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Ergonomics:

Optimizing human well-being & system performance





Protecting your back is not a luxury

When you're healthy you can participate and enjoy life

↳ **Leisure activities**-enjoy going for a run

↳ **Household chores**: keeps the family happy & when you're healthy chores won't exhaust you

↳ **Work=\$**: feel good at work, finish the day with energy

↳ **Sleep**-sleeping well is important for health & recovery

↳ **Mood**- feeling healthy improves mood & resilience

Injuries affect you, your family/friends & your co-workers.

WHY RISK IT



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Injury Signs & Symptoms



Back Injuries

- 80% of people experience back pain at some point in their lives
- Back pain is not always caused by serious injury or disease
 - └ Follow-up with First-Aid, your Healthcare Provider, or Supervisor modifications to your tasks and rehabilitation are easier if treatment is sought early
- Stay positive: Most people recover within a few days to a few weeks
- **WSBC [Manual for Backs](#)**

How musculoskeletal injuries occur

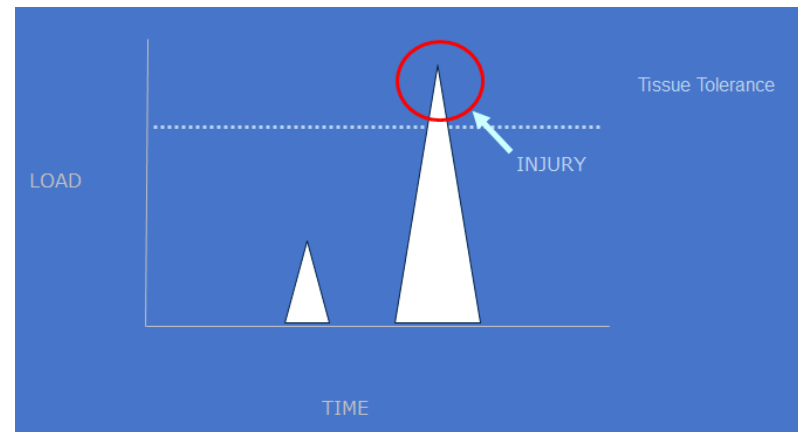
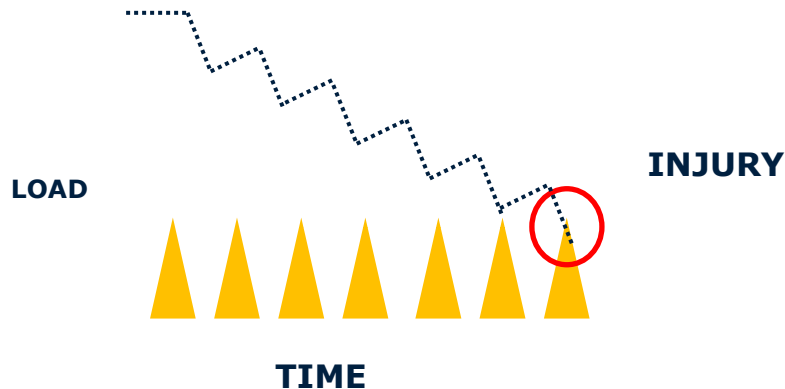
Repetitive Strain & Overexertion

Injury can occur from:

- repeated loading, weakening tissues to failure (RSI)

Or

- a one time load if the force is excessive (overexertion)





MSI Signs and Symptoms

Signs:

- Redness
- Heat
- Swelling
- Reduced range of motion

Symptoms:

- Pain and/or localized discomfort
- Stiffness/Heaviness
- Tender to Touch
- Weakness
- Numbness/Tingling

Report Signs & Symptoms Early

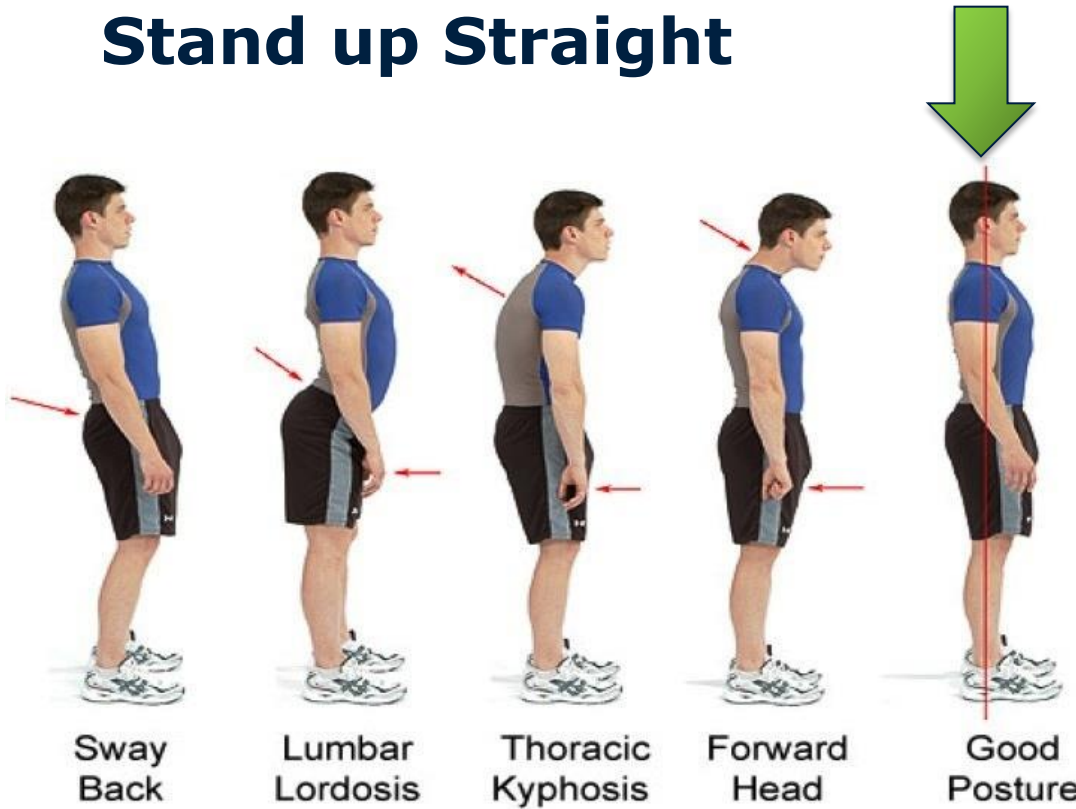


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POSTURE

Stand up Straight



Neutral Standing Posture:

- Ears over shoulders
- Shoulders relaxed
- Shoulders over hips
- Neutral pelvis
- Knees relaxed

Used with permission from [Dr. Aker, Sarasota Chiropractors](#)

Engage your Transverse Abs (TA)

Engaging your TAs is considered critical in providing stability.

To locate your Transverse Abs:

1. Place your hands on hips (bony part)
2. Move your hands 1" towards your belly button & 1" towards your toes



Used with permission from: [Pilates Success](#)

When you contract your TAs you should feel tension under your fingertips and not a contraction that pushes your fingers out



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Plan Your Lift



Are you ready for your lift:

As you bend forward & back the discs between your vertebrae will move

This is normal, but injury risk increases if bending while lifting or sustained bending prior to lifting

The creep that occurs with sustained bending reduces the ability of the muscles and ligaments to protect the back

If you have been sitting or bending, walk for 2 minutes to give your back time to recover, before lifting



***THINK* before you lift**

1. Do you need to lift the item

- └ Can you use a dolly or other means to move the item

2. Test the Load:

- └ How heavy is the load
- └ Can you get a good grip
- └ Is the shape awkward

3. Is help needed:

- └ Get help if the item is heavy or awkward

4. Clear the path:

- └ Do you have enough room to get in close (avoid lifting over another object)
- └ Remove any trip hazards

[3 minute video on preparing for your lift](#)

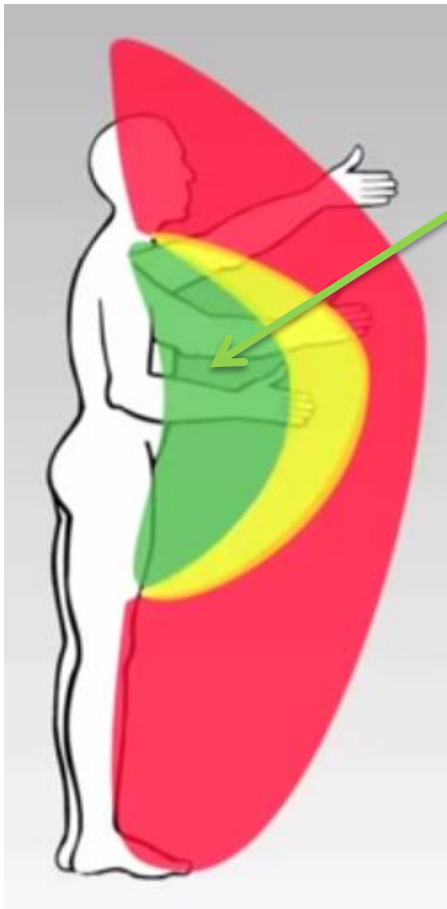


Determining a Safe Lifting Weight

There are several factors to consider:

- **Posture:** Does the position of the load promote bending, twisting or reaching
- **Stability:** is there enough room for you to have a good base of support &/or can the center of gravity of the load move unexpectedly
- **Shape:** Can you get a good grip; is the load symmetric
- **Repetition:** how often are you lifting
- **Flooring:** is there enough room for you to have a good base of support, is the flooring even or slippery; is there clutter
- **Temperature:** too hot or too cold can reduce your lifting capacity

Strongest Lifting Zone



Strongest lifting zone

Organize your work so that the heavies items are stored between **mid-thigh and chest level**



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Lifting Posture

Lifting Posture

Spinal Posture when lifting from the floor



As much as possible:
Keep ears & shoulders over hips

Engage Transverse Abs

If it is necessary to bend forward; bend at the hips, do not round your spine

Used with permission from [Dr. Aker, Sarasota Chiropractors](#)

Poor Lifting Posture: What to Avoid



Head and shoulders are far in front of the hips

This increases the strain on your back musculature

Used with permission from [Dr. Aker, Sarasota Chiropractors](#)



Lifting with the knees straight places high strain on your back

Used with permission from: [Chesapeake Physical & Aquatic Therapy](#)



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Lifting Techniques

Tripod Technique



Use this lift for:
Objects with an
uneven weight
distribution

- Put 1 foot next to object
- Kneel on other knee
- Grasp object firmly with both hands
- Slide object from knee to mid-thigh
- Keep head forward, back straight & buttocks out & lift object onto opposite thigh
- Put both forearms under object (palms up) & hug object to stomach & chest
- Look forward
- Lift with your legs
- Breathe out as you lift

Partial Squat Lift

Supporting your weight on thigh reduces the strain on your back musculature



- Stand with object close to your side
- Feet shoulder width apart, with 1 foot slightly in front of the other
- Place 1 hand on fixed surface such as table or on your thigh
- For support as you lift, push down on the fixed surface or your thigh
- Look forward
- Lift up with your legs
- Breathe out as you lift

Use this lift for:

Small objects

Handles close to knee height

Lifting out of your trunk



- **Limit the weight of the grocery bag**
- If the obstacle (preventing you from bending your knees) is stable, lean your legs against the obstacle for support
- Use your legs and hips to lower yourself down to the object



Non-Physical Factors

Non-physical factors can impact your risk of injury

Under stress, some people will:

- Use more force than necessary (pound the keys)
- Tense up (tighten muscles that don't need to be tight)
- Skip breaks (insufficient recovery)
- Poor sleep (you need deep sleep for tissue recovery)
- Poor coping habits (e.g. smoking-hinders recovery)



Positive Factors

Positive factors such as autonomy, rewards/recognition and co-worker/supervisory support have a protective effect against musculoskeletal injuries

What can you do to improve the positive factors within your work environment?

Available Resources:

Staff & Faculty

[UBC EFAP Program](#): Employee & Family Assistance Program

[Responding with Respect](#): Free interactive training for departments

[Thrive.ubc.ca](#): Building mental health at UBC

[Healthy UBC Newsletter](#): Free Newsletter



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For more information

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