

BODY MECHANICS

CMHA-CEI

- Basics about backs
- Facts about Back Disorders
- Maintaining a Healthy Back
 - Common activities
 - Lifting Techniques
 - Stretching Techniques



Topics



Your back



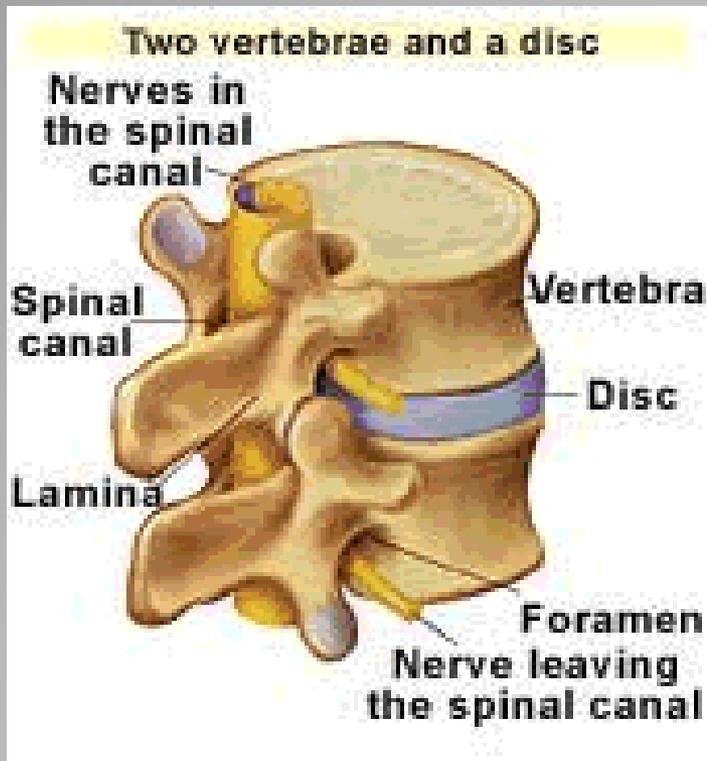
- Spine & Vertebrae
- Discs
- Nerves
- Tendons
- Ligaments
- Muscles

Components of the Back

- The basic function of the **spine** is to provide support for the upper body, protect the spinal cord, and allow for movements such as bending and rotating.
- The **vertebrae**, when lined up in their natural position, form three curves.
- Maintaining these curves keeps the spine balanced.

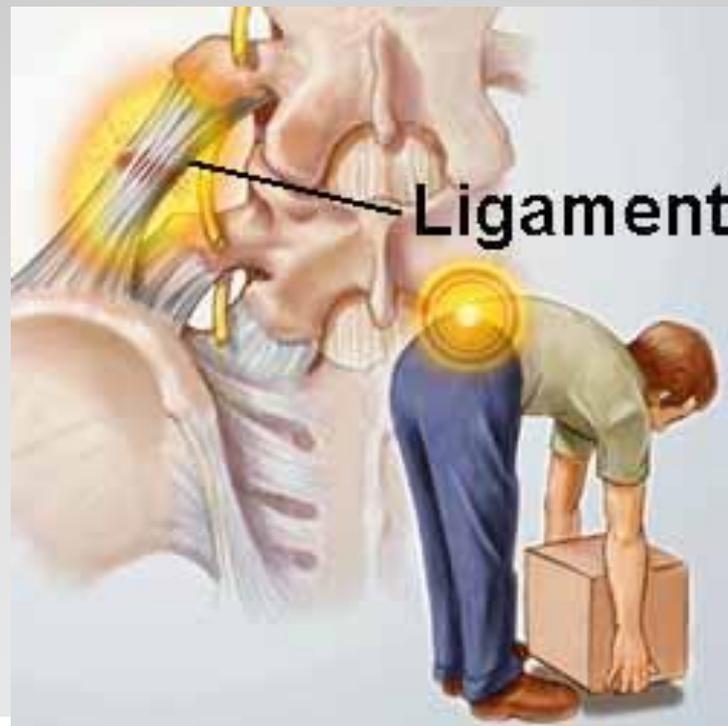
Spine & Vertebrae



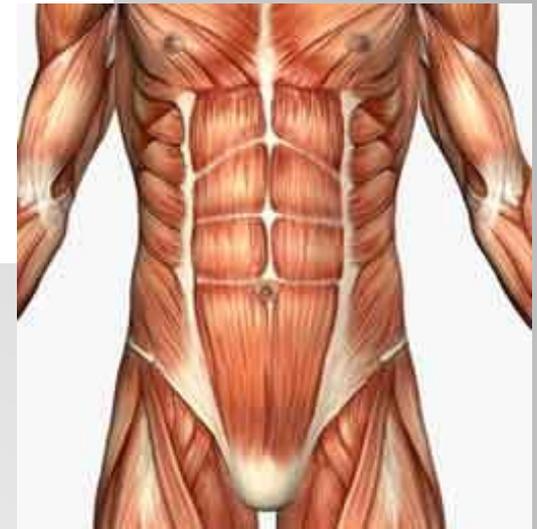
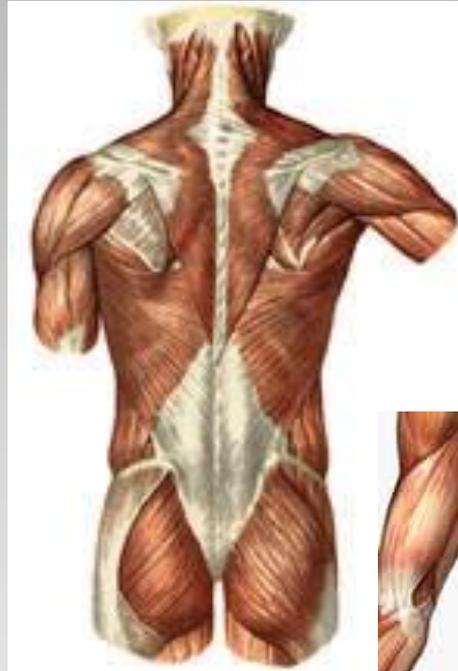


- The Discs function as shock absorbers of the spine.
 - Discs become less elastic as we age.
- Nerves travel down from the brain and group to form the spinal cord

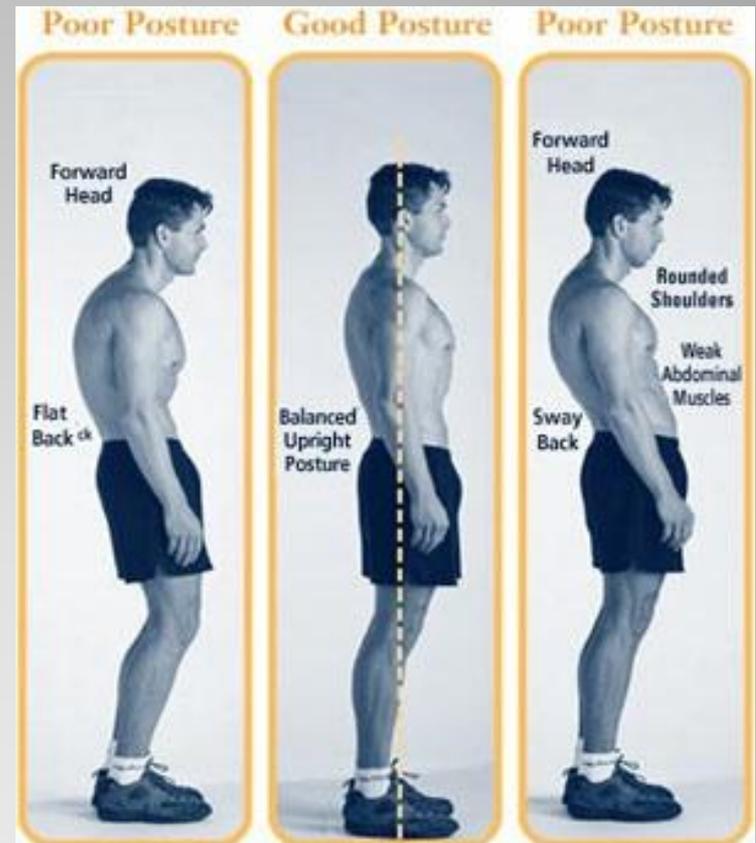
- **Tendons** are bands of tough, fibrous tissue that **connect muscles to bones**
- **Ligaments** are tough connective tissue that **connect bones to bones**



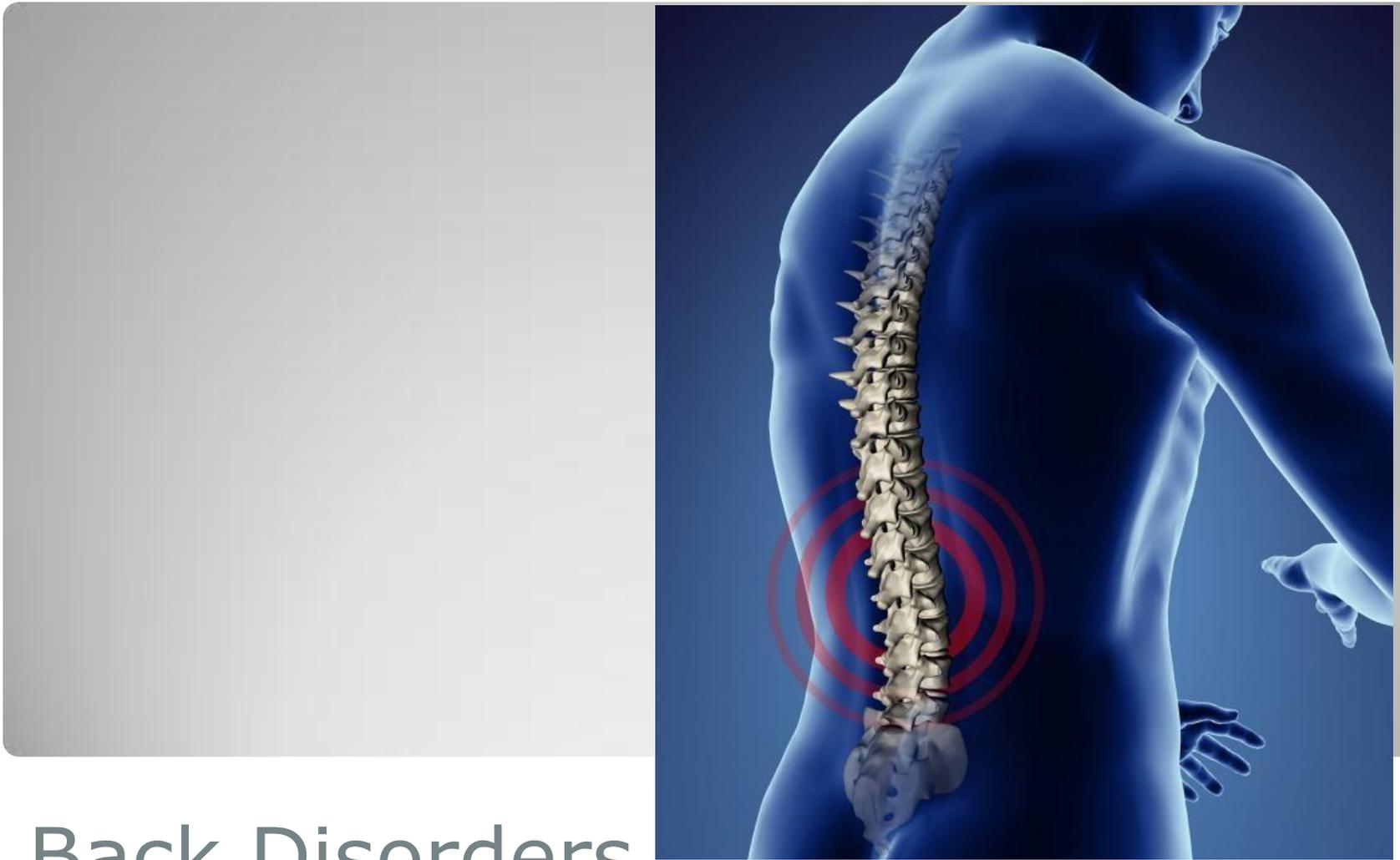
- Muscles provide support and movement for the spine. Stomach muscles work together to keep the spine in a balanced position.



- The spine works most efficiently when you maintain good posture
 - A forward slump adds the weight of the entire upper body to a lift.
 - A backward arch jams the joints of the back together



Posture



Back Disorders

- Some of us are more likely to have back problems because of the way we live.
- Others are more prone to injury because of working conditions or factors in our lives we cannot change.
- On the following slides is a list of indicators may apply to you.
- **The more often you answer “yes”, the greater your risk of back injury.**

Are you at risk?

- Are you pregnant?
- Are you more than 20% over weight?
- Do you stand or sit in one position for 30 minutes or more?
- Do you carry a heavy shoulder bag or keep a thick wallet in your hip pocket?
- Do you work at a computer much of the day?
- Do you frequently use files stored in a drawer below hip level?
- Do you make frequent, lengthy phone calls?

Risk Factors



- Do you often place objects on or remove them from shelves located above your head or below knee level?
- Do you wash dishes by hand?
- Do you lift heavy things from the floor frequently?
- Do you often carry or lift a small child?
- Do you drive for more than an hour at a time?
- Do you golf, bowl, play tennis, or take part in other sports occasionally rather than on a steady basis?
- Do you sleep on either a hard or sagging mattress?
- Do you stretch out on the sofa or scoot down in a recliner to watch TV all evening?



Risk Factors



- Back and neck problems are generally the result of repeated misuse rather than the result of one specific event
- Your back is potentially at risk regardless of your occupation

Causes of Back Disorders

- Back and neck problems generally develop as a result of the following:
 - Work habits and personal lifestyle
 - Physical environment
 - Force
 - Repetition
 - Position
 - Physical condition
 - Previous Injuries
 - Attitude/Stress
 - Physical Trauma



Causes of Back Disorders

- **Poor Body Mechanics**

- the way your entire body adjusts to keep its balance as you move & rest.
- You upset your body mechanics if you:
 - move or lift heavy objects incorrectly,
 - carry or lift something too heavy,
 - sit or stand in an unnatural position,
 - twist your body abruptly or awkwardly.



Causes of Back Disorders

- **Poor Muscle Tone**

- Weak, under exercised muscles rob the back of its support.
- Poor muscle tone also makes the muscles more likely to be injured when they are stressed.
- The stronger you are, the lighter the work is

- **Extra Weight**

- Extra body weight often settles in the abdomen and hips, and strains the back by exaggerating the curve of the lower back.
- The more weight, the deeper the curve; just 10 lbs. of extra weight in abdomen – even due to pregnancy- equals 100 pounds of pressure on the spine.

Causes of Back Disorders

• High Heels

- Wearing high heels affects posture and can cause back pain.
- Standing or walking in high heels deepens the curve in the lower back, forcing the bottom of the pelvis to tilt backward to keep the body balanced.



Causes of Back Disorders

- **Stress**

- Anxiety, depression, and other strong emotions can cause muscle tension in the back and throw muscles into spasms.
- Stress can make us choose bad postures
- The results:
 - Mild discomfort to severe pain, and a vulnerable back.



Causes of Back Disorders

- **Lack of Exercise**

- Little or no exercise can result in decreased blood circulation to muscles.
- Lack of exercise can also result in slower coordination and affect your physical ability to respond quickly in a situation.
- The amount of endurance you have can help you put out greater effort all day long and not be completely fatigued at the end of the day.
- People do not need to join a gym if they do not want. They need to move more than they do now!!!

Causes of Back Disorders



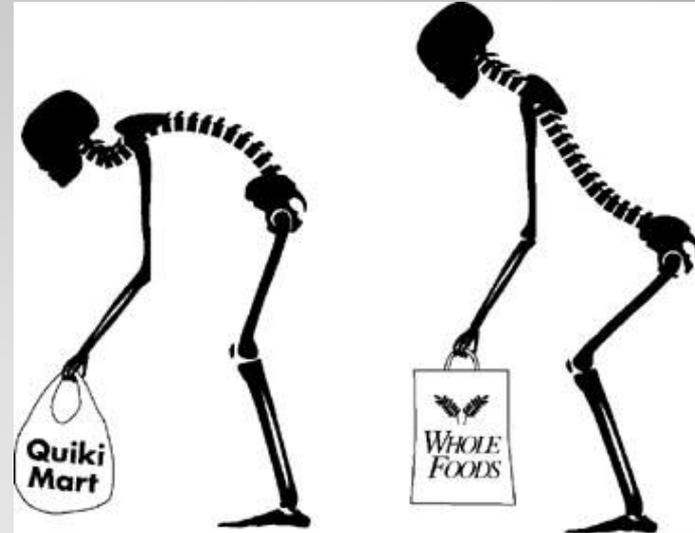
- **Smoking**

- Decreases the flow of nutrition to the spine.
- This can increase your risk of injury and increase the length of recovery following an injury

Causes of Back Disorders

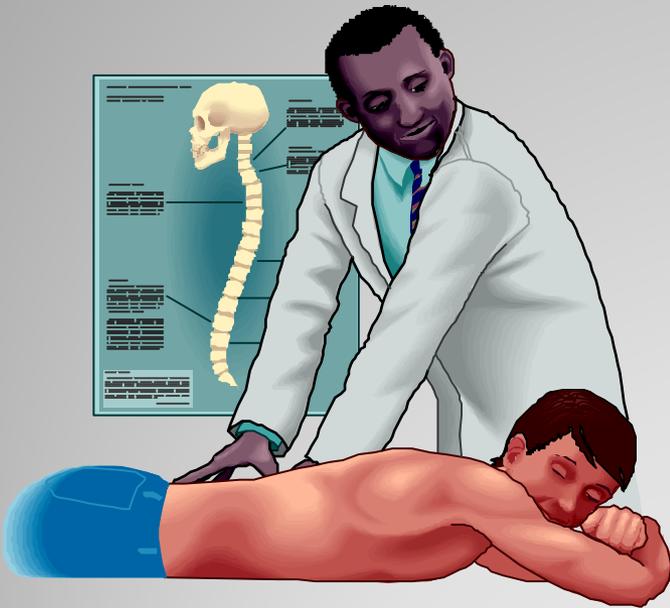
- **Poor Health Habits**

- A balanced diet is very important for the health of your spine and has a positive effect on your energy level and performance
- Lack of sleep can rob every part of the body, including your back, of energy and stamina.



Causes of Back Disorders

- **If you have a back problem**



- Ask good questions of the people who are treating you.
- Do your exercises
- Use your body in a way that allows recovery to happen
- Make sure that the people treating you are qualified to do so

Work with the Recovery Process!



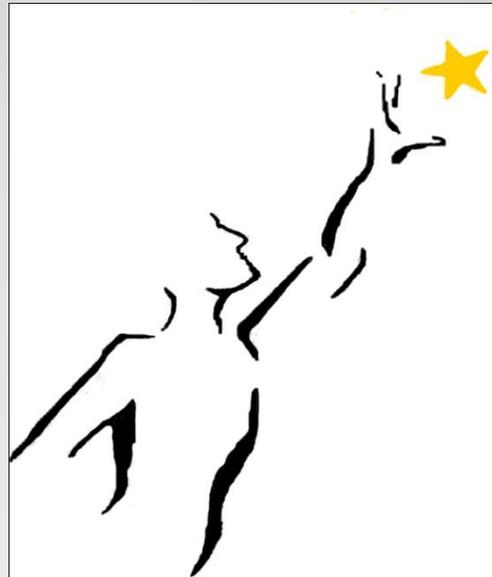
Maintaining a Healthy Back

- Maintain the normal curves of the spine
 - Use a cushion or rolled towel if your chair does not provide adequate support for your lower back
- Place feet comfortably on the floor or footrest
 - The seat should not dig into the back of your knees



Sitting

- Locate materials within arm's reach
- Sit close to your work to avoid slumping
- Stand whenever possible if the job permits
- Change positions frequently throughout the day.



Sitting

- Chin Tuck
- Overhead Reach
- Calf Stretch
- Thigh Stretch
- Hamstring stretch
- Low Back Stretch



Stretching & Warm up for Sitting

- Maintain the normal curves of the spine as much as possible
- Stand on anti-fatigue mats or wear supportive shoes



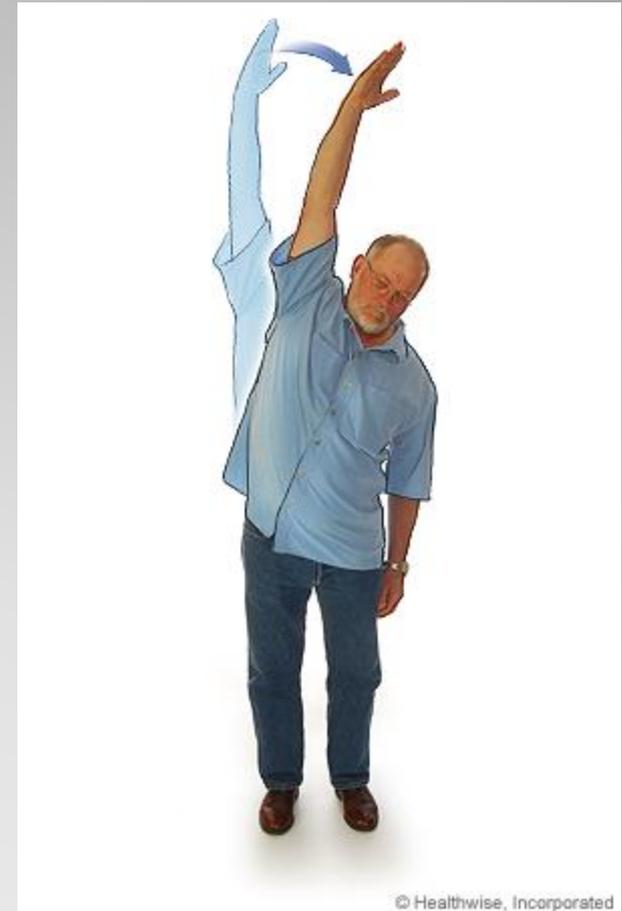
Standing



- Place a foot on an elevated surface from time to time
- Do not stand with legs in a locked position
- Stand with legs shoulder width apart with one foot slightly ahead of the other
- Keep your stomach muscles firm
- Stretch periodically to give your back a break

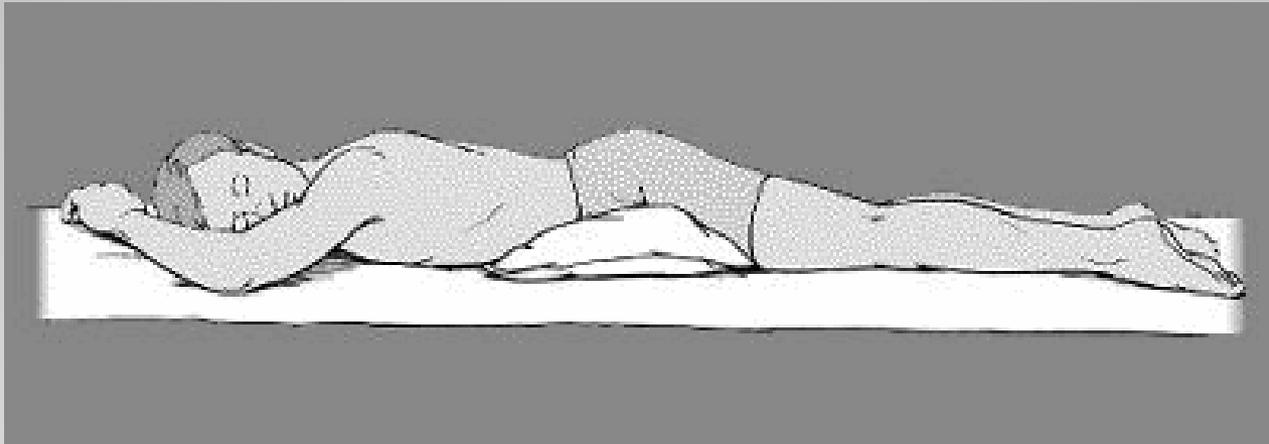
Standing

- Chin Tuck
- Overhead reach
- Calf Stretch
- Rotation stretch
- Standing side stretch
- Forward low back stretch



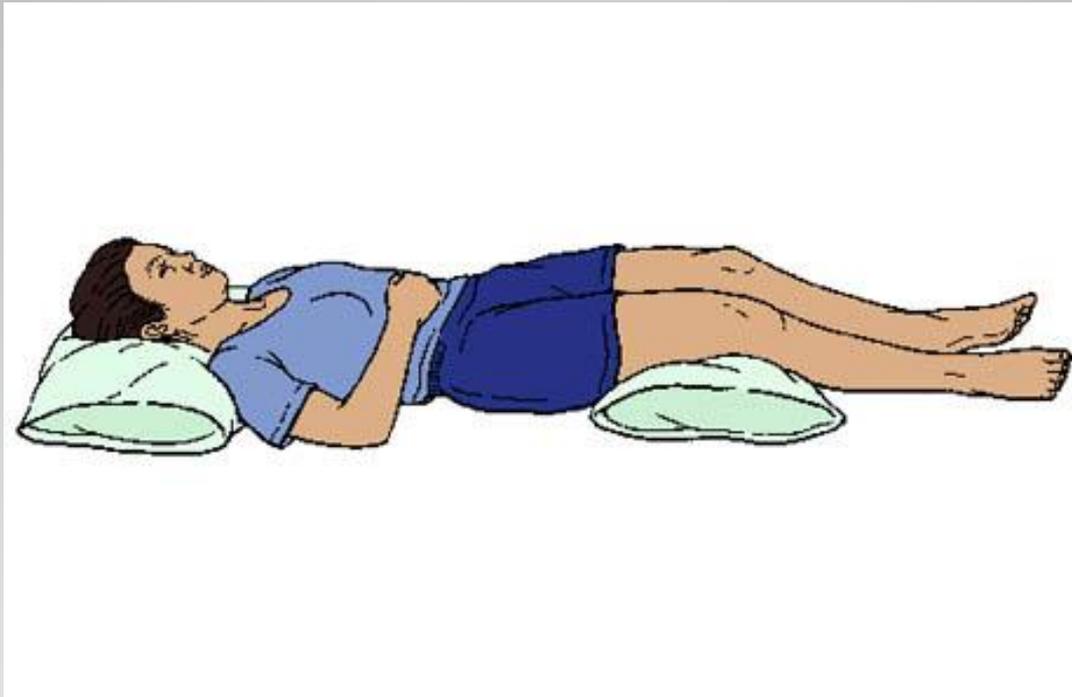
Stretches for standing

- On your stomach
 - Use a pillow under your stomach
 - Use a small pillow or no pillow to keep your neck in better alignment



Sleeping

- On your back
 - Place a pillow under your knees to keep your back in its natural curves.



Sleeping

- On your side
 - Rest your top knee on a pillow to reduce twisting



Sleeping

- Mattresses should be soft for the first few inches, then become firm. This will maintain the normal curves and support the spine.
- Pillows should support the natural curve of the neck
- Stretching for a few minutes before you go to bed will help you get comfortable and makes it easier to fall asleep
- Gentle stretches when you first wake up will slowly warm up your muscles and increase your ease of movement

Beds & Pillows

- The two key points for proper lifting
 - Keep it close
 - Keep the curves



Lifting

- Always check the weight of the load before you attempt to lift it.
 - Get help if you need it.



Lifting

- Position yourself as close to the load as possible
- Assume a wide base of support with legs shoulder width apart and one foot slightly ahead of the other

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Lifting

- Keep the normal curves in your spine
- Keep your stomach muscles firm
- Use smooth controlled movements



Lifting

- Show me how to lift!
- Then take a quick break.



YOUR TURN!



Golfer's Lift

- Face the object
- Place all your body weight on one leg
- Using the hand on the un-weighted side, lean on the "golf club"
- Slightly bend the weighted knee
- Bend straight over from the hip keeping the back straight
- As you bend let the un-weighted leg come off the floor in line with the upper body

- Squat down
- Pull the child close to your chest
- Keep your body upright as you rise
- Don't sit the child on your hip!



The child lift

- Take small steps and go slowly
- Move your feet in the direction you want to go and let your entire body follow. Turn around, don't twist.
- Keep the object close your body with your elbows bent if possible.
- Use your lifting skills to set the object down as carefully as you lifted it up.

Carrying a heavy object

- Calf Stretch
- Thigh Stretch
- Forward low back stretch
- Low-Back Stretch
- Rotation stretch
- Hamstring stretch

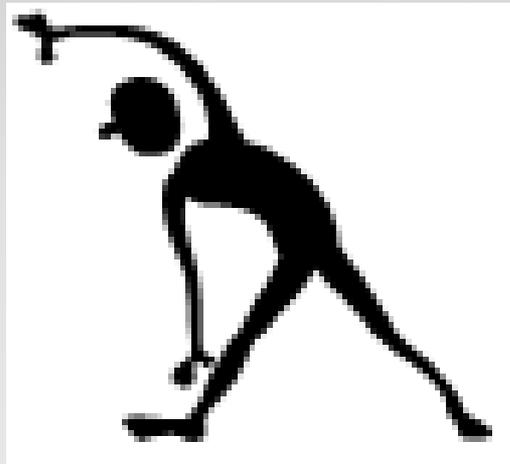


Stretches for lifting

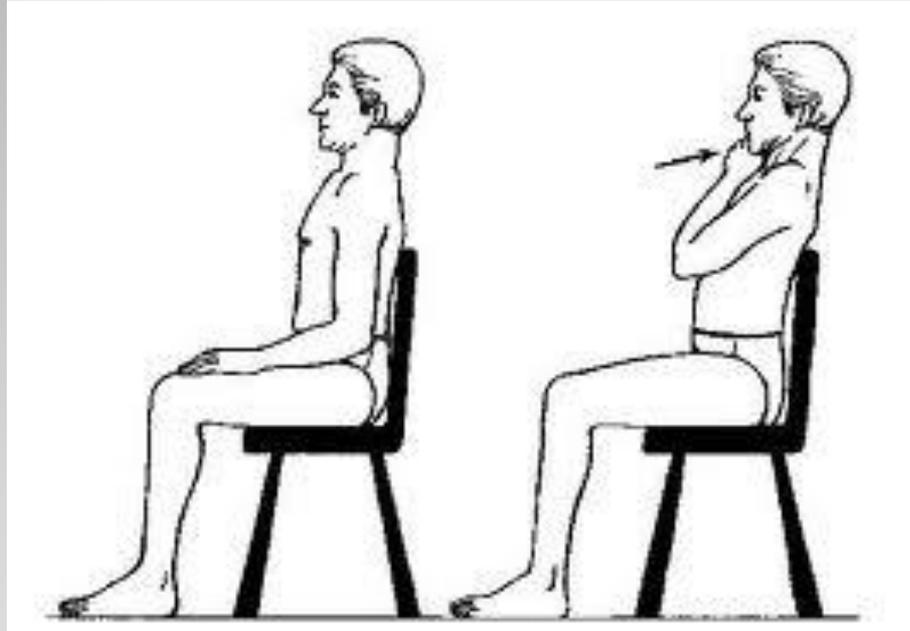


Basic Stretches

- No Pain
- No bouncing
- Stretch periodically throughout the day
- The more flexible you are, the less you're fighting your own body while working



Rules for Stretching



Chin tuck



Overhead reach



Calf Stretch



Low-Back Stretch



Forward Low-Back Stretch



Hamstring Stretch

Thigh stretch

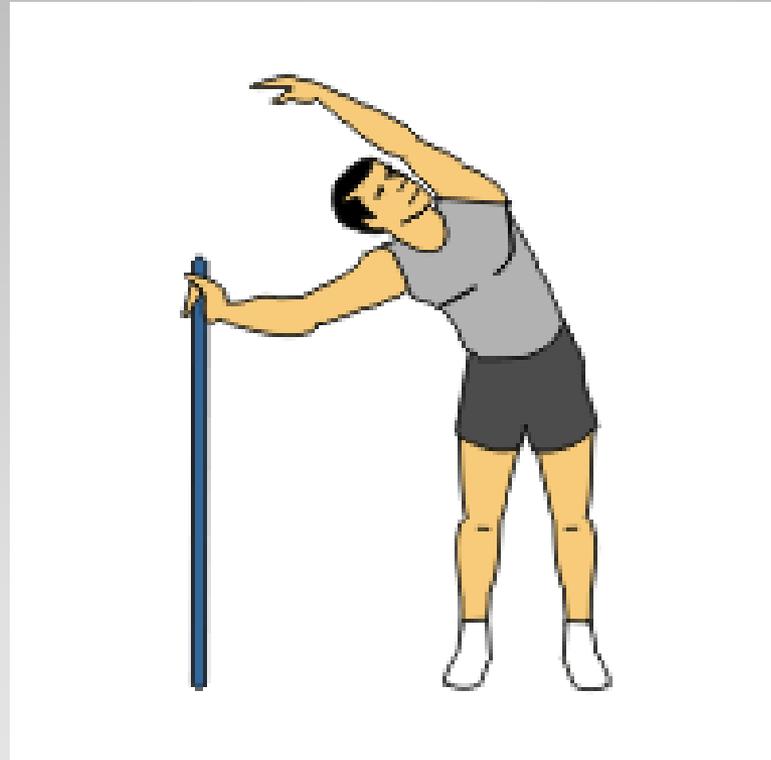


ADAM.

Thigh Stretch



Rotation Stretch



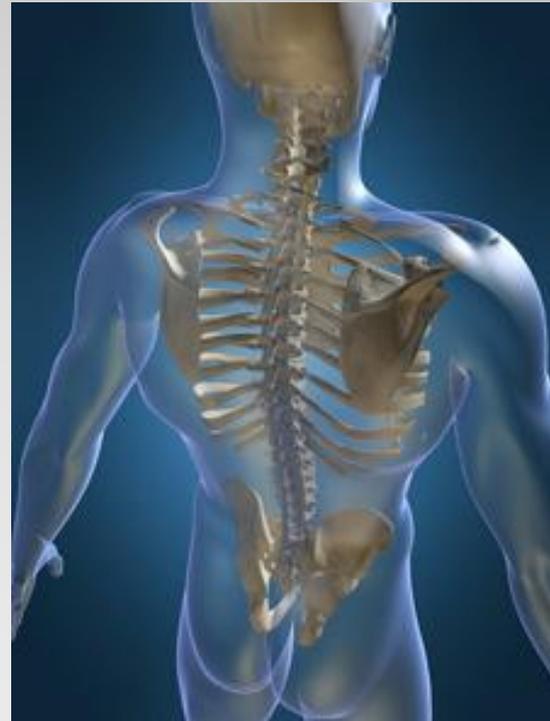
Standing Side Stretch

- The spine works most efficiently when you maintain good posture
- Maintain the natural curves of the back
- Stretch periodically throughout the day
- Assess the load before you lift it, get help if you need it
- Exercise and nutrition will reduce your chance of injury
- Listen to your body

Key Points

- Always use good body mechanics to reduce the effects of:

- Force
- Repetition
- Position



Key Points



**For taking
"Body Mechanics!"**

The refresher course will be due in 3 years.