Prevent Laboratory RSI with Good Technique

Repetitive Strain Injury (RSI) is a term most commonly associated with computer operators. When most of the working day is spent sat at a desk performing rapid, awkward and repetitive movements, a variety of musculoskeletal disorders involving stress to tendons, muscles, nerves and bones of the upper extremities can occur. However, it is a problem that occurs in many other work and leisure activities and the laboratory environment is not immune to these ergonomic stresses.

So, if you have ever been plagued by a variety of aches and pains or by tingling, numbness or burning sensations in your hands or forearms, it is possible you could be a victim of one of the modern world's fastest growing occupational illnesses. Poor techniques and inappropriate equipment when pipetting and using microscopes are a main culprit of RSI.

Left untreated, RSI can become crippling. However, experts tell us that the chances of developing these disorders can be reduced or eliminated by relatively small adjustments. These include proper working techniques, using equipment specifically designed for the task at hand and heeding the principles of ergonomics - the science devoted to making work compatible with human capabilities and limitations.

The risks of pipetting

Pipetting has been identified as a potential cause of injury. A study conducted on laboratory technicians found that those who performed pipetting tasks for over 300 hours a year were at greater risk of RSI injuries than their colleagues who pipetted less than this. This will come as no surprise to organisations and universities whose workers have been incapacitated and put out of work by cumulative trauma disorders. Hand injuries resulting from pipetting are of primary concern. However, simple cases of tendonitis or even fatigue can reduce pipetting accuracy and precision. Scientists who rely on a precision liquid handling instrument for their research cannot tolerate user-dependent errors caused by hand fatigue.

Many of the major pharmaceutical and research organisations are currently investing in helping their scientists to work ergonomically, for both the health & safety and productivity benefits. This involves workshops that enable users to compare ergonomic features of the range of pipettes available. Anachem has supported many of these, emphasising that we believe ergonomics is about the whole laboratory environment. Correct individual working practices in combination with quality equipment is the best way to avoid RSI.

Follow these top tips and you'll reduce your health risks and optimise your pipetting results:

Get organised

- Adjust your chair or stool so that the work surface is at the right height when you are sitting straight.
- If possible always try to work with your hands below shoulder height.
- Try to evaluate if you can reduce the height of applications such as gel loading. Adjustable tables/ workbenches are a good solution.
- Have all necessary objects within easy arms reach.
- Place the most frequently used items in front of you, with those items which are rarely used slightly further away.
- The opening of the vessel for used tips should be at the same height as the end of your pipette.

Take time to relax

- If possible try to switch periodically between different types of work.
- Keep an appropriate, unrushed working speed. Let go of the pipette from time to time and give the fingers/hand a break.
- Take frequent short breaks. Change your sitting position. Lean back and relax your shoulders and arms.

Did you know?

. . . Pipetting is one of the most repetitive tasks in the laboratory

. . . More than 30% of all work-place injuries are Repetitive Strain Injuries including cumulative trau-ma disorders (injuries associated with repetitive and excessive force)

. . . Forces should not exceed 30% of maximum thumb strength capacity: 3kg for a man, 2.1kg for a woman

. . . You are at risk if you pipette more than one hour a day or 300 hours a year

. . . Prevention is the key to reducing repetitive strain injuries

POOR ✗

Seated posture

Shoulders elevated ✗

Upper arm elevated ✗

Elbow extended ✗

Wrist in deviation ✗

Standing posture

Upper back and neck stooped ✗

Lower back and trunk stooped ✗

Elbow flexed ✗

Wrist posture

Upper arm flexed ✗

Elbow extended ✗

Wrist deviated downward ✗

Wrist extended backwards ✗

Forearm contact stress on the edge of the bench ✗

GOOD ✓

Seated posture

Lower back supported by chair ✓

Upper back and neck upright ✓

Upper arm vertical ✓

Wrist in the same plane as the fore-arm ✓

Standing posture

Lower back and trunk upright ✓

Upper back and neck upright ✓

Upper arm vertical ✓

Elbow bent at 90˚ ✓

Forearm parallel to the floor ✓

Wrist in the same plane as the fore-arm ✓

Wrist posture

Forearm parallel to the floor ✓

Wrist and forearm in the same plane ✓

For technical papers and other pipetting ergonomics information, please visit **www.anachemlifescience.co.uk** or call **01582 747500**.