

## Tips for Prevention of Eye Strain

- 1) **Move the screen back as far as possible. If we can comfortably interpret what we're looking at, the screen is not too far away.**
  - a closer screen requires more accommodation and convergence, moving the screen back reduces the load on accommodation and convergence
- 2) **Change to a larger font size when editing and then change it back to the size you need just before printing.**
  - many software programs allow users to change the font size
- 3) **Take regular vision breaks.**
  - every 20 minutes, look at an object at least 20 feet away for 20 seconds
  - or close your eyes for 20 seconds
  - intersperse your computer work with other tasks such as filing to help the eyes recover
- 4) **Lower the monitor so that the top of the screen is just below the user's eyes.**
  - lowering the monitor reduces the demand on the eye's accommodative system
  - when the eyes gaze downward, the near point of accommodation moves inward
  - with a lower monitor, the user can hold his or her head erect, maintaining a good posture and direct the eyes downward
- 5) **Use positive polarity (dark letters on a light background).**
  - positive polarity has been found to increase performance and reduce errors.
- 6) **Use strategically placed, variable-intensity task lighting.**
  - this type of lighting will not contribute to glare and can increase the brightness of documents being read from making them easier to view
- 7) **Place documents being read from and the monitor screen at the same viewing distance.**
  - we have to change focus when the viewing distance changes from 15 to 30 inches and placing both screen and documents at farther viewing distances reduces the demand for a large depth of focus
- 8) **Once lowered, tilt the monitor slightly backward so that it allows the computer user to look downward at approximately a 45 degree angle (or so that the top of the screen is level with just below the user's eye level and the screen is tilted upward slightly).**
  - when computer users look downward, they expose over 40 percent less of the eyeball's surface than when they look straight ahead
  - this helps to keep the eyes from becoming dry and helps to counteract the effects of less blinking which typically occurs with computer use
  - this can increase glare so when tilting the monitor backward, you might want to consider supplemental task lighting and decrease the use of overhead lighting
- 9) **Eyes are susceptible to drying during computer use due to decreased blinking.**
  - Use lubricating eyedrops
  - Drink at least 6 8oz glasses of water a day to maintain good hydration
- 10) **Take regular mini rest breaks by looking at a distant object for a few seconds every 15-20 minutes**
- 11) **Be certain to have regular vision exams if you experience blurred vision, headaches or double vision.**


Adapted from: Mount Auburn CareGroup Ergonomics "Tips for Prevention of Eye Strain"

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## Ergonomically designed pipettes available through VWR

<b>Thermo Electron (formerly Thermo Lab Systems)</b> <ul style="list-style-type: none"><li>• Finn pipette Biomare: Large volumes up to 100 cc</li><li>• Finn pipette Bio Control: Single and multi channel electronic modules</li><li>• Focus pipette: manual single &amp; multi channel, newly developed handle</li></ul>	Tim Cloutier 508-405-1070 tim.cloutier@thermo.com
<b>BioHit</b> <ul style="list-style-type: none"><li>• M Line: Adjustable volume pipettes</li><li>• E Line: Electronic pipettes</li><li>• Pro line XL: Serologic pipette</li></ul>	Christine Bishop 800-922-0784 x 306 Christine.bishop@biohit.com
<b>Brandtech Scientific</b> <ul style="list-style-type: none"><li>• Transferpette: annual single channel and multi channel</li></ul>	Glenn Erdman 888-522-2726 x 162 Gerdman@brandtech.com
<b>VistaLab Technologies</b> <ul style="list-style-type: none"><li>• Ovation Line</li></ul>	Colleen Kiley 888-652-6520 x8956 ckiley@vistalab.com

Ordering Information on Ergonomic Items for the Lab

<b>Description</b>	<b>Picture</b>
Perflex Gel Chair Arms	
Kent Step Stool w/Handrail, 18"	
Donnelly Step Stool	

<b>Description</b>	<b>Picture</b>
Safety Footstool (20" wide)	
Soft Edge	
Microscope Arm Supports	
Heavy-Duty Step Stools, Rubbermaid	

**websites for Ergonomic Lab Equipment:**

Alimed Ergonomics, [www.alimed.com](http://www.alimed.com)

VWR Scientific Products, [www.vwr.com](http://www.vwr.com)

**Helpful Local Distributors:**

**Ergonomic Lab Chairs:**

Gary Schuster, phone #781-395-4250, e-mail [ergosolution@cs.com](mailto:ergosolution@cs.com)

**Ergonomic Computer Equipment:**

Lee Siskind, fax/phone #978-686-6262, [www.ErgoKomfort.com](http://www.ErgoKomfort.com)

**Useful Ergonomic Aids and Accessories:**

Sammons Preston Roylan, Professional Rehab Supplies, [www.sammonspreston.com](http://www.sammonspreston.com)

**Ergonomic Pipette Vendors:**

<b>Thermo Electron (formerly Thermo Lab Systems)</b> <ul style="list-style-type: none"><li>• Finn pipette Biomare: Large volumes up to 100 cc</li><li>• Finn pipette Bio Control: Single and multi channel electronic modules</li><li>• Focus pipette: manual single &amp; multi channel, newly developed handle</li></ul>	Tim Cloutier 508-405-1070 <a href="mailto:tim.cloutier@thermo.com">tim.cloutier@thermo.com</a>
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## How you can avoid Cumulative Trauma Disorders (CTDs)

**People who use their hands for a living should be on the alert for pain, numbness and other unusual sensations. These symptoms may signal the onset of CTD. If they persist, contact Occupation Health Services who specialize in such injuries. Meanwhile, here are some tips for preventing CTD or, if it is too late for that, for keeping its symptoms in check.**

- Take frequent rest breaks and rotate from one task to another
- Maintain good posture without sitting too rigidly. Your body should be relaxed and your weight evenly distributed
- When typing, keep hands relaxed and fingers gently curved. Your hands should float easily above the keyboard
- Keep wrists in a neutral position – not twisted or strained – at the keyboard. The same applies to other activities such as holding a steering wheel, a tennis racket or a pencil
- Keep mouse within easy reach; do not strain your shoulder, elbow and/or wrist
- Keep hands warm to promote circulation. Good blood flow supplies nutrients to the tissues and helps wash away toxins
- Exercise to improve circulation and overall conditioning
- Open heavy doors with your shoulder, not your hands
- Give your hands a break; invest in electric can openers, food processors, etc.
- Don't wait for pain before taking a rest. Time your symptoms and break off work 10 minutes before they usually begin
- Never work in pain

**RSI PREVENTION FITNESS PROGRAM RECOMMENDATION  
AND PROGRAM DESCRIPTION**

Dear \_\_\_\_\_ (employee's supervisor),

**Occupational Health would like to thank you for your support of our Repetitive Strain Injury Prevention Fitness Program.**

Our goal is to provide appropriate conditioning in combination with proper positioning and good work habits as a preventative measure. **We would like to encourage employees who are at risk but not yet injured to take advantage of this opportunity.** We understand that it is difficult to take time out of busy work schedules but this investment in prevention pales when compared to the potential costs of chronic injuries which, once allowed to develop, are very costly to employees in terms of stress and loss of well-being, and to their departments in lost productivity and morale. Conversely, it has been shown that preventive measures can promote productivity as well as limiting injuries.

The effectiveness of the program is optimized by consistent attendance initially for a long enough period to see benefits and to integrate what they have learned into their own schedules. **We need the supervisors of these at-risk employees to promote full participation by registering them for these classes.**

We have set up the classes with enough flexibility for employees to participate as much as possible within the constraints of their work schedules. RSI Program Prevention Classes are at the following times:

**Pipettors and Small Animal  
Handlers**  
**11:00 – 11:30**  
**Mondays, Wednesday and  
Fridays**

**Computer Users**  
**2:00 – 2:30**  
**Mondays and Thursdays**

**Exercise Groups have been organized according to job stresses. The workouts are similar enough that employees can choose sessions as best fits their schedule or to make up a missed session.**

**To register your employees please contact Occupational Health.**

## RSI Prevention Fitness for Small Animal Handling

Employee Name: \_\_\_\_\_ Ext: \_\_\_\_\_ Loc: \_\_\_\_\_ Date: \_\_\_\_\_

Supervisor: \_\_\_\_\_ Dept: \_\_\_\_\_

Stresses	Description	Ergo Solution	Exercise/Strengthening	Exercise/Stretching
Neck/Cervical	<b>Pulling cages from racks at all different heights</b>	Stool for high cages to lower neck extension looking up  Position self directly in front of cage while pulling	NA	<ol style="list-style-type: none"> <li>1. <b>Neck circles.</b></li> <li>2. <b>Turn head to the right hold for 15 seconds (same for the left)</b></li> <li>3. Tilt head to the right, left, front, and back (hold each stretch for 15 seconds)</li> </ol>
Cervical/Shoulders	<b>Reaching overhead to pull out heavy cages then carry them to bench</b>	Raise emp to eliminate overhead reach while pulling cage  2 handed pull to distribute strain evenly across R & L Trapezius Carry cages close to body  Decrease weight of cages AMAP (work with managers)	<ol style="list-style-type: none"> <li>1. Trapezius raise</li> <li>2. Shoulder front raise</li> <li>3. Shoulder side raise</li> <li>4. Shoulder back raise</li> </ol>	<ol style="list-style-type: none"> <li>1. Pull one arm across the chest and hold for 15 seconds, then change arms</li> </ol>
Arms (Upper)	Above stresses to upper arms <b>holding weight of arms up and over to reach cages</b>	Changes as above	<ol style="list-style-type: none"> <li>1. Shoulder press</li> <li>2. Biceps curl</li> <li>3. Triceps Press</li> </ol>	<ol style="list-style-type: none"> <li>1. Pull one arm across the chest and hold for 15 seconds, then change arms</li> <li>2. Push both arm off to the side</li> <li>3. Place one arm over the head and push down the middle of the back with the opposite arm</li> </ol>

Stresses	Description	Ergo Solution	Exercise/Strengthening	Exercise/Stretching
Arms (Elbows/forearms)	<b>Elbows twisted and sustained using forearm muscles to reach over and into cage while gripping mouse</b> Forearm deviation & wrist pronation/supination	Raise employee relative to the cage while lifting out the mouse using platforms for shorter employees  Pull cage closer to edge of bench to decrease twisting at elbow	1. Hammer curl	1. Push both arm off to the side
Mid back	<b>Leaning</b> over bench while working	Sit if possible  Chair adjusted for back support  Leg room cleared and chair in close to work	1. Back row 2. Lateral pull down	1. Pull arms behind body 2. Pull arms forward into a dive stretch
Low back	Leaning as above <b>Prolonged standing at bench</b>	Sitting alternated with standing Chair adjustments as above Foot rests to allow alternating 1 leg raised on footrest. Frequent position changes	Superman/ superwoman (lay on your stomach, squeeze your gluteus lifting your arms and legs off the floor)	1. Lay on your back and hug your knees into the chest and hold for 15 seconds 2. Hamstring stretch (lay on your back bend the left knee and keep it on the floor, pull the right leg straight toward your chest and hold for 15 seconds. Switch sides.
Hands and Wrists	Gripping mouse by pinching tail and then pronating hand while gripping Sustaining this position	No ergo solution found. Refer for hand strengthening and emphasize pacing and stretching	NA	Wrist Circles

Ergo Evaluation By: \_\_\_\_\_

Fitness Evaluation by: \_\_\_\_\_

## RSI Prevention Fitness for Computer Work

Employee Name: \_\_\_\_\_ Ext: \_\_\_\_\_ Loc: \_\_\_\_\_ Date: \_\_\_\_\_

Supervisor: \_\_\_\_\_ Dept: \_\_\_\_\_

Stresses	Description	Ergo Solution	Exercise/Strengthening	Exercise/Stretching
Neck/Cervical	<b>Holding Head in Static Position</b> to watch screen & twisting to write/phone	VDT at eye level & centered Document Holders Phone headset	N/A	<b>1. Turn head to the right hold for 15 seconds (same for the left)</b> 2. Tilt head to the right, left, front, and back (hold each stretch for 15 seconds)
Cervical/Shoulders	<b>Forward reaching with arms</b> pulls upper body forward causes further head tilting to see screen	Adjust chair and sit supported using Ergo Keyboard tray to allow seating close to work with upper arms relaxed by sides	Shoulder press Front raise Side raise Shrugs	Pull one arm across the chest and hold for 15 seconds, then change arms
Arms (Upper)	Above stresses to upper arms <b>holding weight of arms forward over keyboard</b> for long periods Holding mouse arm further out while gripping & moving mouse	Adjust chair arms and keyboard tray to decrease reach Mouse on mouse tray or centered over keyboard Ergo mouse if needed	N/A	
Arms (Elbows/forearms)	<b>Muscles of forearms</b> used to power repetitive key strokes Mouse: gripping & Maneuvering Forearm deviation & wrist pronation/supination	Adjust set-up to allow forearms & hands to be in straight line Move whole forearm over keyboard Light touch hitting keys Loose grip on mouse	Hammer curl	Wrist forward stretch Wrist down stretch Arms stretched out to the side

<b>Stresses</b>	<b>Description</b>	<b>Ergo Solution</b>	<b>Exercise/Strengthening</b>	<b>Exercise/Stretching</b>
Mid back	<b>Leaning</b> over computer	Chair adjusted for back support Leg room cleared and chair in close to work Pull phone, document holders & supplies in close to minimize twisting& reaching.	Lateral Pull down Shrugs Reverse fly Upright Row	Pull both arms forward and stretch for 15 seconds
Low back	Leaning as above <b>Prolonged sitting</b>	Chair back adjustment Foot rest adjusted Chair height adjusted Frequent breaks with position change/stretching advised	Superman/ superwoman (lay on your stomach, squeeze your gluteus lifting your arms and legs off the floor)	1. Lay on your back and hug your knees into the chest and hold for 15 seconds 2. Hamstring stretch (lay on your back bend the left knee and keep it on the floor, pull the right leg straight toward your chest and hold for 15 seconds. Switch sides.

**Ergo Evaluation By:** \_\_\_\_\_

**Fitness Evaluation by:** \_\_\_\_\_

## RSI Prevention Fitness for Pipetting

Employee Name: \_\_\_\_\_ Ext: \_\_\_\_\_ Loc: \_\_\_\_\_ Date: \_\_\_\_\_

Supervisor: \_\_\_\_\_ Dept: \_\_\_\_\_

Stresses	Description	Ergo Solution	Exercise/Strengthening	Exercise/Stretching
Neck/Cervical	<b>Bent forward</b> to watch work	Adjust height of bench top, chair, and/or standing height to minimize forward neck flexion	N/A	<b>1. Turn head to the right hold for 15 seconds (same for the left)</b> 2. Tilt head to the right, left, front, and back (hold each stretch for 15 seconds)
Cervical/Shoulders	<b>Forward reaching with arms</b> while holding up weight of pipette for extended time	Seating close to work with upper arms relaxed & arms supported Standing height to minimize reaching up (platforms).	Shoulder press Front raise Side raise Shrugs	Pull one arm across the chest and hold for 15 seconds, then change arms
Arms (Upper)	Above stresses to upper arms <b>holding weight of pipette</b> for long periods	Ergo pipettes are lighter weight,	N/A	N/A
Arms (Elbows/forearms)	<b>Muscles of forearms</b> used to grip pipette, maneuver pipette and Compress controls using thumb for manual pipette, whole hand and fingers for Serologic pipettes	Ergo pipettes allow: Loose grip Neutral positioning of wrist & hand Soft touch to trigger controls No sustained pressing of controls	Hammer curl	Wrist forward stretch Wrist down stretch Arms stretched out to the side
Hands	Gripping pipette Compressing with thumb	Ergo pipettes and correct hand positioning		Wrist Circles

Stresses	Description	Ergo Solution	Exercise/Strengthening	Exercise/Stretching
Mid back	<b>Leaning</b> over bench top to pipette with arms extended	Chair adjusted for back support Leg room cleared and chair in close to work Armrest on bench for support of arms & trunk when forward lean needed	Lateral Pull down Shrugs Reverse fly Upright Row	Pull both arms forward and stretch for 15 seconds
Low back	Leaning as above Prolonged <b>standing</b>	Chair back adjustment Foot rest adjusted Chair height adjusted Alternating footrests while standing	Superman/ superwoman (lay on your stomach, squeeze your gluteus lifting your arms and legs off the floor)	1. Lay on your back and hug your knees into the chest and hold for 15 seconds 2. Hamstring stretch (lay on your back bend the left knee and keep it on the floor, pull the right leg straight toward your chest and hold for 15 seconds. Switch sides.

Ergo Evaluation By: \_\_\_\_\_

Fitness Evaluation by: \_\_\_\_\_

