use elbow pads <input type="checkbox"/> Use edge padding <input type="checkbox"/> Use arm supports	
	39. Are materials inside the hoods and cabinets as close as possible to the worker to avoid over-reaching?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Position receptacles within close reach <input type="checkbox"/> Use turntables, rotating organizers, angled platforms	

		Yes	No	Change/Modification	Comments
	40. Are vials, tubes and receptacles as low profile as possible?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Provide low profile vials, tubes and receptacles <input type="checkbox"/> Angle receptacles to position within closer reach	
<b>Miscellaneous</b>					
 	41. Are bottle dispensers and bottom dispensing aspirators/carboys available to dispense liquids?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Provide bottle dispensers <input type="checkbox"/> Provide bottom dispensing aspirators/carboys <input type="checkbox"/> Provide bottles with handles	
	42. Is there adequate and appropriate storage for supplies? a. Is sufficient space available for supplies? b. Are heavy bottles and boxes stored on low shelves?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Provide storage for supplies <input type="checkbox"/> Place heavy items on shelves between knees and chest level	

		Yes	No	Change/Modification	Comments
	43. Are cut-outs clear of storage and available for use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Clear cut-outs of clutter <input type="checkbox"/> Provide cut-out areas for working at bench using work surface cut-outs or platforms	
	44. Are jars easy to open or are jar openers available?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Provide jar openers	
	45. Are temporary platforms available for tasks that require elevating arms above chest level for prolonged periods?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Consider standing platforms or elevated work areas (Consider safety issues and reduce fall risks before using)	
	46. Are there adequate bins and racks for frequently used items?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Provide bins, racks and shelves for frequently used items	