Why You Should Care

Histology specimen preparation in the BSL-1 and BSL-2 Lab is both an art and a science that involves very sharp blades around your fingers. Just as the microtome or cryostat knife effectively slices samples it can also slice your finger. Take a look at this microtome accident that resulted in an amputation. You can also be exposed to infectious materials when working with unfixed biohazardous samples (such as unfixed tissue, using a cryostat), which pose a much higher risk than fixed tissue.

Always use the safety features of the equipment! Know how to safely load and unload your samples and safely clean the knife of your microtome to help prevent injury.

Best Practices

- **Know your microtome or cryostat** - Read the operator manual.
- **Request training** – There is a wealth of knowledge to be shared by your lab manager or a colleague who has experience using the equipment.
- **Is it biohazardous?** - Know whether your sample is fixed or unfixed and which biohazardous agent(s) it may harbor.

Sample Loading and Unloading:

- **Ensure samples are properly trimmed** prior to mounting onto the stage.
- **Cover the blade** by using the provided finger guards or a protective foam guard over the blade during mounting/removal of sample.
- **Use forceps to remove the blade** and wear two layers of nitrile gloves to help protect your skin.

Cleaning the Microtome or Cryostat Knife and Contaminated Parts:

1. **Determine Frequency of Cleaning** Always clean the equipment between users and at the end of a session.
   **Note on Cryostats:** Cryostats are more difficult to disinfect between samples since the cold can make the disinfectant build up on the knife, so it is best to finish the entire session and then perform a comprehensive decontamination by removing the stage and allowing it to come to room temperature before cleaning. Allow it to dry completely before returning it to the cryostat.
2. **Put on protective equipment** such as gloves and lab coat,
3. **Use a pair of forceps** to carefully remove the knife. Either discard the knife directly in a sharps container or if re-using it, place in a container of disinfectant to soak.
4. **Note on bleach:** The first impulse might be to use bleach (10% bleach followed by multiple rinses of 70% ethanol), but you can protect the blade by evaluating the agents most likely to be in the samples and choosing a less corrosive alternative disinfectant.
5. **Ensure complete contact time**, then use forceps and a handled brush to remove residue and scrub clean, followed by water rinse.
6. **Use forceps** to remove residue, stray shavings, etc., from the interior of the microtome and place in biohazard bag.
7. **Soak the interior** components with disinfectant, applied with a squirt bottle.

Questions? Contact EHS!

[www.ehs.cornell.edu](http://www.ehs.cornell.edu)  255-8200  askEHS@cornell.edu
8. **Use a cloth, manipulated with forceps** where possible, to scrub and decontaminate. If needed use a handled brush to access hard to reach areas, though a brush is more likely to splatter so use facial protection.

9. **Soak up residual disinfectant** and rinse/dry with 95% ethanol. Let air dry.

**Things to Avoid**

- **Do not leave the blade exposed** during sample loading and unloading. This is one of the easiest ways to sustain an injury. Remember to cover the blade.

- **Do not handle the blade** with unprotected hands. Make sure to use forceps and wear gloves.

- **Do not skip Personal Protective Equipment (PPE)** – gloves can minimize or possibly prevent cuts and lacerations

**For more information,**

- For more information on microtomes, review the [Biosafety Manual](http://sp.ehs.cornell.edu/lab-research-safety/Pages/Intro-to-Lab-Safety.aspx) Section 2.1.12

**Visual Guide**

The microtome finger guards are engaged in this picture (noted in the yellow circle). Always make sure that you protect yourself from the knife blade by using the guards, a foam cover, or tongs, depending on the manipulations being performed.

The cryostat finger guard is located on the stage where the blade is mounted. When NOT sectioning, the blade cover should be flipped closed to protect from possible injury.