Preventing Sprains and Strains in the Workplace

Presented by
Occupational Health Services
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Outline

- Introduction – why training
- MOL initiative
- Musculoskeletal Injuries
- Basics of injury prevention
- What you can do
- Health and wellness
- Summary
Why training

- It’s the law! - Due diligence required of the employer to increase awareness of hazards and provide training solutions
- Your responsibility to work safely
- MOL #1 priority is reducing musculoskeletal injuries
- Keep valuable employees healthy and at work
Ministry of Labour statistics...

- 2003-2006
- 41% of all claims involving time lost from work (39,450 claims/year)
- $304,653,000 costs related to time lost from work
- 2,524,000 days lost
MOL initiative...

- July 2004: government announced plans to reduce workplace injuries by 20%

- January 26th, 2006-Labour Minister Peters launches Pains and Strains Campaign and MOL releases awareness materials

- February 28th, 2006-MOL launches Pains and Strains Web Site:

  http://www.labour.gov.on.ca/english/hs/pains/further_reading.html
Musculoskeletal Injuries...

- Workplace pains and strains
- Repetitive strain injuries, cumulative trauma disorders
- Affect the muscles, tendons, ligaments and nerves
- As a result of repetitive, forceful or awkward movements on bones, joints, ligaments and other soft tissues
MSD’S…

- Estimated that from 1996 to 2004 employers paid more than 12 billion $ in direct and indirect costs related to MSD’s
- Strong connection between the work related risk factors and these conditions
- MSD’s can be prevented: eliminate and reduce the risk factors
Injury Prevention

- Understanding the risk factors
- Minimizing the risk factors
- Keeping fit and healthy
Ergonomics

- fitting the task to the worker
- minimum physical demands
- acceptable output
- working efficiently
- avoid fatigue
Risk Factors

- Force
- Fixed or Awkward Posture
- Repetition
- Accelerated Motions
- Vibration
- Cold Temperatures
- Hot Work Environment
- Direct Contact Pressure
**Force**

- Forceful exertions
- higher loads on the muscles, tendons and joints
- fatigue increases with increase in force
- e.g. lift, carry push or pull objects weighing more than 10 lbs. (box of paper)
Force required increases when:

- gripping an object weighing more than 10 lb.
- gloves required
- pinch grip required – caps of tubes
- equipment has small, slippery or hard handles – lab tools
- force is held for a sustained period of time (10 seconds for upper extremity and 20 seconds for lower extremity)
Repetition

- Task or series of tasks performed over and over again
- Fatigue and soft tissue strain accumulate
- Tissues can recover if enough time between exertions
What is repetitive?

- Caution zone: repeating the same motion with the wrists or hands with little or no variation every few seconds for:
  - More than 6 hours per day (with no other risk factors)
  - More than 2 hours per day (with high force and poor posture)
Posture

- Position to perform an activity
- how forces are translated from the muscles to the object being handled
- neutral posture ideal
- awkward positions require increased force by muscles
- sustained awkward posture increases fatigue
Neutral Working Posture

- Neck – normal curve
- Back – normal curves maintained
Neutral Posture (cont.)

- Shoulders - slight movement forward and back and to side
- Forearm - elbows close to 90 degrees flexion, minimal pronation, supination
- Wrist - straight
Accelerated Motions

- Uncontrolled movements
- Result in excessive forces to the muscle tissues
- Can result in excess wear and tear
Vibration

- Vibration transmitted from tool or object to hand (ex. When dragging chair or table)
- Vibration avoided in range of 2 to 200 Hz
Cold

Is body exposed to temperatures less than:

- 60 degrees F. for sedentary work
- 40 degrees F. for light work
- 20 degrees F. for heavy work
Direct Contact Pressure

- hard, sharp objects press into skin
- can inhibit blood flow and nerve function
- from biosafety cabinet edges, counter edges, desk edges, table edges, tools with poor fit (e.g., End of small scalpel pressing in on palm of hand)
Minimizing the risk – work technique...

- Maintain close to neutral posture when possible
  - Avoid extended reaches where possible
  - Avoid excessive bending – use legs
  - Avoid excessive twisting
  - Avoid prolonged looking down (change head position frequently – look around!!)
Minimizing the risk – work technique...

- use proper body mechanics when lifting (practice)
  - Wide stance (steady and controlled movement)
  - Use legs when able
  - Back in neutral posture
  - Abdominals contracted
  - Know the weight
  - Keep the weight close (avoid reach and lift)
  - Avoid twist when lifting
Minimizing the risk... work organization

- Vary work when possible: plan the schedule to reduce repetition – keep durations of repetitive tasks to less than an hour at a time where possible

- Consider schedules and work organization to reduce risk factors – rotate tasks

- Interrupt repetitive type activity with STRETCH BREAKS and changes in posture
Stretch break...

- Promote circulation to fatigues muscles
- Provide movement for postural muscles that are fatigued from holding positions
- Improve flexibility to reduce chance of injury
- See hand out...let’s practice!!
Minimizing the risk... work organization

- Locate items used frequently within easy reach – between waist and shoulder height for standing work

- Change body position frequently – avoid holding sustained stooping or extended reaching for more than a few minutes at a time – create seated and standing workstations where possible

- Alternate between right and left arm use
Minimizing the risk... equipment

- Consider the tools you use
- Ensure power grips and neutral wrists
- Grip size (and cushioned)
- Light weight
- Right tool for the task
Some specifics... the pipette

- Use electronic and multichannel when possible
- Short pipettes
- Thumb dispenses and index finger aspirates
- Alternate right and left hand use
- Thin walled pipette tips easy to eject
Pipettes (cont.)

- Consider hand size when finding the right pipette
- Light weight requires less force to hold
- Multi finger controls help distribute force among several fingers
- Choose one that requires as little force as possible to control
Pipettes (cont.)

- Wrist neutral when pipetting (don’t twist or rotate)
- Relaxed grip and minimal pressure
- Rest breaks every 20 min. 1 – 2 min.
- Rotate tasks (keep to less than 2 hours at a time where possible)
- Set up workstation so items are within easy reach
More specifics... the microscope

- Every 15 min. close eyes or focus on a distant item
- Every 30 to 60 minutes get up and move
- Scope is clean and lighting is adequate
- Use monitor to view where possible (in correct position)
The microscope...

- Posture: pull the microscope toward the edge of the desk – ensure adequate leg space
- Head upright and line of sight 30 to 45 degrees below straight ahead vision (avoid forward head tilt)
- Adjust height and angle to improve head position
- Consider microscope accessories to improve set up
The microscope...

- Use armrests on edge of desk or apply padding to edge of desk to reduce compression
- Keep eye examinations up to date
- Check lab environment for excessive glare and reflections – avoid excessive illumination to reduce eye strain
- Temperature is ideally between 66 and 73 degrees F.
More specifics...Biosafety Cabinets

- New equipment: consider perforated front grill reduced by 1 to 2 inches
- Adjustable height
- Non-glare glass
- For existing BSC’s: position materials as close as possible
BSC’s…

- Use a fully adjustable chair providing adequate back support, adjustable seat angle and height adjustability
- Use closed cell foam padding on the edges or consider arm rests externally (consider bubble wrap that can be disposed after use and is cheap!)
- Adequate leg space – use a foot rest to provide stability when leaning forward
- Ensure lighting works properly, viewing window clean, line of sight unobstructed
The computer workstation...

- See workstation hand out...
Minimizing the risk...Stay Healthy!!

- Stay healthy and fit (see lifestyle checklist)
- Maintain good flexibility (review stretches)
- Maintain good strength (check grip strength and review exercises)
- Maintain good aerobic fitness (check resting heart rate)
Minimizing the risk...Stay healthy!!

- Eat properly (Canada’s Food Guide)
- Get sufficient sleep (good sleep habits)
- Manage stress
Inform your work

- If equipment is broken, let the team leader or supervisor know immediately (do not use broken equipment)
- Report incidents early
- Early intervention is key in preventing long term injuries
- Communication with your supervisor is essential
- Your work provides the resources, ask and talk
Summary

- Be aware of the risk factors
- Practice safe working procedures and technique
- Use ergonomically suitable equipment
- Pace work appropriately and provide variety
- Stretch throughout the day – take your breaks
- Maintain good health and fitness
- Inform your supervisor
THANK YOU

- ??? QUESTIONS???

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