**Lab Ergonomics Checklist**

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| **Lab:** | **Location:** | **Date of completion:** |
| **Checklist completed by:** |
| **Relevant Findings/Comments:** |

Employee education is essential for prevention of injuries in the lab. From the Lab Ergonomics Guide, employees should have a basic understanding of ergonomic principles and be able to recognize ergonomics risk factors and musculoskeletal injury (MSI) symptoms. The design of the job itself (work/rest schedules, job rotation), work tools and the workstation dimension/layout also have a direct impact on the risk of injury. Incorporating ergonomic principles into the design of lab tools and workstations and reviewing work processes to maximize efficiencies can help prevent MSI. Periodic review of the work environment, tools and procedures helps to assure that necessary modifications are made as processes change.

This checklist will help identify ergonomics risk factors associated with lab environments and tasks. Designed for use by lab supervisors and employees, safety committee members, and EHS, the checklist also includes information to help eliminate or reduce identified risks.

**How to Use the Checklist**

1. See if the following information if available for the lab:
	1. A list of musculoskeletal injuries; and
	2. Employee complaints or concerns about performing specific tasks.
2. Contact the lab employees and their supervisor and discuss the purpose for performing the ergonomic survey. Ask the supervisors and workers if there are any issues or concerns that they have regarding lab work tasks.
3. Complete the Lab Ergonomics Checklist for the tasks being completed in the lab. Answer N/A if the question does not apply to the task. Include all meaningful comments for each area.
4. 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.

**Please send the completed checklist and any questions about ergonomics to** **ergosafe@sfu.ca****.**

|  | **Yes** | **No** | **Change/Modification** | **Comments** |
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| **Lab Workstation Design** |
|  | **Standing & Seated Bench** |
| **1** | Is the height of the bench appropriate for the work performed?a. Work can be positioned close to elbow height (~ 36-40”)b. Work can be performed with shoulders relaxed |[ ] [ ]  [ ] Adjustable height benches[ ] Adjustable lab stool/chair[ ] Temporary standing platforms[ ] Move the task to a seated bench with adjustable chair |  |
| **2** | Are primary work tools and supplies located within arm’s reach (4-18”) from bench edge? |[ ] [ ]  [ ] Reposition tools and supplies within 18” distance[ ] Provide tool organizers, turntable workstations, turntables, storage bins, pipette holders and carousels |  |
| **3** | Is there knee and foot clearance when completing standing tasks in front of the bench?a. 4” deep knee clearanceb. 4” high and 4” deep foot clearance |[ ] [ ]  [ ] Work at open bench cut outs[ ] Remove supplies and equipment from bench cut out areas[ ] Modify bench surface with clamp on cut out extensions to increase knee and foot clearance |  |
| **4** | Is a foot rail or prop available (6” from floor) |[ ] [ ]  [ ] Install rails or foot props[ ] Use footrest[ ] If bench has undersurface cabinet, open or remove door and place foot on lower shelf |  |
| **5** | Are there anti-fatigue mats in areas where prolonged standing tasks are completed? |[ ] [ ]  [ ] Provide anti-fatigue mats[ ] Use cushioned shoes and in-soles |  |
| **6** | Does the bench have rounded or padded edges to reduce contact stress? |[ ] [ ]  [ ] Add edge rests and protectors to eliminate sharp edges[ ] Use gel pads on surface to protect elbows[ ] Wear custom padded sleeves under lab coat |  |
| **7** | Is standing bench available for tasksrequiring frequent movement between workstations? |[ ] [ ]  [ ] Redesign work to reduce movement between stations to optimize workflow |  |
| **8** | Is seated bench available for tasks requiring precision and close inspection? |[ ] [ ]  [ ] Provide arm supports for stability if not available[ ] Provide sit-stand stools[ ] Provide adjustable work platforms to position work at optimal height |  |
| **9** | Are bench cut-outs available for seated workers to ensure adequate knee/foot clearance? |[ ] [ ]  [ ] Redesign benches to provide cut-outs for seated work[ ] Provide sit-stand chairs to improve knee clearance when working[ ] Clear out cut-outs if cluttered with supplies or equipment |  |
|  | **Lab Stools/Chairs** |
| **11** | Can the lab 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? |[ ] [ ]  [ ] Provide chairs with adjustable height and depth seats and backrests[ ] Provide chairs with foot rings or provide footrests |  |
| **12** | Are armrests adjustable or removable if they interfere with work? |[ ] [ ]  [ ] Adjust armrests to provide support with shoulders in neutral postures[ ] Remove armrests |  |
| **13** | Are appropriate footrests or foot rings provided? |[ ] [ ]  [ ] Provide industrial footrest[ ] Install foot ring on chair[ ] Install rail or platform |  |
| **14** | Do employees know how to adjust chairs to suit their stature? |[ ] [ ]  [ ] Train employees on how to adjust chair |  |

|  | **Yes** | **No** | **Change/Modification** | **Comments** |
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| **Lab Tasks** |
|  | **Microscopes** |
| **15** | Can employees view the eyepiece with neutral neck, shoulder and back postures? (Neck flexion < 25°, shoulders relaxed, back upright and supported by chair) |[ ] [ ]  [ ] Reposition microscope[ ] Adjust height[ ] Adjust angle[ ] Reposition worker[ ] Adjust posture[ ] Adjust seat height[ ] Adjust seat angle |  |
| **16** | Is the microscope positioned within easy reach of the worker? (Generally close to the edge of the workbench) |[ ] [ ]  [ ] Reposition microscope[ ] Move closer to front of counter[ ] Reposition worker[ ] Adjust posture[ ] Sit closer to bench |  |
| **17** | Can the microscope be positioned to promote neutral head, neck, shoulders and arm postures when used? |[ ] [ ]  [ ] Reposition microscope[ ] Use microscope adapters[ ] Positioning plate[ ] Ergo adapter[ ] Scopease[ ] Optical wedge[ ] Extended eye tube[ ] Eyepiece adapter[ ] Use video system |  |
| **18** | Are arms supported by worksurface, chair armrests, or pads for prolonged work? |[ ] [ ]  [ ] Use arm supports[ ] Use pads[ ] Adjust armrests[ ] Adjust worker position |  |
| **19** | Can the worker use the microscope controls with arms supported and relaxed? |[ ] [ ]  [ ] Reposition microscope[ ] Use microscope adapters[ ] Use arm supports/pads[ ] Adjust armrests[ ] Adjust worker position |  |
| **20** | Are microscope work breaks provided? |[ ] [ ]  [ ] Institute work rotation[ ] Institute work breaks[ ] Reduce eye strain using 20/20/20 rule (every 20 min. look 20 feet away for 20 sec.) |  |
|  | **Pipettes** |
| **21** | Is manual pipette use limited to less than 4 hours per day? |[ ] [ ]  [ ] Institute work rotation[ ] Institute work breaks[ ] Consider use of alternative pipettes |  |
| **22** | If pipette use is more than 4 hours per day, are multi-channel, electronic or latch mode pipettes available? |[ ] [ ]  [ ] Evaluate use of alternative pipettes[ ] Electronic[ ] Latch-mode[ ] Multi-channel |  |
| **23** | Have employees been trained to select appropriate pipettes for pipetting task? |[ ] [ ]  [ ] Employee training |  |
| **24** | Are racks, trays, beakers and supplies available and placed within easy reach? |[ ] [ ]  [ ] Provide racks and trays[ ] Position supplies within close reach[ ] Use pipette racks and organizers |  |
| **25** | Are vials, tubes and receptacles as low profile as possible? |[ ] [ ]  [ ] Provide short beakers and vials[ ] Provide short tips and tubes[ ] Provide short/angled waste receptacles |  |
| **26** | Do workers pipette with shoulders relaxed, and arms and wrists in neutral postures? |[ ] [ ]  [ ] Employee posture training[ ] Adjust work position[ ] Adjust workstation set-up |  |
|  | **Micromanipulation**  |
| **27** | If forceps are used for prolonged periods, are locking mechanisms, O-rings or other adapted aides used to reduce prolonged or static pinch forces? |[ ] [ ]  [ ] Provide adapted tweezers/forceps[ ] O-rings[ ] Pads/foam grips[ ] Self-closing[ ] Low force tools[ ] Alternate fingers/hands |  |
| **28** | Are vials easy to cap and thread? |[ ] [ ]  [ ] Provide easy opening caps[ ] Provide vials with minimal number of threads |  |
| **29** | Are cap openers available? |[ ] [ ]  [ ] Provide decapping tools |  |
| **30** | Are clamps and holders available to support test tubes and other materials that must be help for prolonged periods? |[ ] [ ]  [ ] Provide vial clamps[ ] Provide racks, holders, shelves, or organizers |  |
|  | **Microtome/Cryostat** |
| **31** | Can workers operate the microtome with hands in a pistol grip position? (Wrist aligned with forearm and in handshake position) |[ ] [ ]  [ ] Re-position worker[ ] Re-position height, angle or position of microtome[ ] Employee training in work postures[ ] Use foot operated controls[ ] Modify handle position |  |
| **32** | Do employees have access to a motorized microtome/cryostat for high intensity/ volume work? |[ ] [ ]  [ ] Consider electronic cryostat for high volume workloads |  |
|  | **Laboratory Hoods and Biosafety Cabinets** |
| **33** | Is leg, knee clearance available to promote neutral sitting postures when using the hood or cabinet? |[ ] [ ]  [ ] Clear knee area under cabinet or hood[ ] Use sit/stand stool |  |
| **34** | Can workers work with shoulders relaxed when sitting or standing? |[ ] [ ]  [ ] Consider height adjustable hood or cabinet[ ] Use height adjustable stool/chair |  |
| **35** | Are materials inside the hoods and cabinets as close as possible to the worker to avoid over-reaching? |[ ] [ ]  [ ] Position receptacles within close reach[ ] Use turntables, rotating organizers, angled platforms |  |
| **36** | Are vials, tubes and receptacles as low profile as possible? |[ ] [ ]  [ ] Provide low profile vials, tubes and receptacles[ ] Angle receptacles to position within closer reach |  |

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|  | **Yes** | **No** | **Change/Modification**  | **Comments** |
| **Miscellaneous**  |
| **37** | Are bottle dispensers and bottom dispensing carboys available to dispense liquids? |[ ] [ ]  [ ] Provide bottle dispensers[ ] Provide bottom dispensing carboys[ ] Provide bottles with handles |  |
| **38** | 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? |[ ] [ ]  [ ] Provide storage for supplies[ ] Place heavy items on shelves between knees and chest level |  |
| **39** | Are jars easy to open or are jar openers available? |[ ] [ ]  [ ] Provide jar openers  |  |
| **40** | Are temporary platforms available for tasks that require elevating arms above chest level for prolonged periods? |[ ] [ ]  [ ] Consider standing platforms or elevated work areas (Consider safety issues and reduce fall risks before using)  |  |
| **41** | Are there adequate bins and racks for frequently used items? |[ ] [ ]  [ ] Provide bins, racks and shelves for frequently used items |  |
| **42** | Have all lab members reviewed the SFU Lab Ergo Guide? |[ ] [ ]  [ ] Provide link to guide: <https://www.sfu.ca/srs/work-research-safety/general-safety/ergonomics/Lab-Ergonomics.html>  |  |