

The Feel Good Lab

Ergonomic Tips for Histology Lab Procedures

By Jan Minshew, HT, HTL (ASCP), *Leica Microsystems Inc.*, Marketing Manager, Bannockburn, USA

I have a question for those who have been in the field of histotechnology for a while, but it probably applies to new folks, too. Doesn't it seem like almost everything has changed since you started? Workplaces are more stressful now because workloads have increased, turn-around times are shorter, and there aren't enough workers. We've advanced from manual to computerized data entry, but there usually isn't a comfortable spot to put the keyboard. Marvelous equipment is available to automate repetitive tasks, but much of it is big, which crowds the workspace even more. To top it off, the age of the average laboratory worker has increased, and though we don't like to admit it, aging causes changes. It affects our height, quality of vision, physical strength, tolerance levels, and the ability to recover quickly from an accident or injury. Many of these changes impact the delicate ergonomic balance in histology labs and send workers home at night with aches and pains they never had before. Let's take a look at some practical ideas for making ergonomic improvements in the histology workplace.

The histology work area Workstations are designed for the "average" person (i.e., sitting workbenches are typically designed for individuals between 5' 8" and 5' 10" in height). Take a good look at yourself and your coworkers. Do you have the same bone structure, weight distribution, limb length, body contours, and propensity for right or left handedness? These and other physical differences cause each worker to experience a different level of comfort (or discomfort) when sharing a workstation.

To maximize comfort, work should be positioned directly in front of you, and frequently used objects should be within easy reach. The height of the work (not counter height) should be elbow height for routine tasks. Precision work can be performed slightly higher, and heavy work requiring physical strength should be performed at a slightly lower level. Adjustable workstations are ideal, but an alternative is to reposition the worker, with adjustable ergonomic chairs or platforms, or adjust the work using workbench cut-outs or tilted work surfaces. Lighting, noise levels, temperatures, and vibration are also important ergonomic considerations.

Balance of people and equipment

Automated equipment is finally gaining acceptance in histology laboratories, but human interaction is invaluable for performing multiple tasks simultaneously and making quick decisions. Automation of repetitive tasks relieves workers of biomechanical stresses that can lead to musculoskeletal disorders, especially those requiring force or speed. Automation is typically accurate and reproducible so it is also excellent for tasks requiring standardization.

Evaluate your postures and positions

One of the greatest gifts you have is the ability to make positive changes in your life, so start by making yourself feel better. Have someone who understands ergonomics evaluate the movements you make while working. Your Risk Management or Human Resources department may have a recommendation. You can also use a mirror and watch yourself.

Pay close attention

Pay close attention to what your body tells you. The trick is to listen closely to subtle signs because when your body really starts screaming, you have probably caused a big problem. Avoid "biomechanical risk factors", including exposures to excessive force, awkward posture, repetitive movement, and vibration. Each factor becomes more hazardous depending on how often you perform the movement, how many times you repeat it, how long it takes to perform it each time, and how much time per day you spend doing it. Typically, spending more than 50% of the work day performing repetitive motions that take 30 seconds or less to complete is considered extremely high risk. Also, remember that your body can't tell whether you are at work or home, so if you participate in sports or hobbies that involve risk factors on your off hours, your body will add it right on to what you did at work.

More tips

Try to work with your joints in a natural or neutral position, which is near the middle of the full range of motion. Rotate tasks often. Don't do the same thing for long periods of time without taking short breaks to move around. You should plan a rest break every 20 to 30 minutes, even if the break is only for 15 seconds. This will help your muscles relax and renew your circulation. You will actually be more productive if you take mini-breaks because you will be able to work longer without slowing down or injuring yourself.

Motions to avoid

The most common motions in histology work are the ones that can cause the most problems:

- Wrists are commonly injured from repeatedly bending them up and down (trimming by rocking the handwheel of the microtome) or inward and outward (embedding, coverslipping, and keyboarding).
- Shoulder and arm injuries can be caused by holding the upper arms out to the side or above shoulder level or if the elbows are winged-out away from the body. These are common movements when performing microtomy, cryotomy, coverslipping, embedding, and keyboarding.
- The neck, which supports the weight of your head, will tire quickly if you work with your head tilted backward. This is a common position for people who wear bifocals, glasses or progressive lenses when they look at a monitor or do close work. Having your head bent to the side (holding a phone while working) is also hard on the neck. Working with the head bent slightly forward is the easiest position for the neck.
- The lower back does not like a lot of bending and twisting at the waist (laying ribbons on the water bath and staining), and it gets particularly angry if you bend or twist when you lift something or if make sudden jerky movements.

Summary

There are many more ergonomic tips that we will publish in our future editions. Until then, pay attention to your work habits and see if you can make a few changes that will add to your comfort.