

Safety Educational Webinar Series – Soft Tissue Injury Prevention

**Industrial Ergonomics:
What Is It and Why
Should It
Concern Me?**



Why We Are Here!?!?

- Routine work can dull alertness and create a relaxed attitude.
- In many jobs the same tasks are repeated with little thought.
- We may not recognize the importance for safety because we have been doing the same task for years.

Overview

- Without some periodic reawakening to the ever-present hazards around us, lethargy deepens and the odds of an accident occurring increases.



Soft Tissue Injuries = Frustration

- Top of SMT's workers' compensation cost leader board.
- Aging workforces.
- Stymied by these injuries.

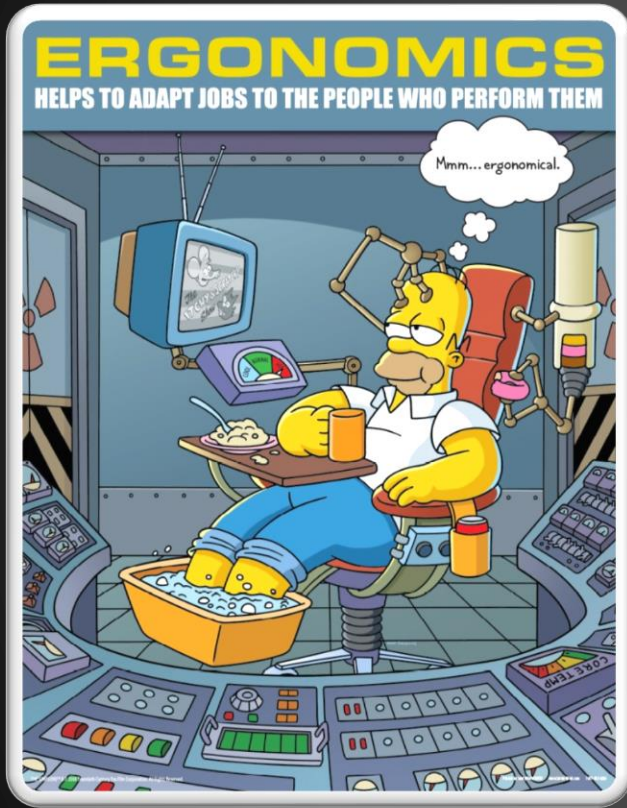


Ergonomics is...

The science of fitting the job to the worker

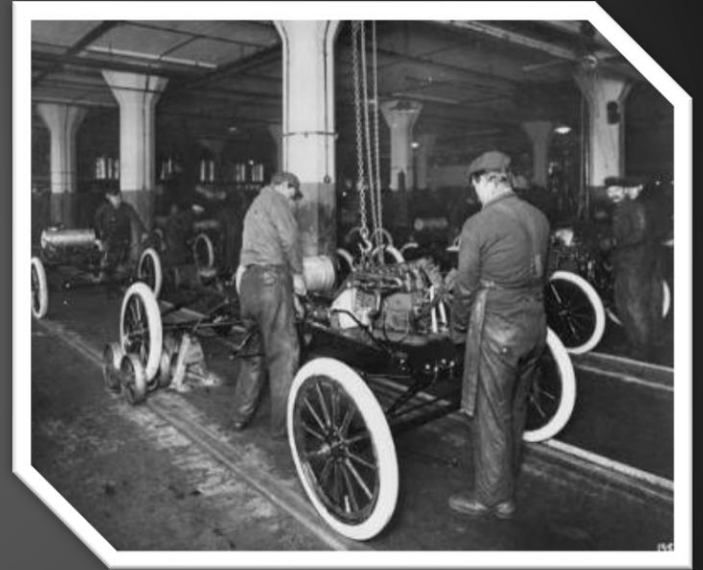
- Includes designing equipment and adapting work tasks to the capability of the worker
- Proactive approach to prevent injuries

– *A mismatch between the physical requirements of the job and the physical capability of the worker can result in work-related injuries*



History of Ergonomics

- Industrial Revolution
 - Steel industry (shovels)
- Henry Ford
 - Assembly line design
- Frank and Lillian Gilbreth
 - Micro-motion studies (i.e. today's surgical techniques)



History of Ergonomics

- World Wars
 - Aircraft, weapon design
- Cold War
 - Nuclear power plants
- Today
 - Industry, hospitals, offices, product design

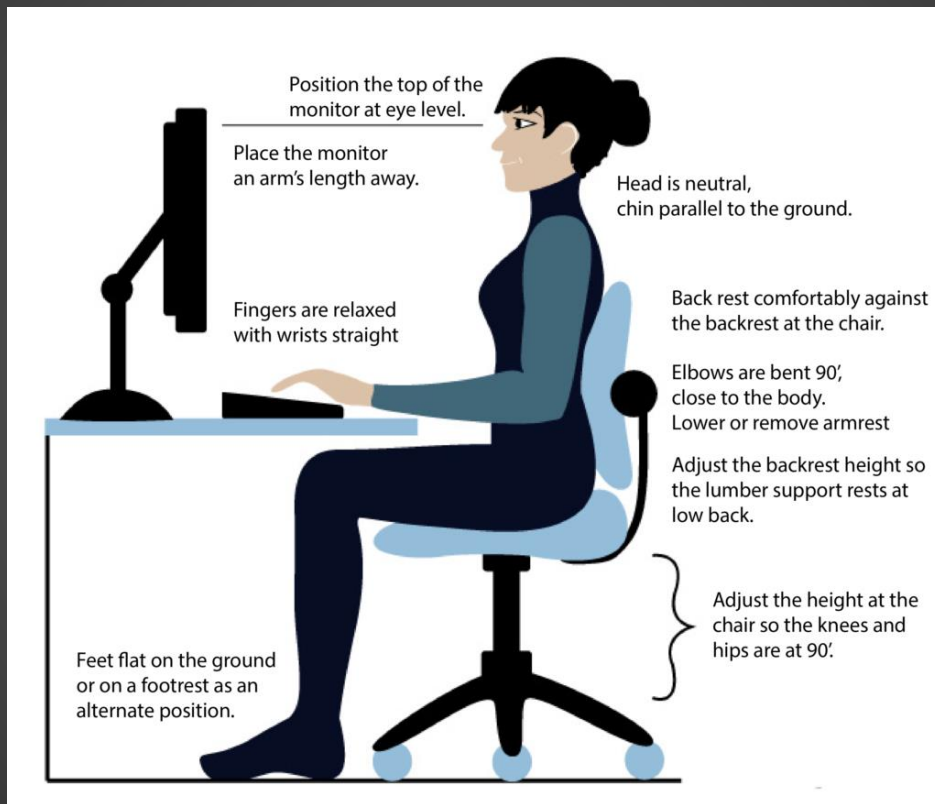


What Risk Factors Can Cause MSD Injuries?

- Awkward postures
- Repetition
- Excessive Force
- Static posture
- Vibration
- Poorly Designed Tools
- Extreme temperature
- Poor work organization



A Word About Organization . . .



A Word About Organization . . .

Epic Fail!!!

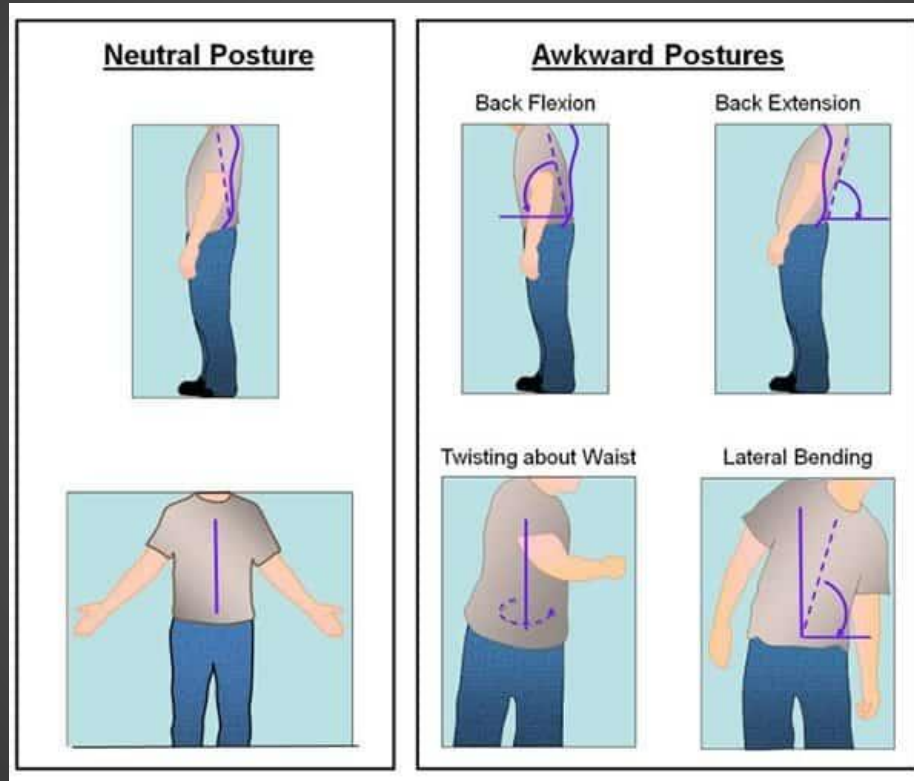


Problem Solving

- What are some ways to prevent strains, sprains, and Musculoskeletal Disorders (MSDs)?
 - Better materials
 - Better tools
 - Improved work methods
 - Better work organization
 - Training
 - Stretch and flex, and
 - Personal protective equipment (PPE)

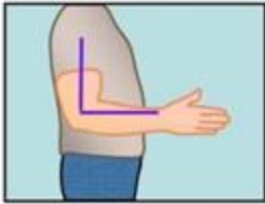


A Word About Posture



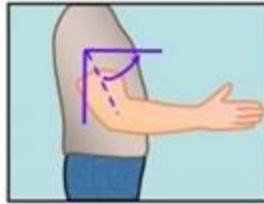
A Word About Posture

Neutral Posture

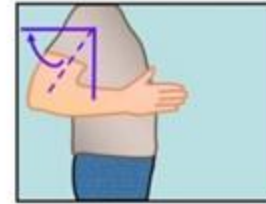


Awkward Postures

Shoulder Flexion



Shoulder Extension



Shoulder Abduction



Shoulder Abduction & Extension



Ergonomic Tools



Ergonomic Tools



Go Bags

Traditional Bag



5.11 Push Bag



Back Injury Prevention

Have you ever heard of a spine transplant?

Neither have we.

Take care of the one you have.



som^{ee}cards
user card

Introduction

- Everything you do both at work and at home impacts your back.
- Most back injuries can be prevented if you always think defensively about your back.
- This training session will discuss how your back can be injured and what you can do to prevent that injury.

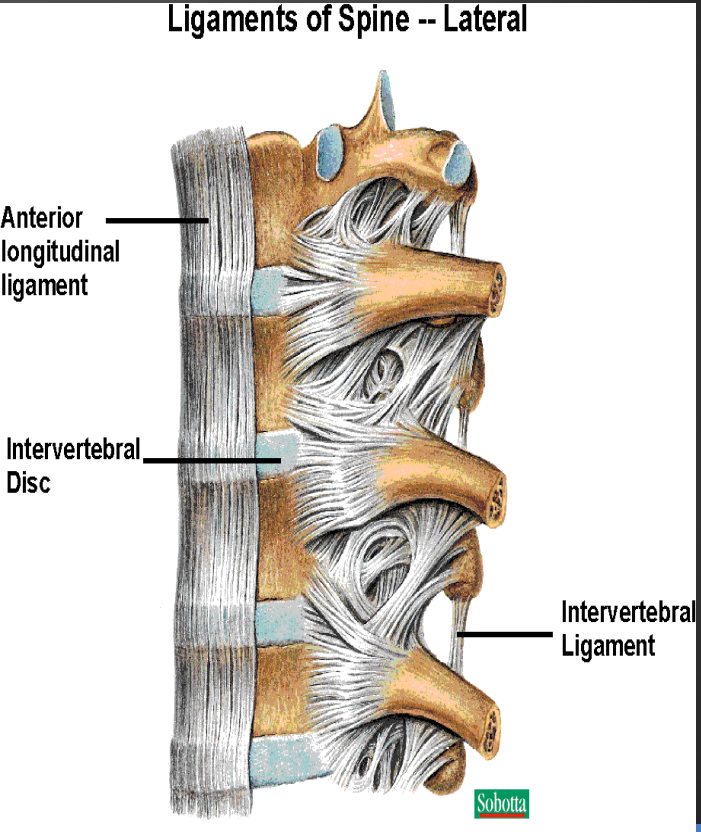
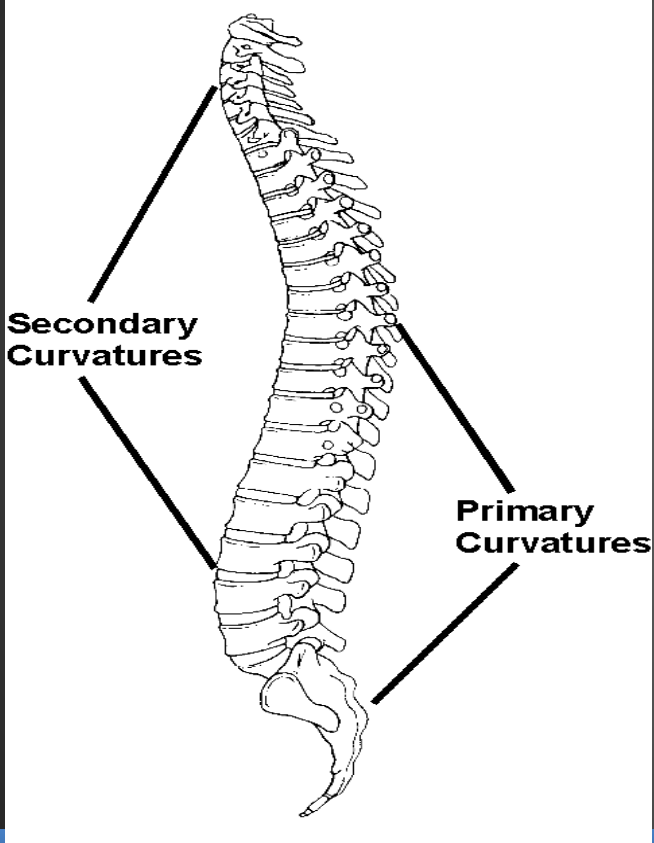


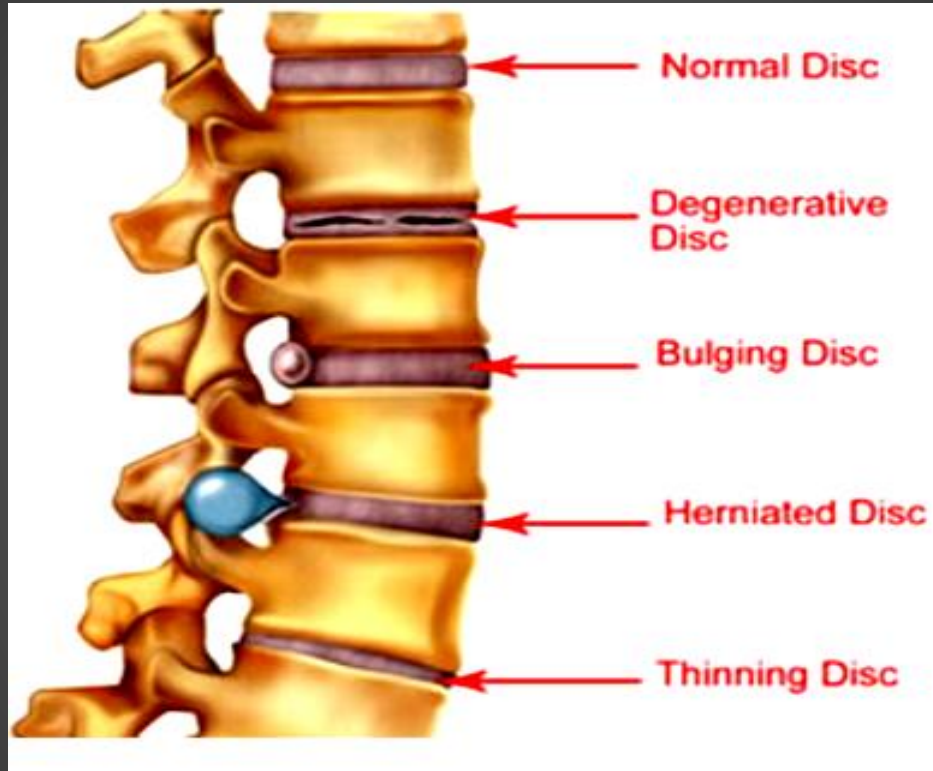
Back Injury Statics

- 80% of Americans will have a back injury that requires medical attention
- Back injuries are the second most common cause of lost work time, next to the common cold
- Back injuries occur more often at home than they do at work
- Injured backs are often subject to re-injury
- In addition to missed work, there may be a lifetime of pain



Back Parts





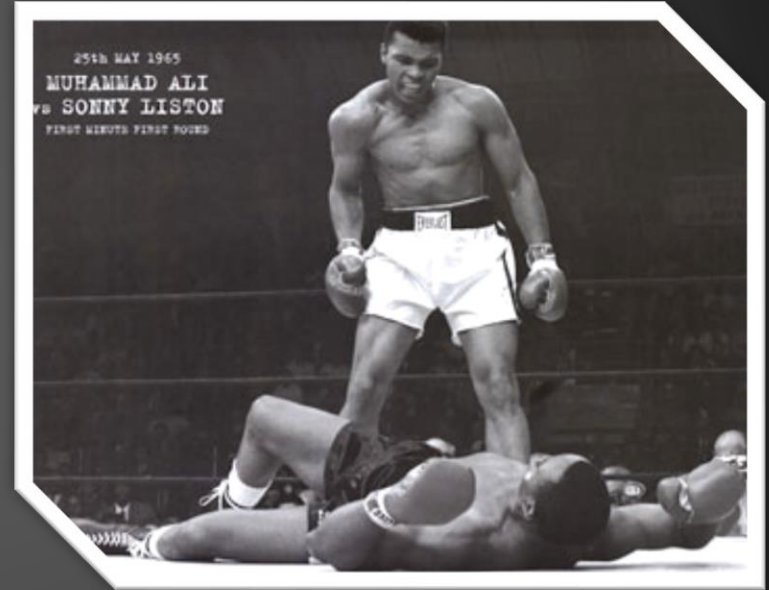
Safe Lifting Techniques

UVSAR.COM
Supporting Higher Standards

Occupational Athlete vs. Pro Athlete



Occupational Athlete's Routine?



Pro Athlete's Routine?

Pre-Shift Stretch

- Prepares the Body For Physical Work
- Increases Flexibility
- Enhances Body Mechanics
- Creates Body Awareness
- Reduces Risk of Injury
- Reduces Stress & Tension



Prevention – Flexibility

- The rubber band theory
 - Frozen vs. room temperature
- Loose and limber =
 - less likely for injury
- See your doctor for exercises



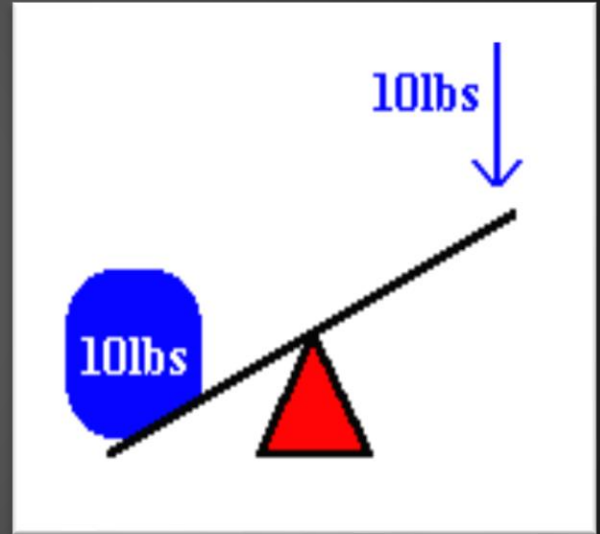
Five Leading Back Injury Risk Factors

1. Poor Posture
2. Lack of Conditioning
3. Obesity



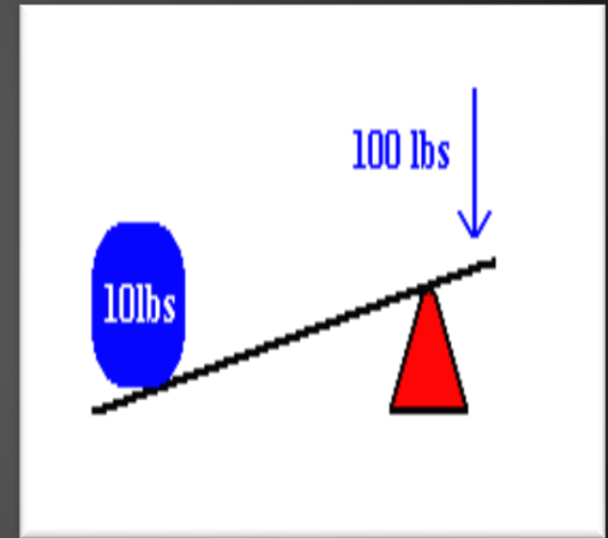
The Forces Involved

- The amount of force you place on your back in lifting may surprise you!
- Think of your back as a lever.
- With the fulcrum in the center, it only takes ten pounds of pressure to lift a ten-pound object.



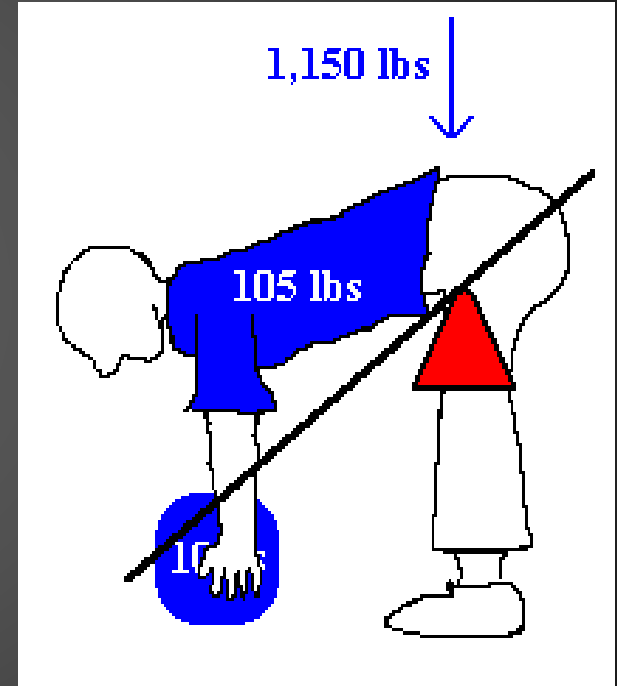
The Forces Involved

- If you shift the fulcrum to one side, it takes much more force to lift the same object.
- Your waist acts like the fulcrum in a lever system, on a 10:1 ratio.
- Lifting a ten-pound object puts 100 pounds of pressure on your lower back.



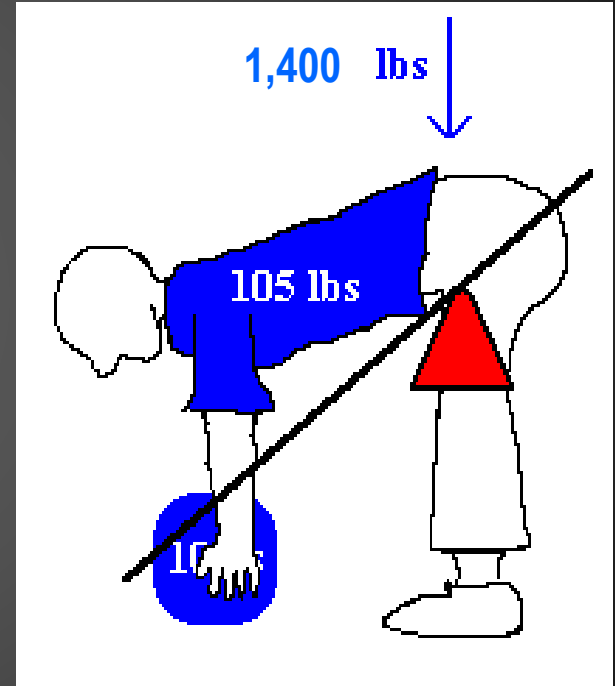
The Forces Involved

- When you add in the 105 pounds of the average human upper torso, you see that lifting a ten-pound object puts 1,150 pounds of pressure on the lower back.



The Forces Involved

- If you were 25 pounds overweight, it would add an additional 250 pounds of pressure on your back every time you bend over.



Five Leading Back Injury Risk Factors

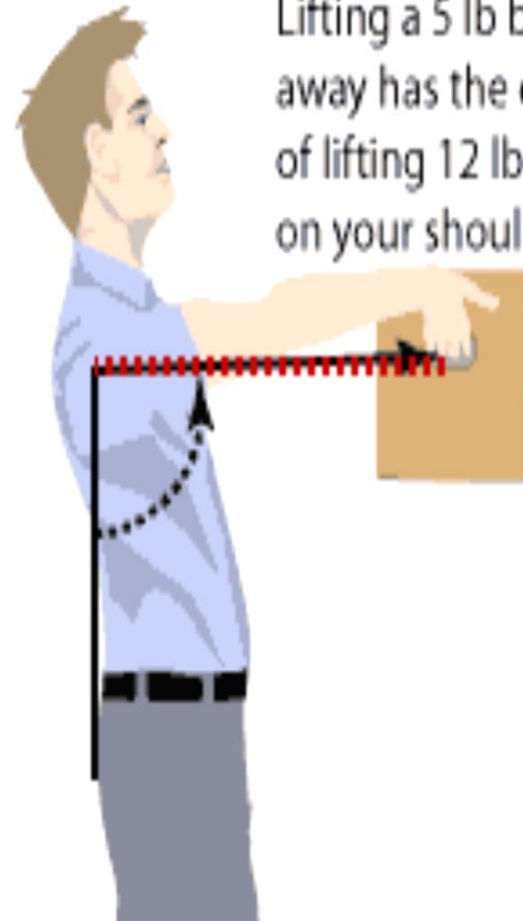
1. Poor Posture
2. Lack of Conditioning
3. Obesity
4. Failure to Use Mechanical Lifting Aids
5. Rushing to Lift



Lifting a 5 lb box up and away from the body has the effect of lifting 5 lbs.

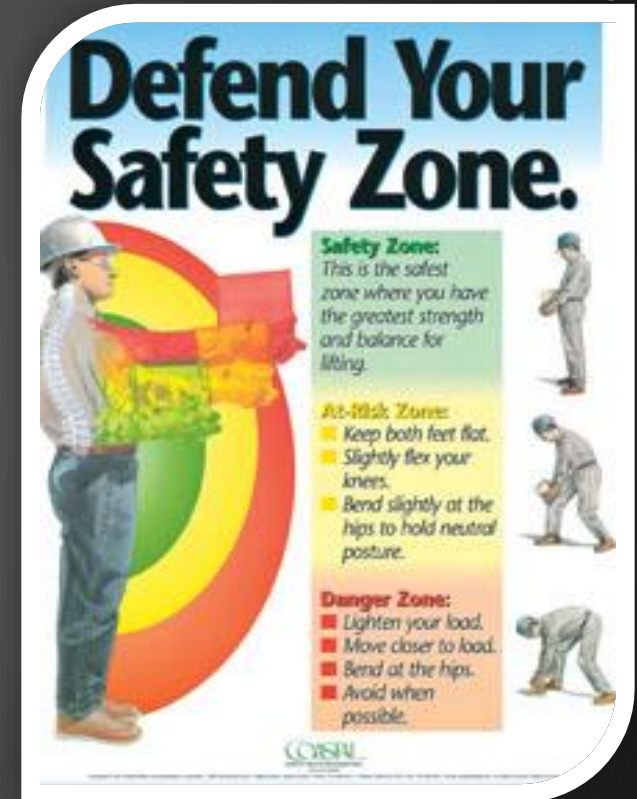


Lifting a 5 lb box away has the effect of lifting 12 lbs on your shoulder



Summary

- These principles should make it clear that we need to lift with our head before we lift with our back.
- Taking a couple of seconds to help ensure our safety and health is time well spent.



Safety Has Its Benefits

- Employers that invest in workplace safety can expect to reduce injuries, and illnesses.
- This will result in cost savings in a variety of areas, such as lowering workers' compensation costs and medical expenses.
- Happier and healthier employees!



Change

- Change can be difficult!
- Dr. W. Edwards Deming said “ It is not necessary to change, Survival is not mandatory”



Questions, Comments or Concerns?



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