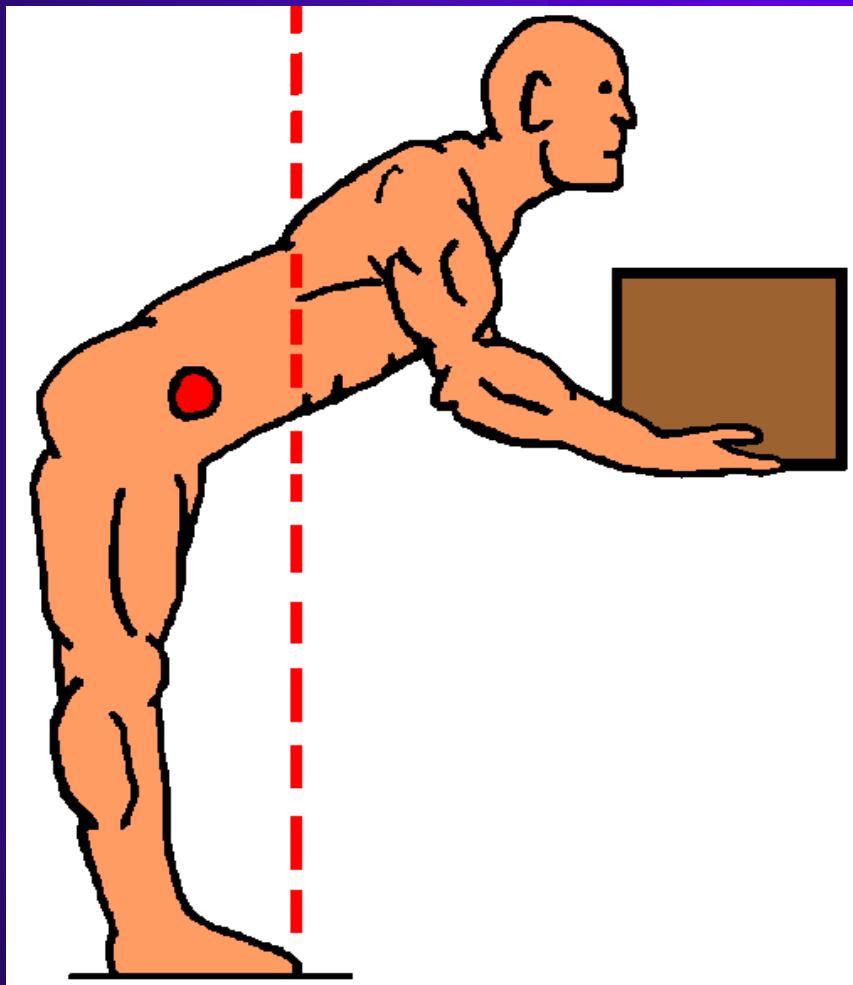


Proper Body Mechanics

Ken Smylie, CMI

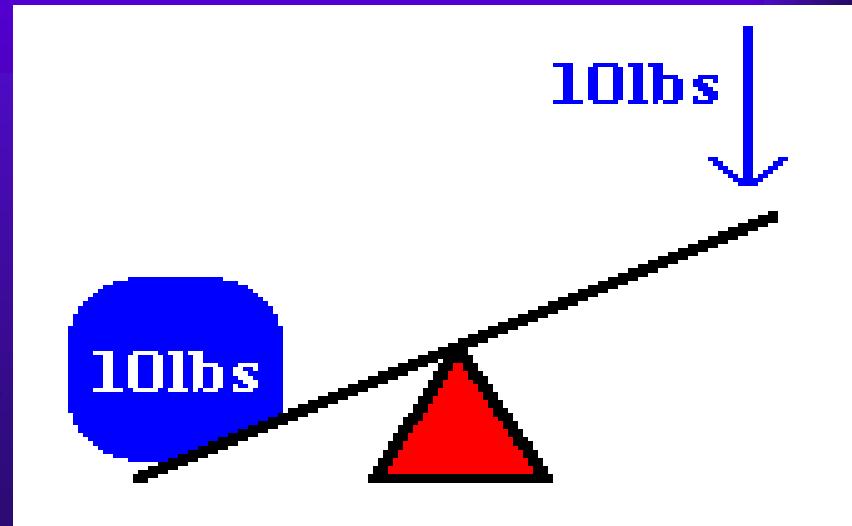


The Forces Involved

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.

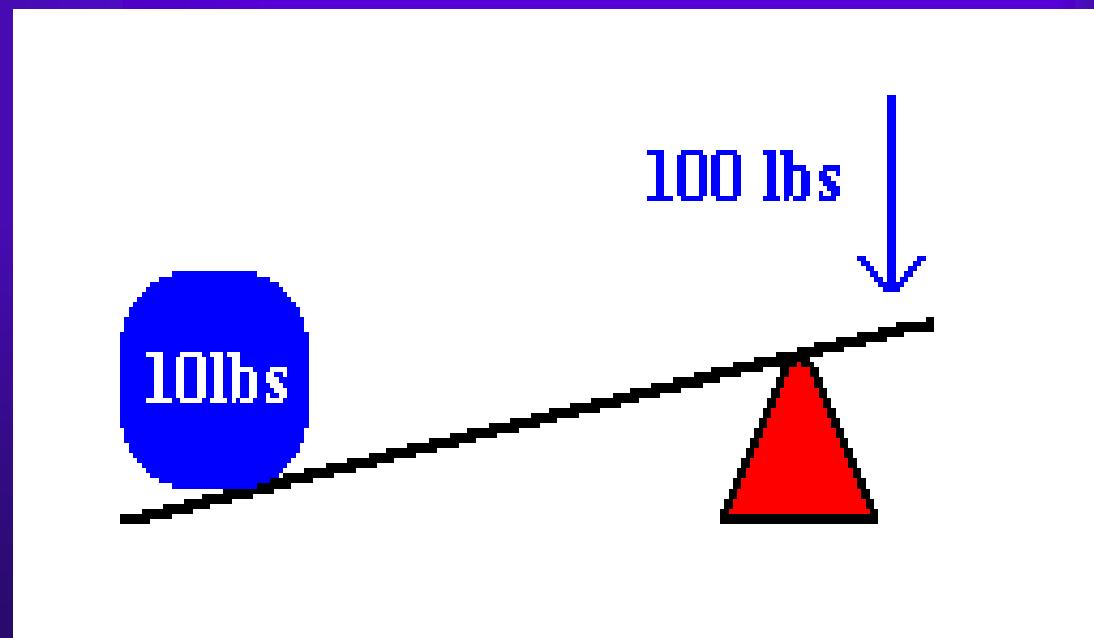




The Forces Involved

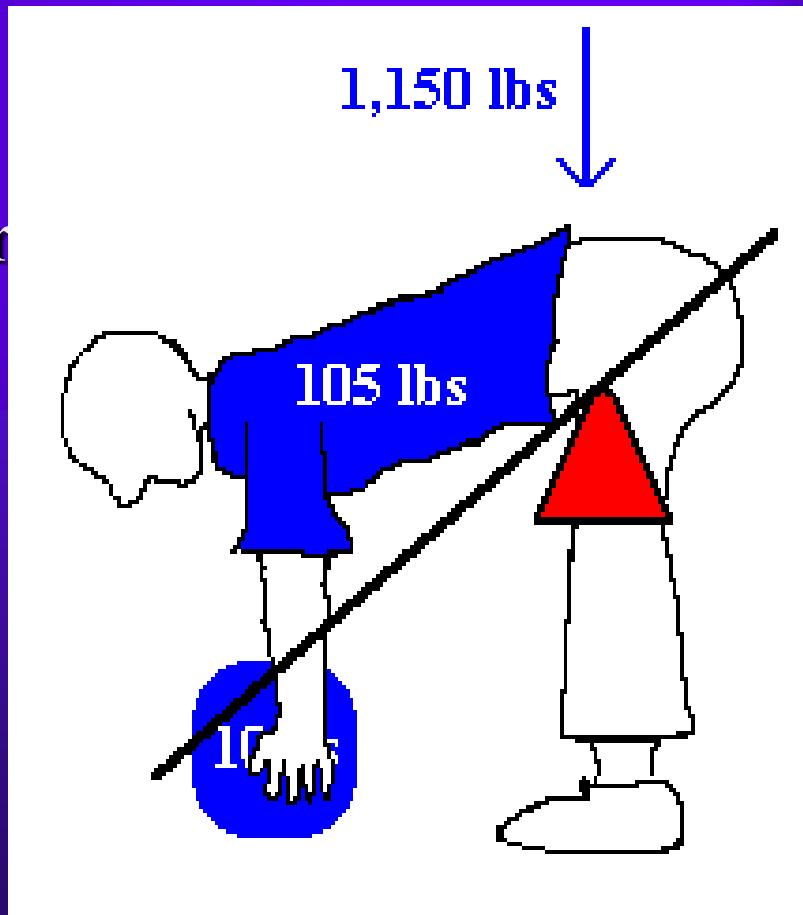
If you shift the fulcrum to one side, it takes much more force to lift the same object. Your waist acts like the fulcrum in a lever system, on a 10:1 ratio.

Lifting a
ten pound
object puts
100 pounds
of pressure
on your
lower back.



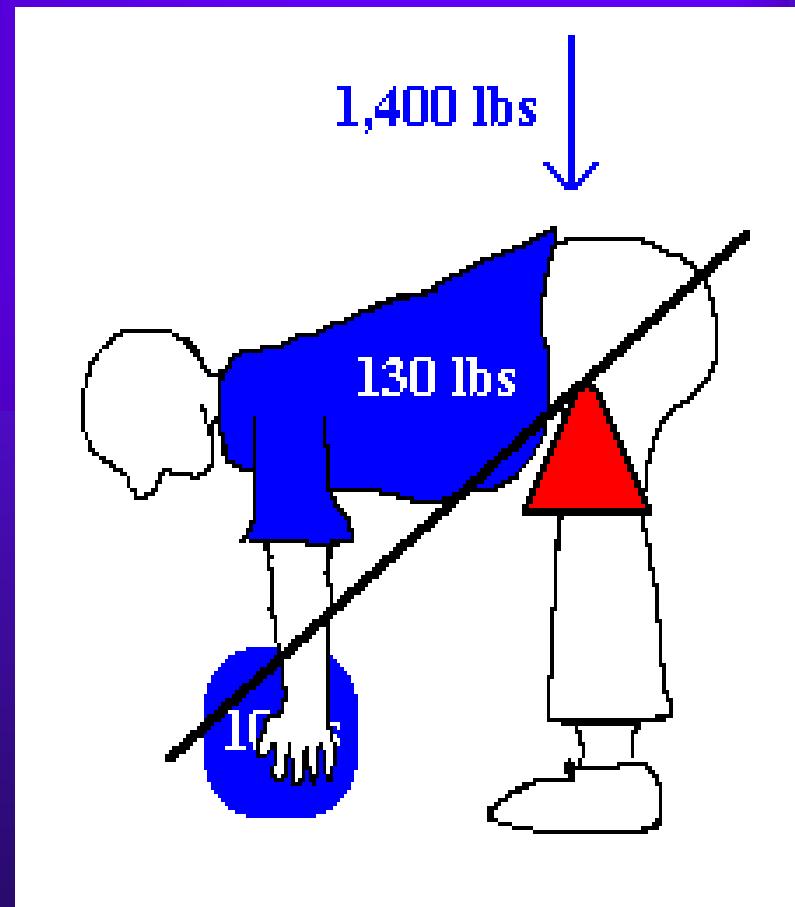
The Forces Involved

When you add in the 105 pounds of the average human upper torso, you see that lifting a ten pound object actually 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.





Material Handling Injury Risk Factors on the Job

- ◆ Force/Exertion
- ◆ Repetitive Activities
- ◆ Poor Postures
- ◆ Environmental Conditions
- ◆ Vibration



Poor Back Postures





Material Handling Injury Personal Risk Factors

- ◆ Fatigue
- ◆ Over Weight
- ◆ Poor Physical Condition
- ◆ Smoking
- ◆ Alcohol Abuse
- ◆ Age





Awkward Body Positions

- ◆ Bending
- ◆ Twisting
- ◆ Pushing
- ◆ Pulling
- ◆ Lifting
- ◆ Kneeling
- ◆ Reaching
- ◆ Over Stretching





Lifting Tips

1. Take a Deep Breath
2. Tighten Abdominal Muscles
3. Exhale During the Lift



Poor Body Mechanics



Common Causes of Back Injuries

Twisting at the
waist while
lifting, carrying
or
holding a heavy
load







Prevent Back Injuries

- ◆ Avoid bending, reaching, and lifting.
- ◆ Plan your lift.
- ◆ Place objects up off the floor.
- ◆ Raise, lower and stock shelves accordingly.
- ◆ Use carts and dollies.
- ◆ Use cranes, hoists, lift tables, and other lift-assist devices whenever possible.
- ◆ Estimate center of gravity for awkward objects.
- ◆ Get help if it's too heavy.
- ◆ **DO NOT TWIST!!!**





Lifting Tips



- ◆ When lifting, keep the lifted object as close to the body as possible.
- ◆ Use the legs, not the back for leverage.
- ◆ Avoid twisting when you lift and carry.
- ◆ Pivoting is the alternative to twisting; move the foot and leg in the direction of the material being moved.



Lifting Tips

- Make sure your footing is firm. Keep feet at least shoulder width apart. A staggered stance with one foot slightly behind the other helps to provide a firm base of support.
- Bend at the knees, not at the waist. Go down as far as necessary or as possible using your legs and not your back.





Lifting Tips

1. Take a Deep Breath
2. Tighten Abdominal Muscles
3. Exhale During the Lift



Things You Can Do

- ◆ Minimize problems with your back with exercises that tone and stretch the muscles in your back, abdomen, and thighs.
- ◆ Before beginning any exercise program, you should check with your doctor



Exercise!

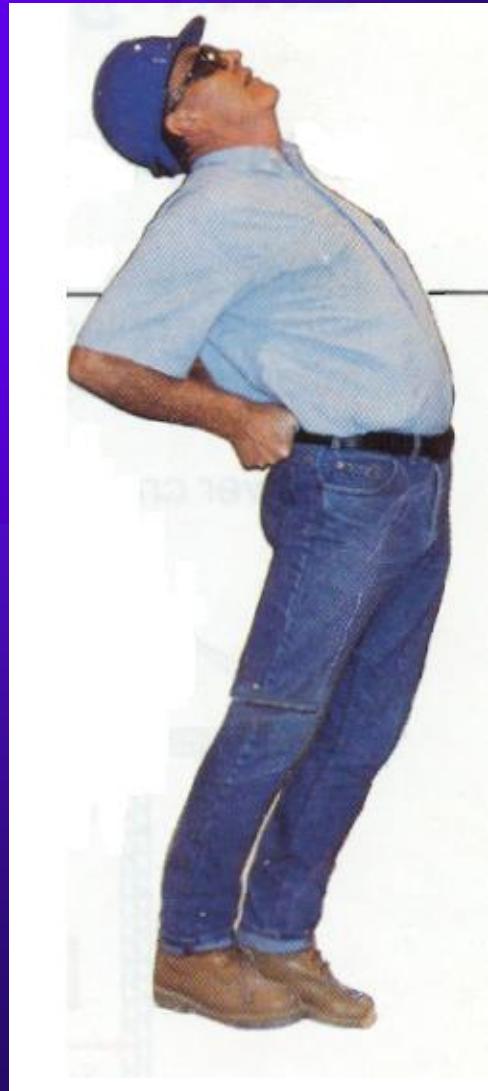
- ◆ Exercise regularly (30 minutes/day)
A brisk walk is very good exercise!

Inhale deeply before each repetition
of an exercise and exhale when
performing each repetition.



Stretching

- ◆ The aging process can bring about a loss of flexibility.
- ◆ A stretching routine is necessary (even if you are flexible) to maintain the elasticity of muscles, ligaments and tendons.

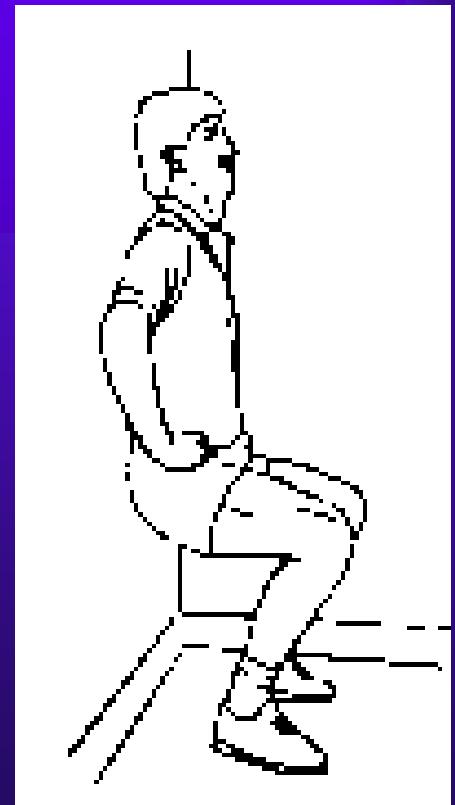




Exercises To Help Your Back

**Wall slides to strengthen
your muscles . . .**

**Stand with your back
against a wall, feet
shoulder-width apart.
Slide down into a crouch
with knees bent to 90 degrees.
Count to 5 and slide back up
the wall. Repeat 5 times.**



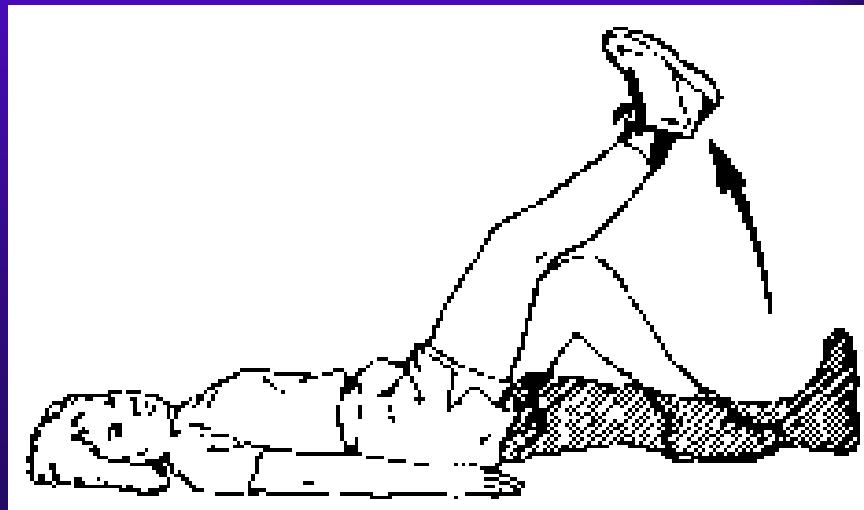


Exercises To Help Your Back

Leg raises to strengthen back and hip muscles

Lie on back, arms at your sides. Lift one leg off floor and hold for count of ten. Do the same with the other leg. Repeat 5 times with each leg. If this is too difficult...

**keep one knee bent
and the foot flat on
the floor while raising
the other leg.**



Exercises To Decrease the Strain on Your Back

Lie on back, knees bent, feet flat on floor.

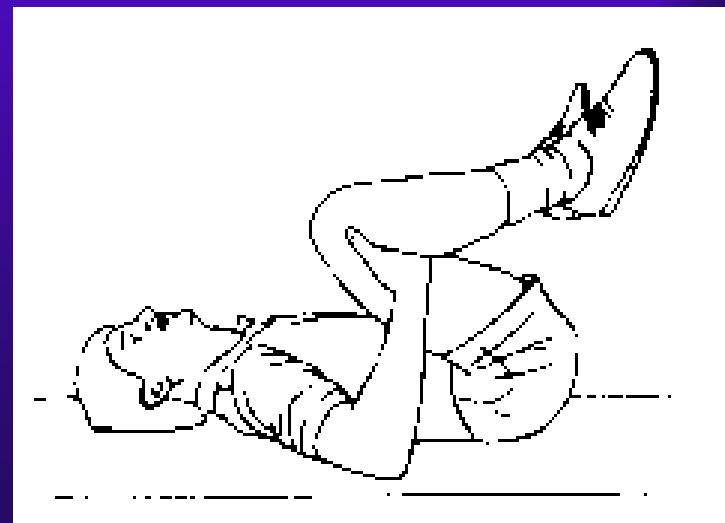
Raise knees toward chest.

Place hands under knees & pull knees to chest.

Do not raise head.

**Do not straighten legs
as you lower them.**

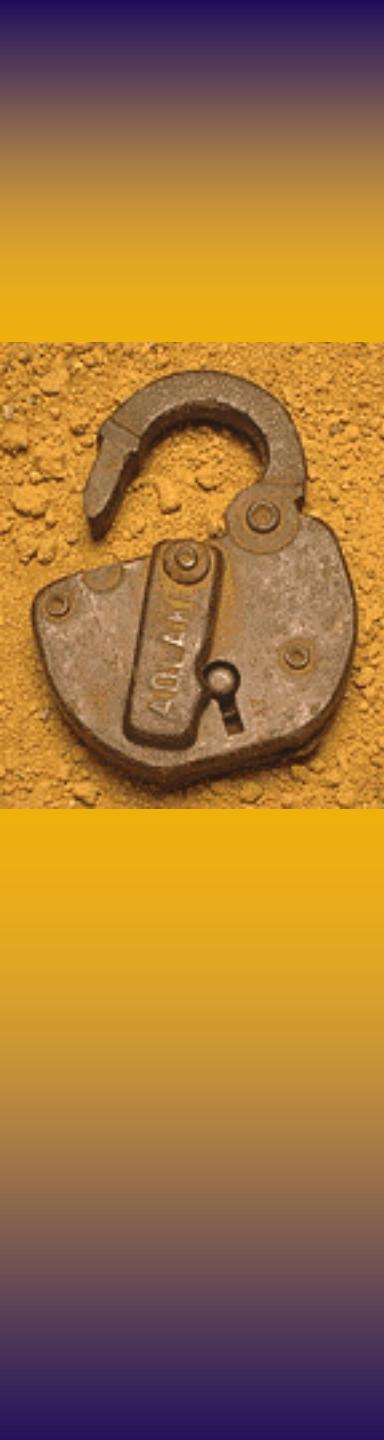
**Start with 5 repetitions,
several time a day.**



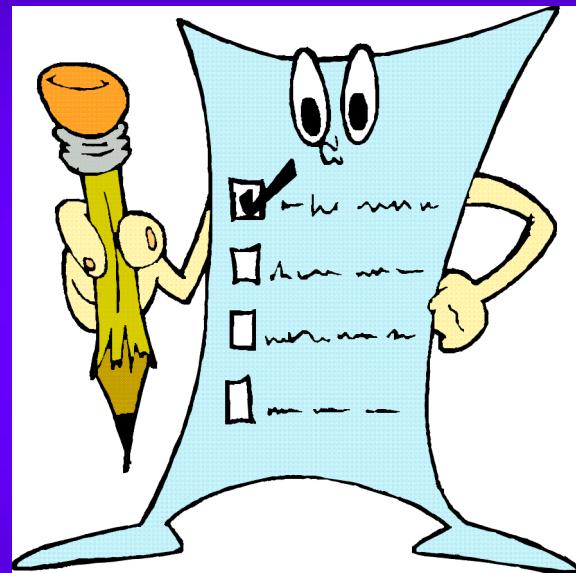


Take care of your back...

- ◆ And it will take care of you
 - Exercise daily
 - Plenty of rest
 - Good diet
 - Avoid heavy lifting
 - Get help with heavy or bulky objects
 - If you must bend over, do it properly
 - Avoid twisting and lifting/carrying!



Proper Body Mechanics



Questions ???



Have a Safe Day! ☺

