



# Principles of Back Pain Management



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*Dr. H.S. Chhabra*

**Chief of Spine Service & Medical Director**

**Chairman – Education Committee (ISCoS)**

**Indian Spinal Injuries Centre**

# SK, 29 yrs, Software professional

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- Mild back pain off & on since 17 months
- Exacerbation since 3 days
- Prescribed anti-inflammatory
- Pain subsided



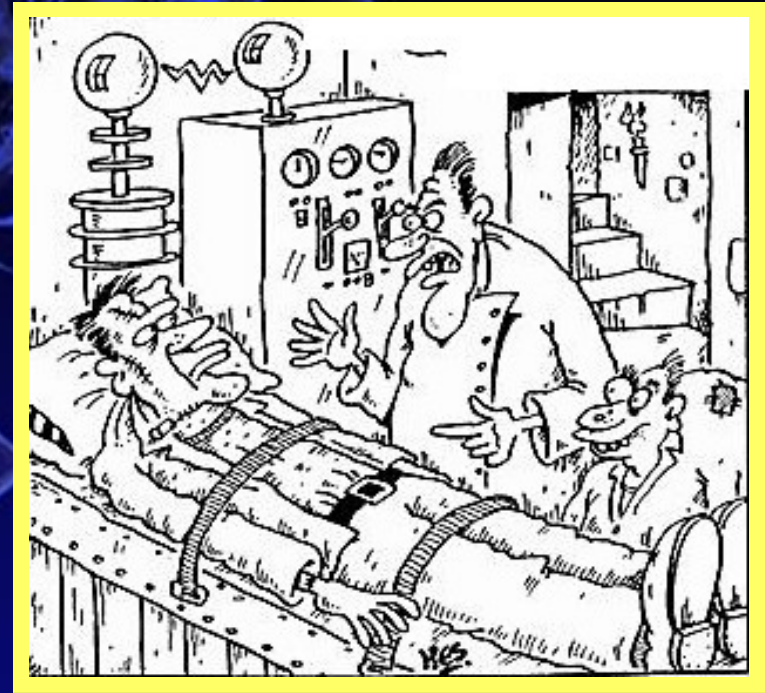
# SK, 29 yrs, Software professional

- Joined back work
- Back pain recurred after 21 days
- Prescribed anti-inflammatory & rest for 2 weeks
- Pain subsided



# SK, 29 yrs, Software professional

- Back pain recurred after 9 weeks
- Went to another doctor
- Prescribed injection in the back
- Pain subsided



# SK, 29 yrs, Software professional

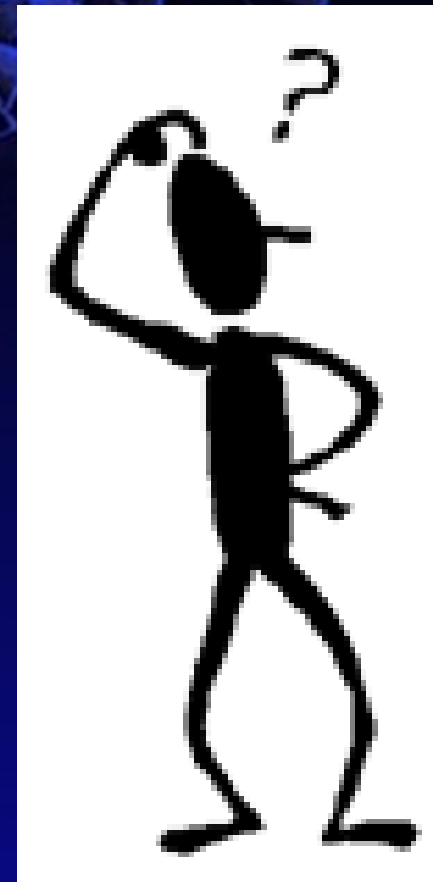
- Back pain has continued to bother him significantly for last 11 months
- Has been forced to take leave for 52 days during which he took bed rest
- Has tried naturopathy, homeopathy, ayurveda, faith healers
- Is very stressed because job is at stake



# SK, 29 yrs, Software professional

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- What went wrong ?



# 2 Most Common Ailments

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- Common cold
- Back pain



# Back Pain – the second most common ailment



- 80-85% of people will suffer a significant low back pain problem at some point of their lives.
- Nearly 70% of them will have a recurrence within one year of the initial episode
- Responsible for the highest number of man hours lost in the industry.





# Back Pain – peak incidence



- **Between age of 20 & 50**



# Principles of Management of back pain

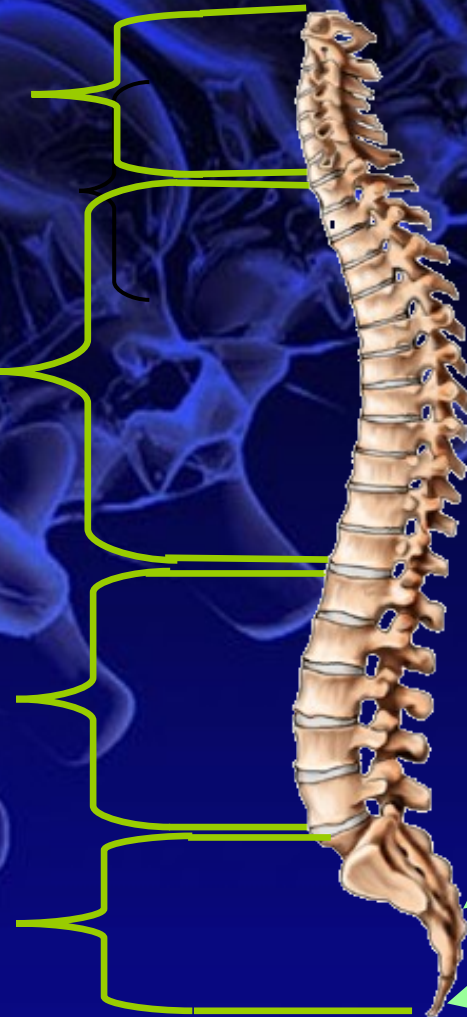
- Anatomy
- Causes
- Pre disposing factors



# Principles of Management of Back Pain

## Anatomy of Spine

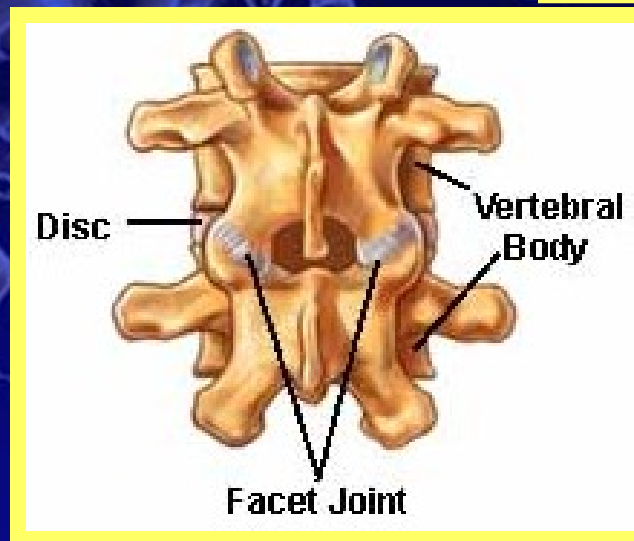
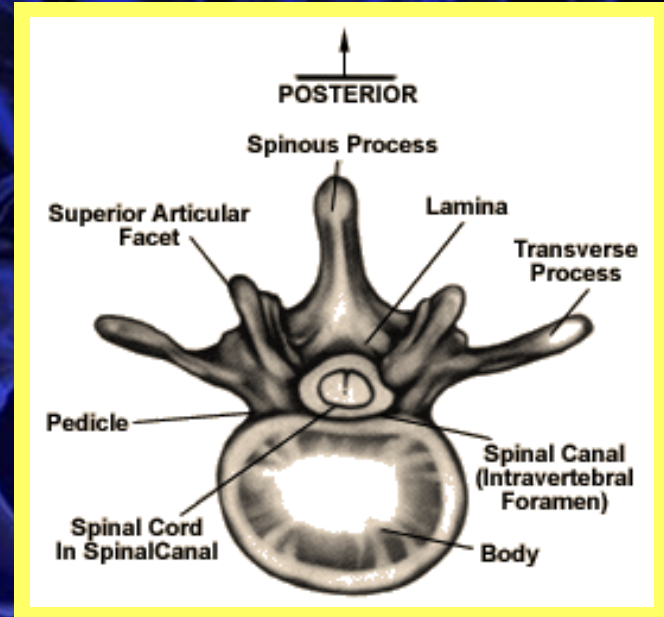
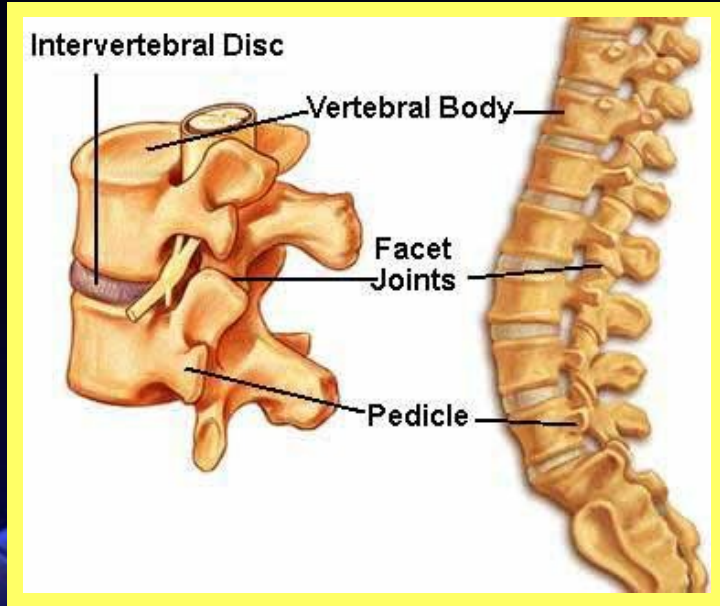
- **Cervical: 7 vertebrae (C1-C7)**
- **Thoracic: 12 vertebrae (T1-T12)**
- **Lumbar: 5 vertebrae (L1- L5)**
- **Sacrococcygeal: 9 fused vertebrae in the sacrum and coccyx.**



Sacrum (fused vertebrae)

Coccyx (tailbone)

# Anatomy



# Anatomy - Curves

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**Cervical Lordosis 20°- 40°**

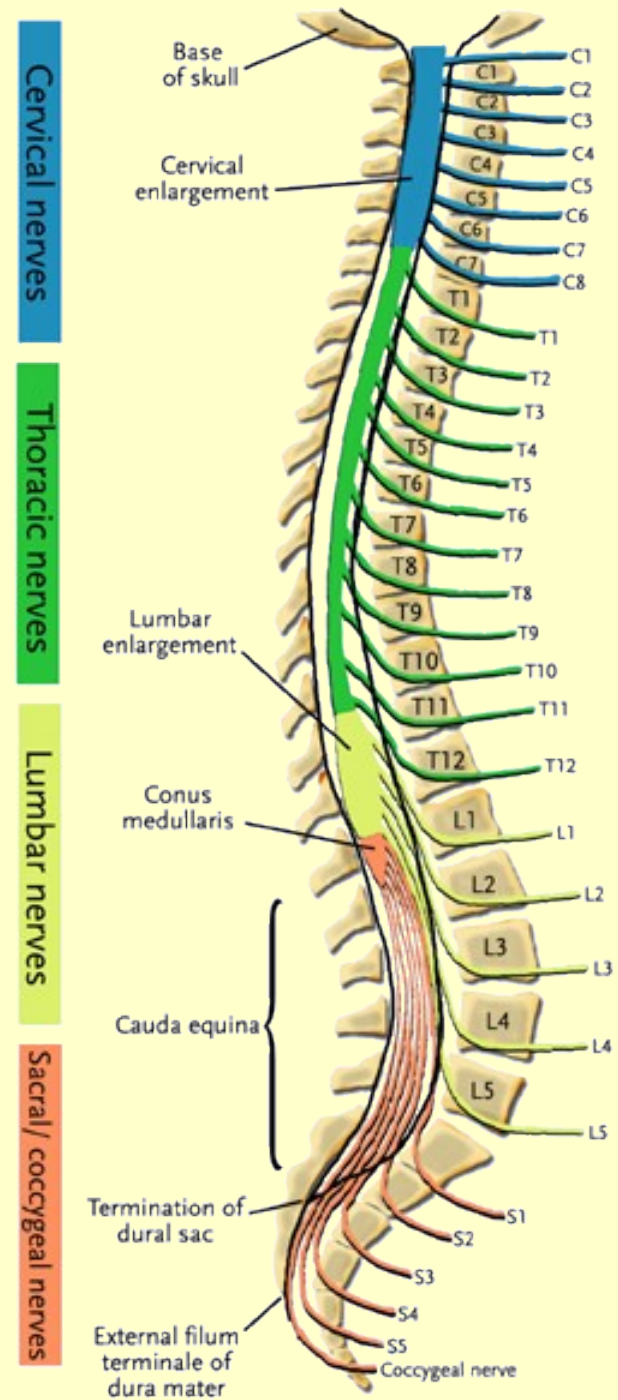
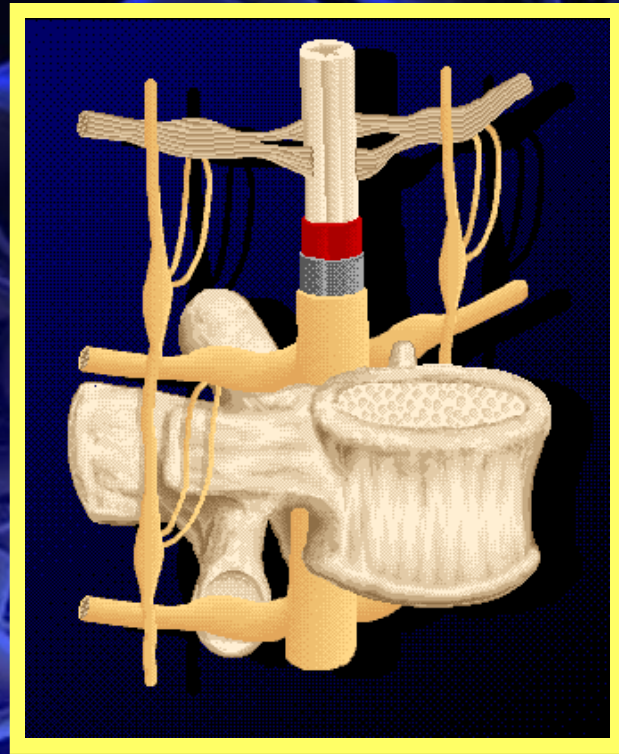
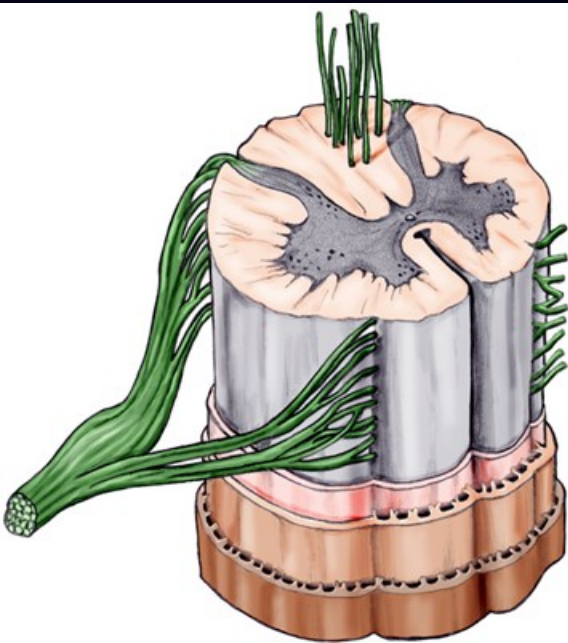
**Thoracic Kyphosis 20°- 40°**

**Lumbar Lordosis 30°- 50°**

**Sacral Kyphosis**

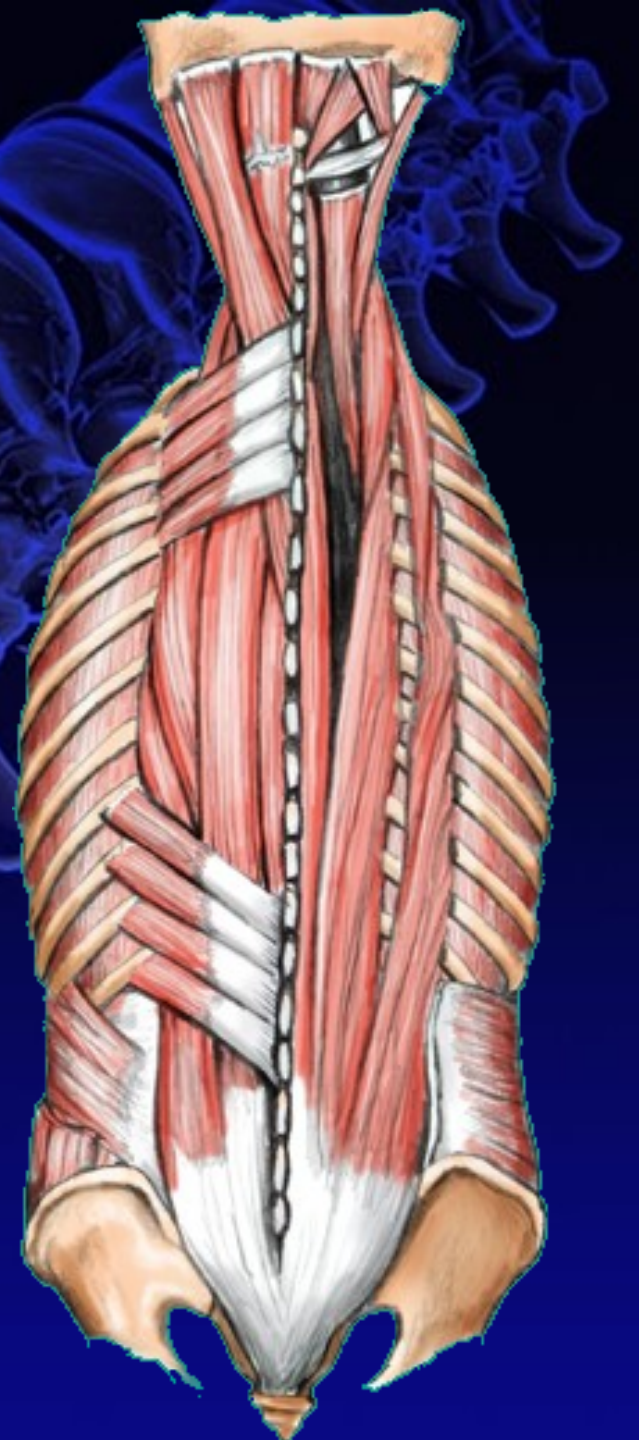
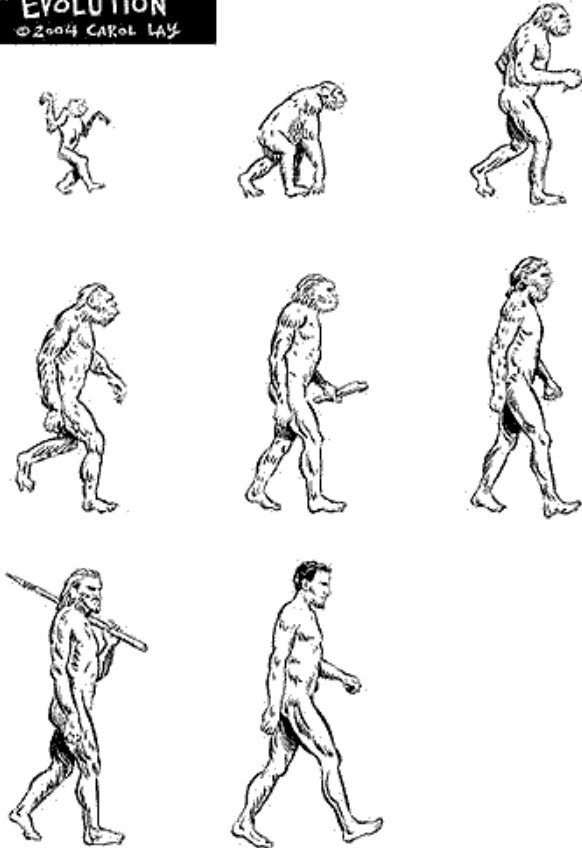


# Anatomy



# Anatomy

"EVOLUTION"  
©2004 CAROL LAY



# Back Pain - Causes

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- Mechanical
- Inflammatory
- Sinister
  - Infection
  - Tumor





# Mechanical Causes

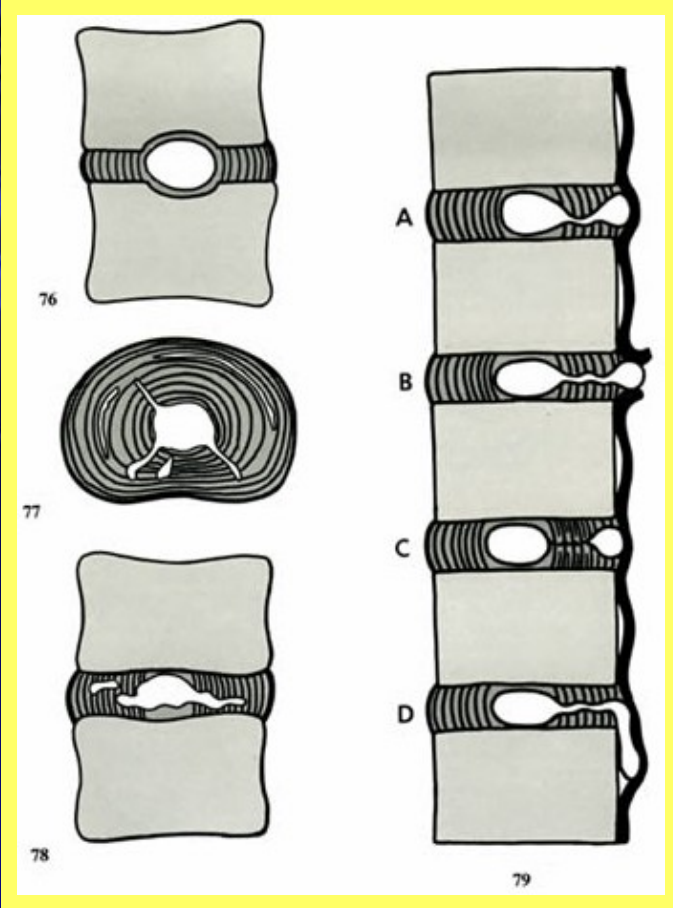
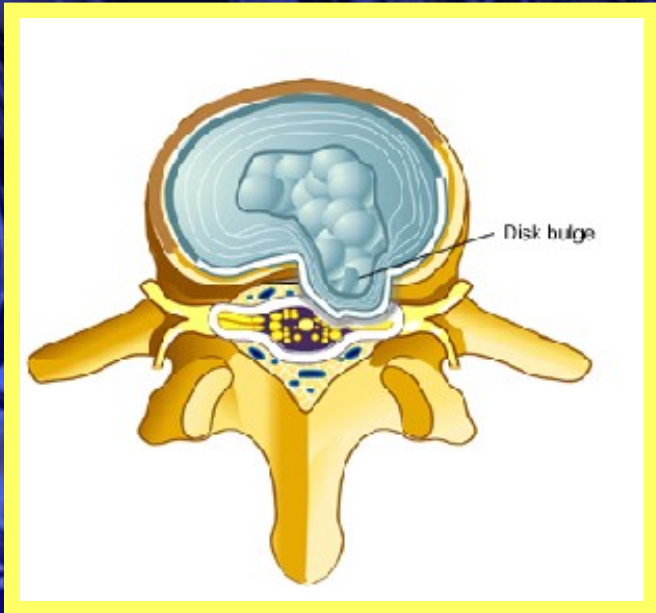
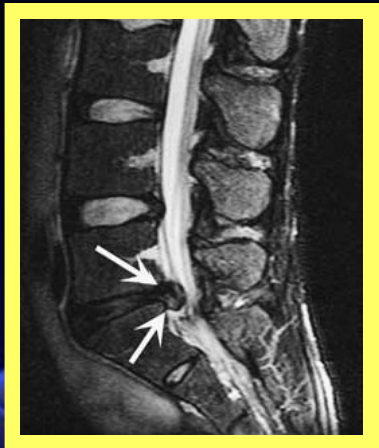
- Strain



# Mechanical Causes



- Prolapse Intervertebral Disc



# Mechanical Causes

- Spondylitis

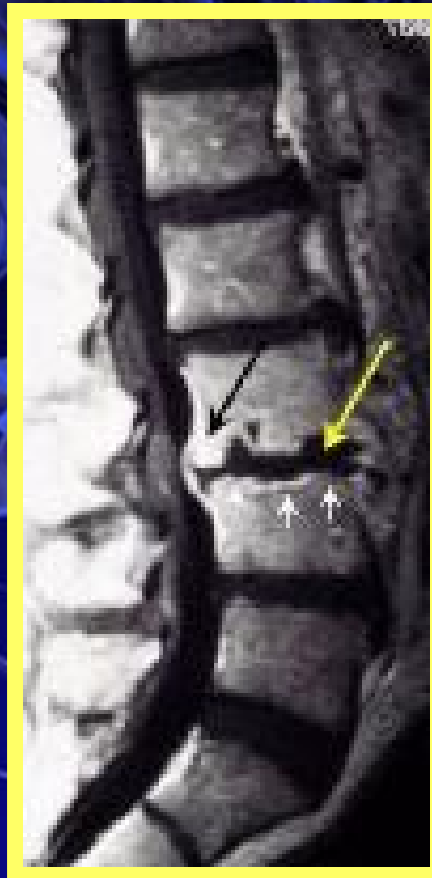
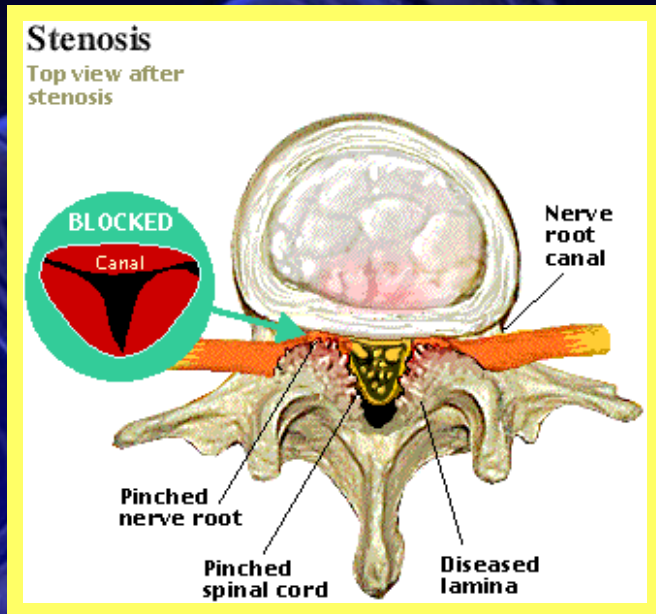


Lumbar  
Degenerative  
Disc  
Disease



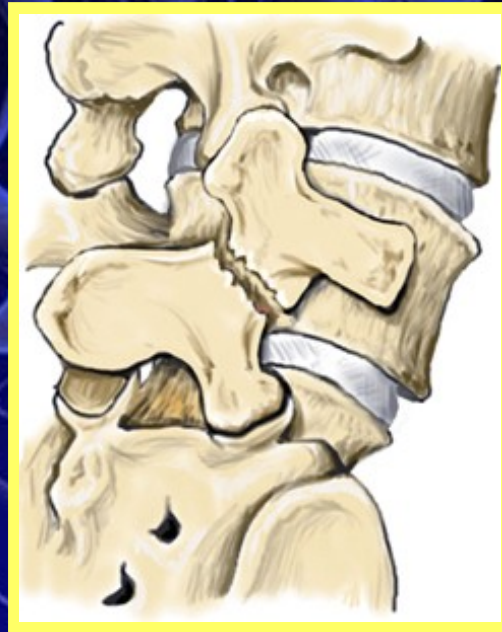
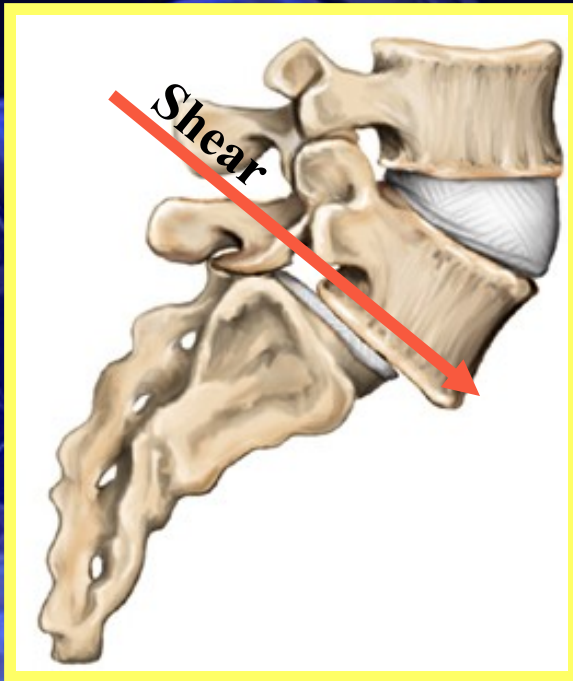
# Mechanical Causes

- Lumbar Canal Stenosis



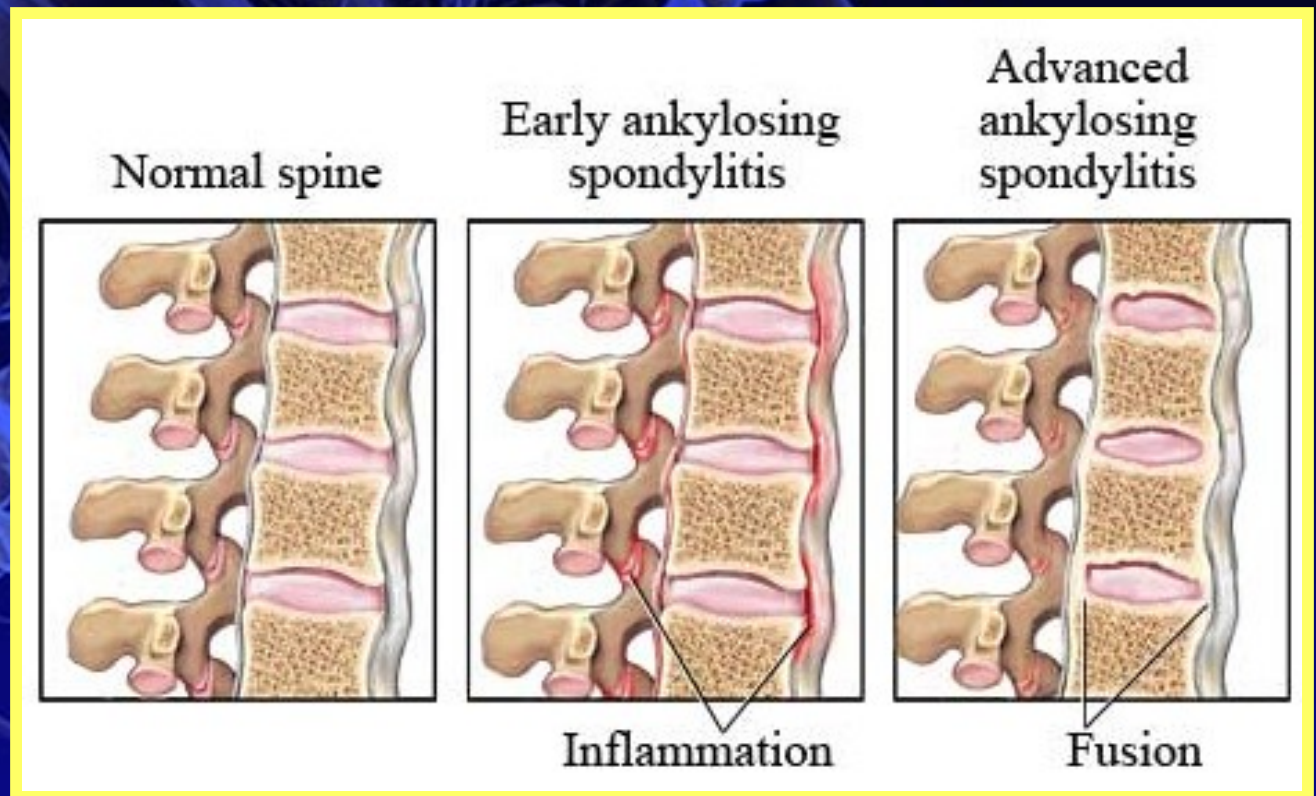
# Mechanical Causes

- Spondylolisthesis



# Inflammatory Causes

- Ankylosing Spondylitis



# Infective Causes

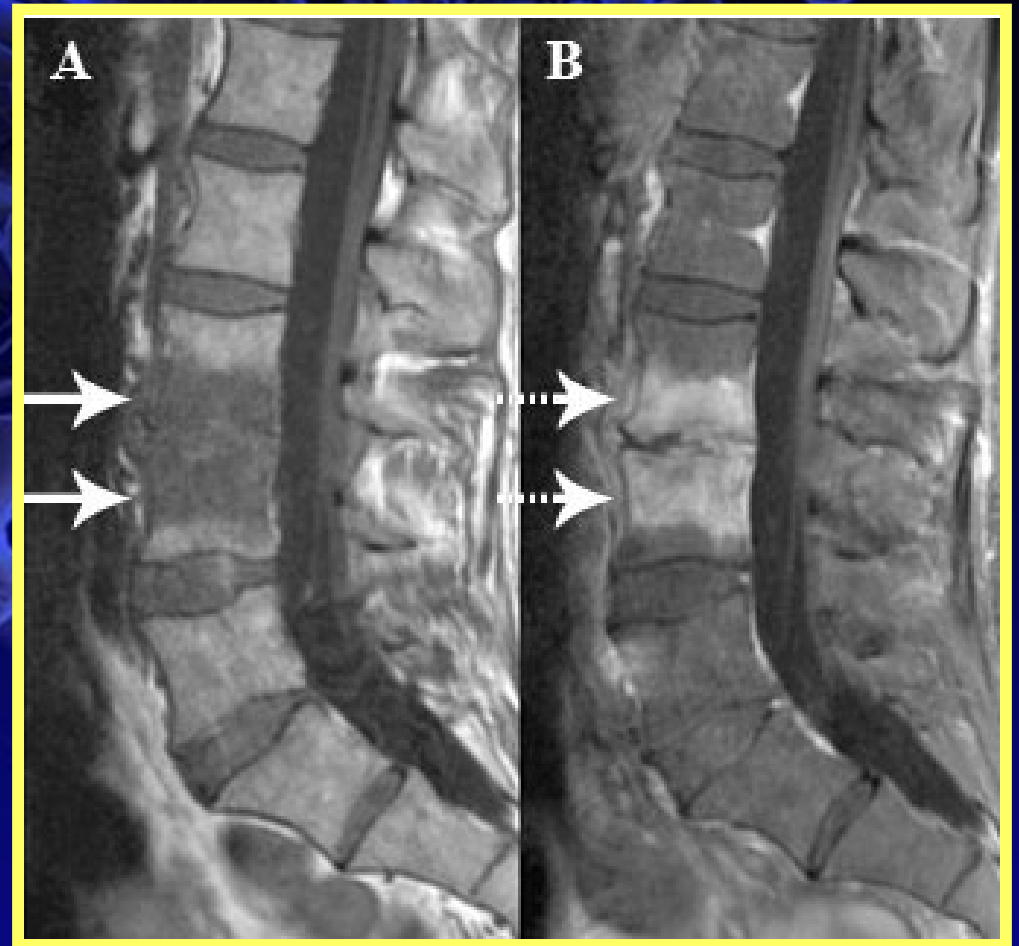
- Pott's Spine



# Infective Causes

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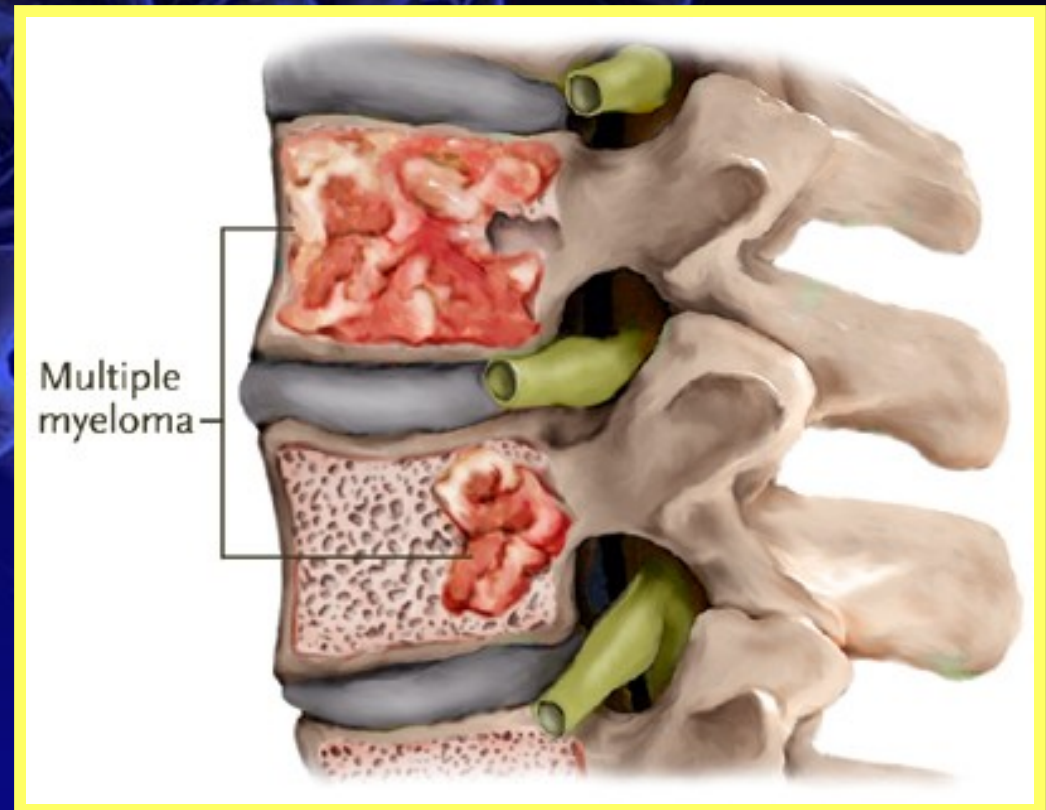
- Osteomyelitis





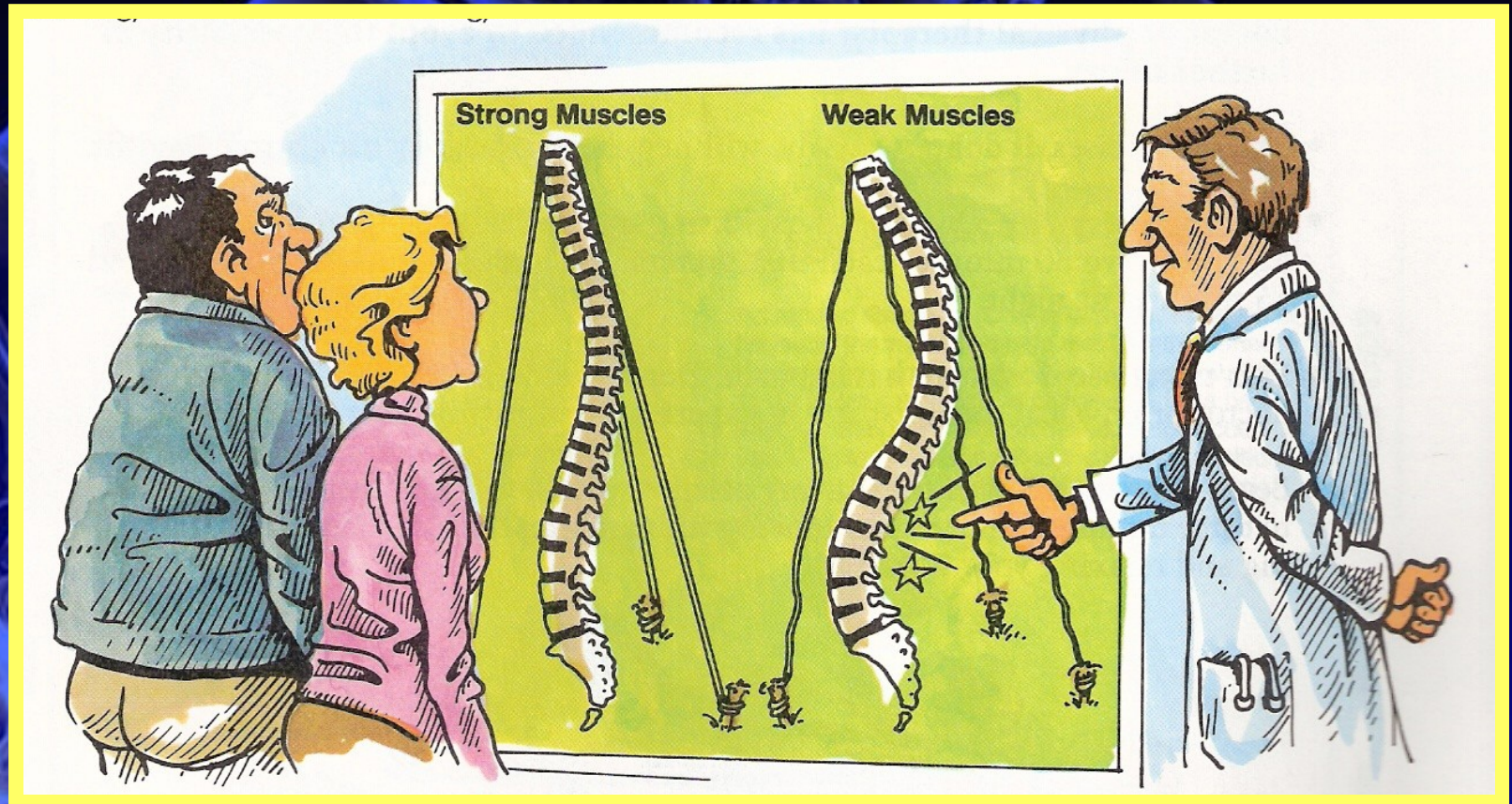
# Causes - Tumor

- **Multiple Myeloma**

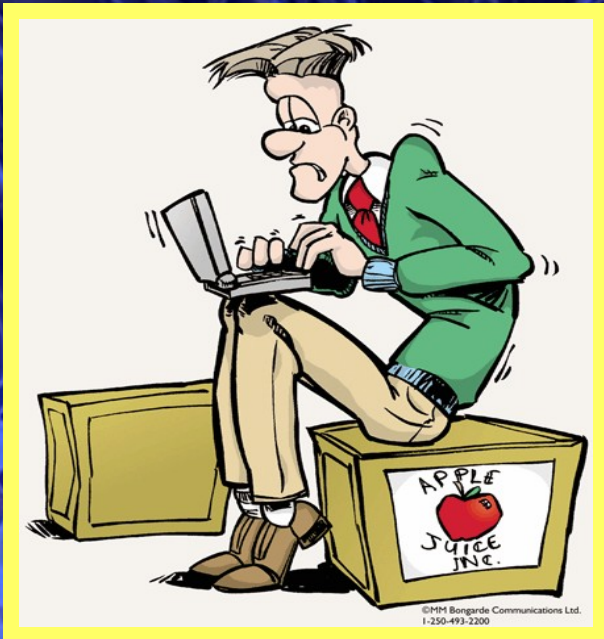
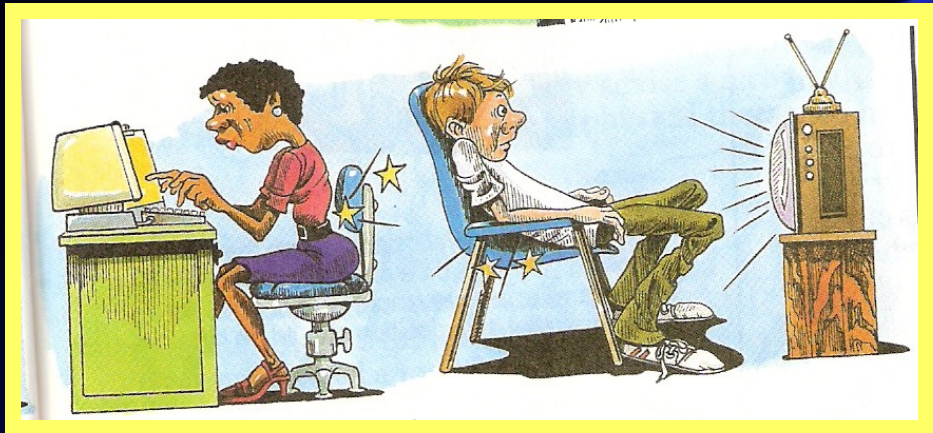


# Predisposing Factors

- Sedentary life style



# Bad Posture



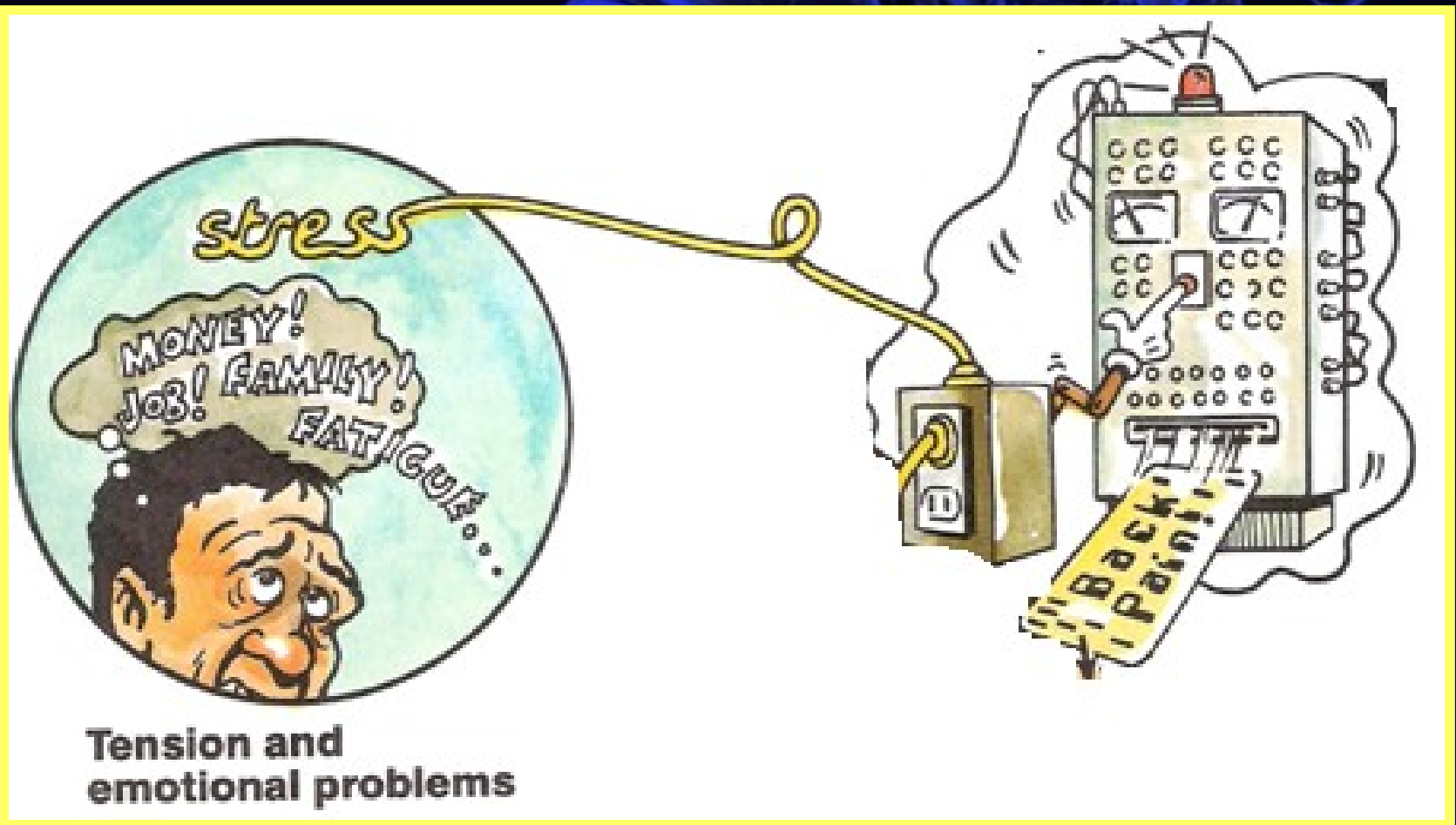
# Obesity



# Pregnancy



# Stressful lifestyle



# Back Pain - Natural History



- Most episodes of back pain will last only a short time
- Upto 75% will recover in three months
- Nearly 70% of these sufferers will have a recurrence within one year of their initial episode

# Principles of Treatment



- **Determine cause of back pain**
  - A. Good history**
  - B. Good examination**
  - C. Radiological evaluation**



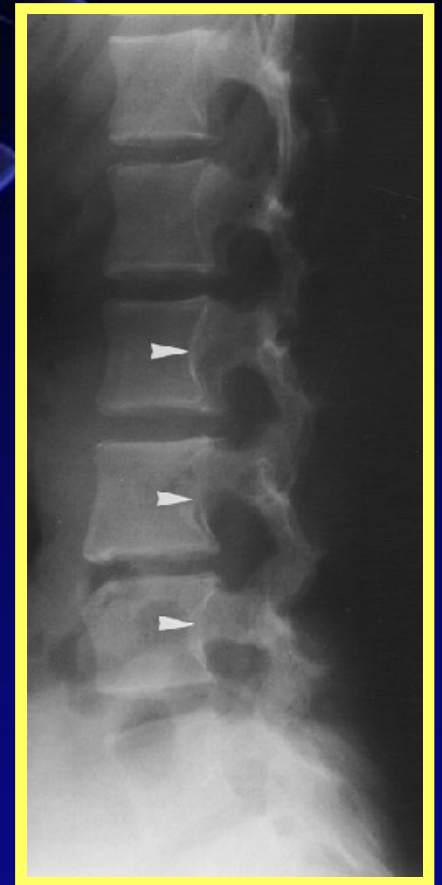
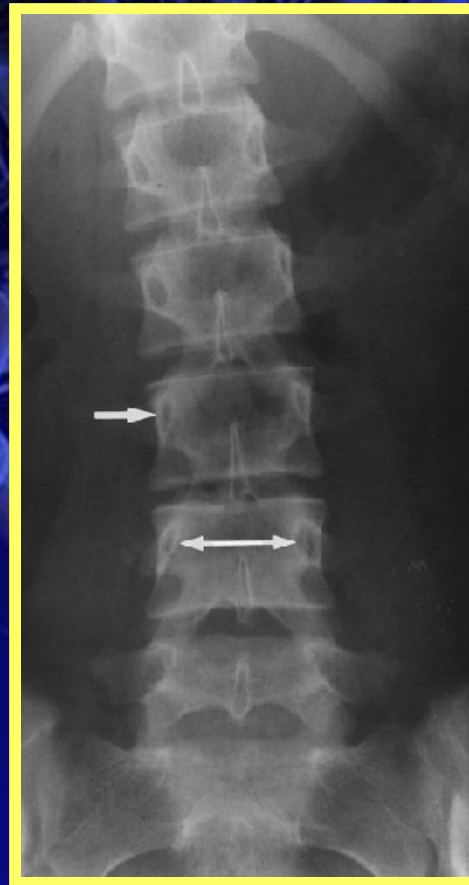
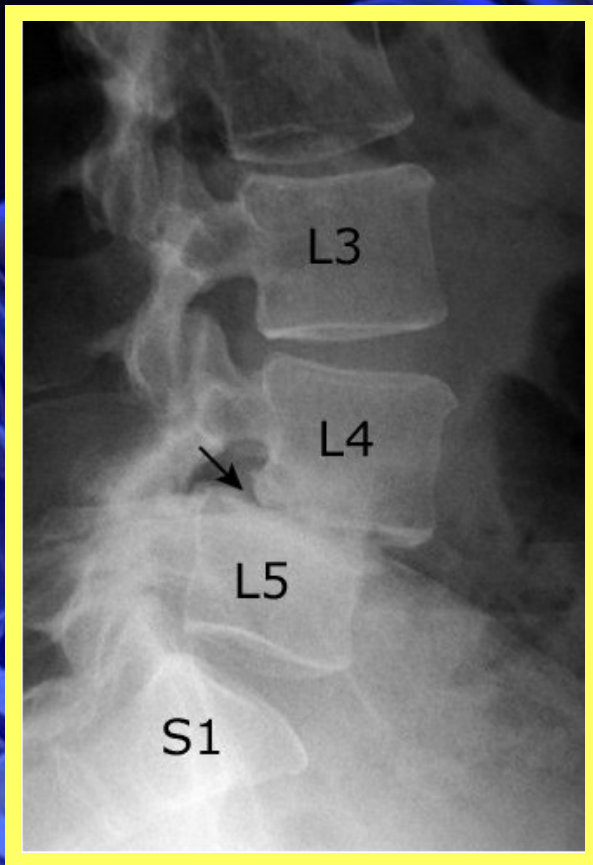
# Radiological Evaluation



- X-ray
- CT Scan
- MRI
- DEXA
- Others - Bone Scan / PET etc.

# Radiological Evaluation

- X-ray



# Radiological Evaluation

- CT Scan



# Radiological Evaluation

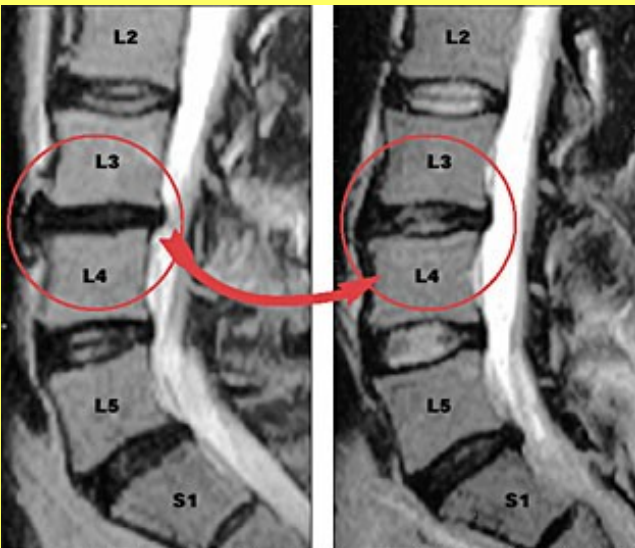
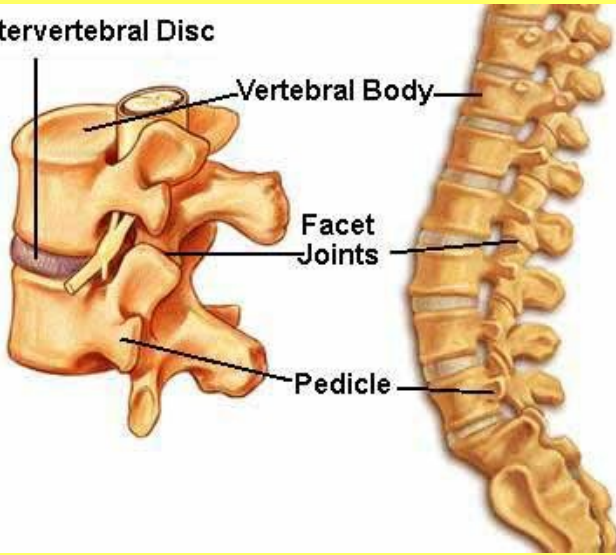


- **MRI**

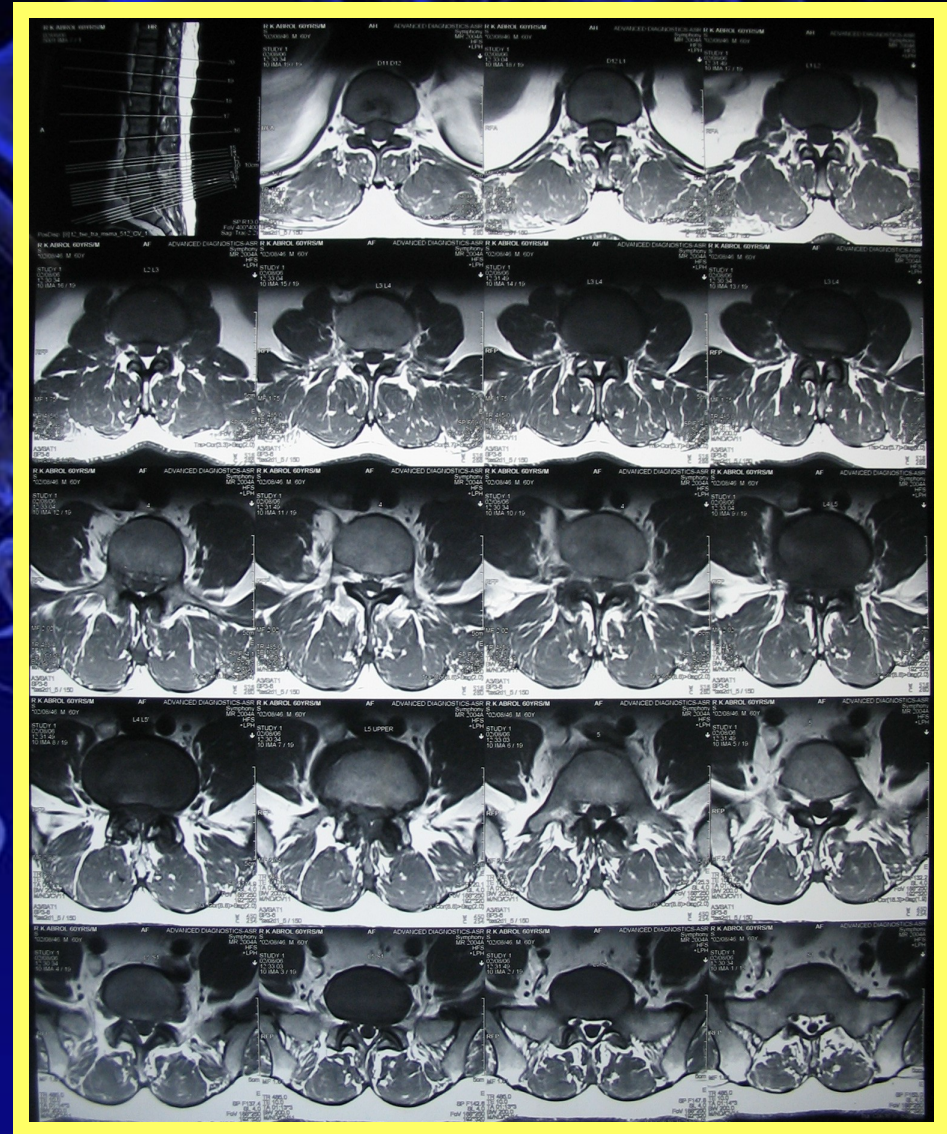
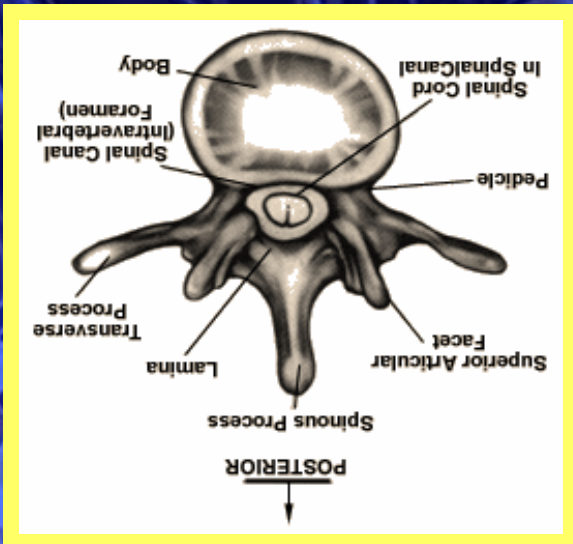
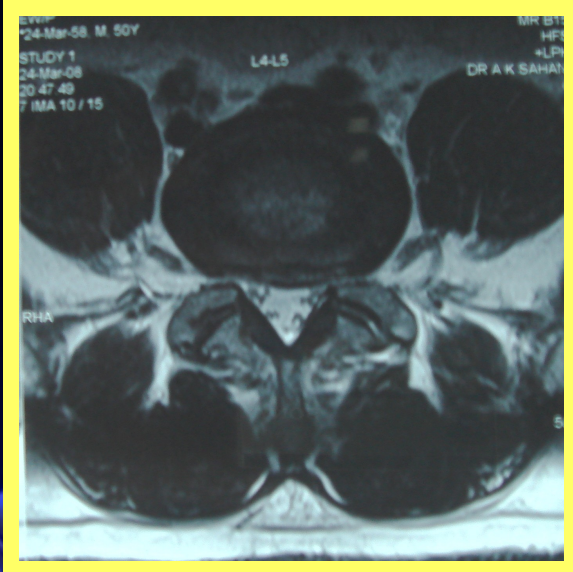


# MRI

Intervertebral Disc

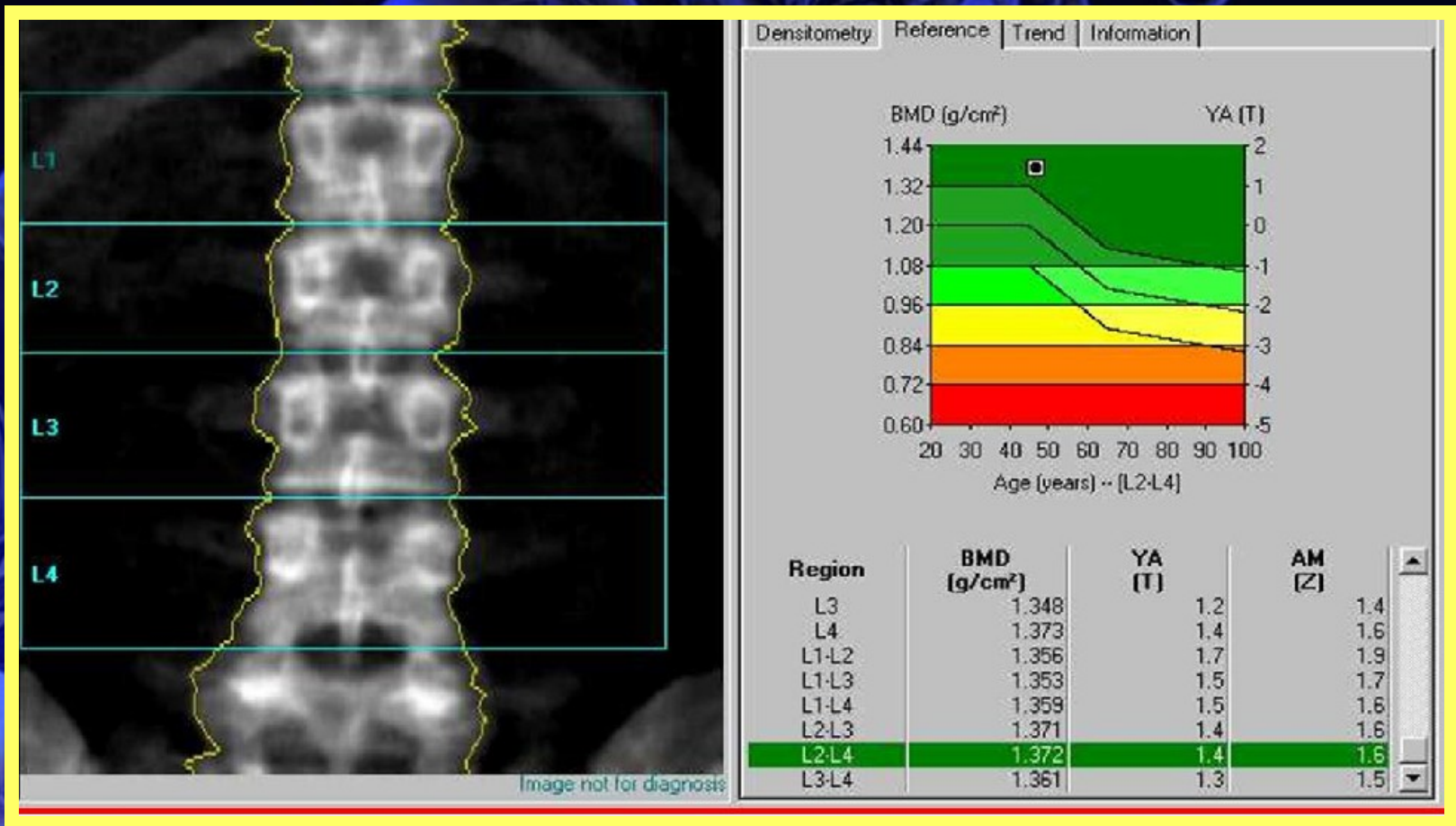


# MRI



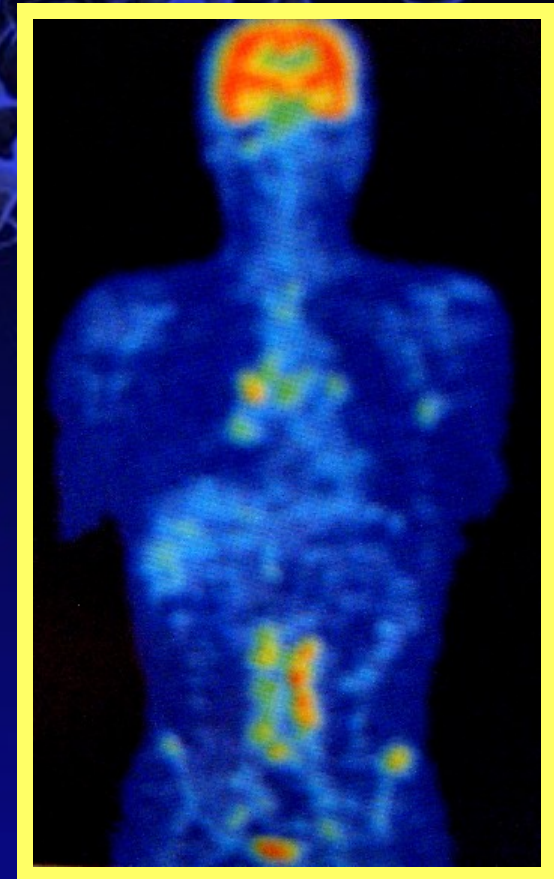
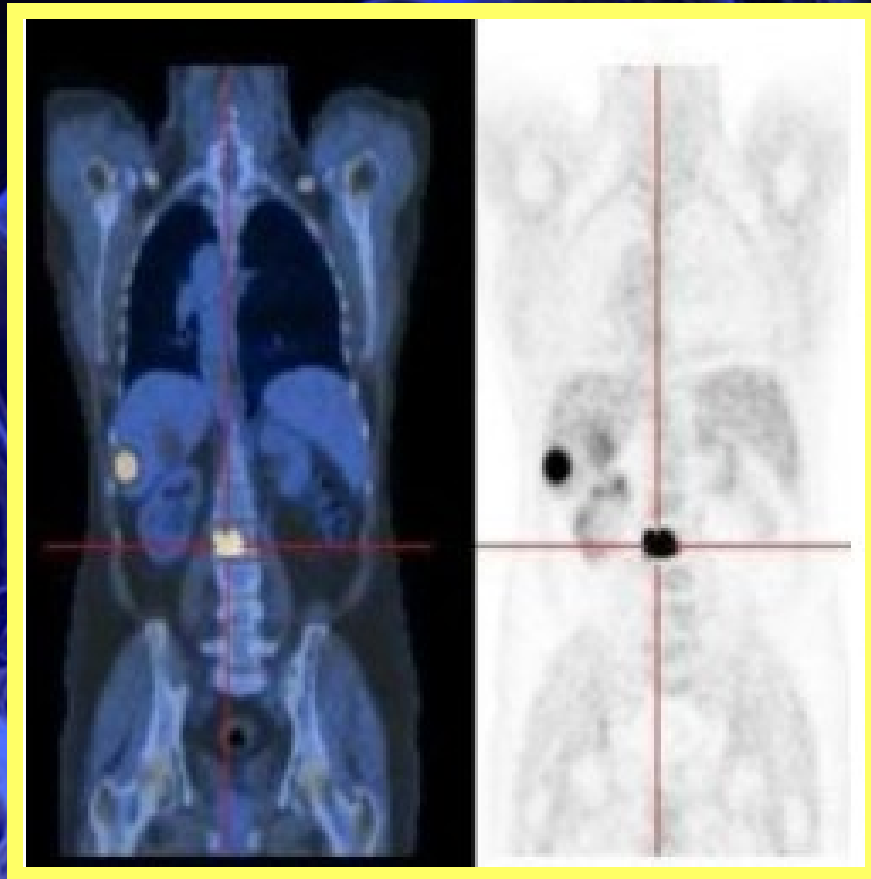
# Radiological Evaluation

- DEXA



# Radiological Evaluation

- Others - Bone Scan / PET etc.

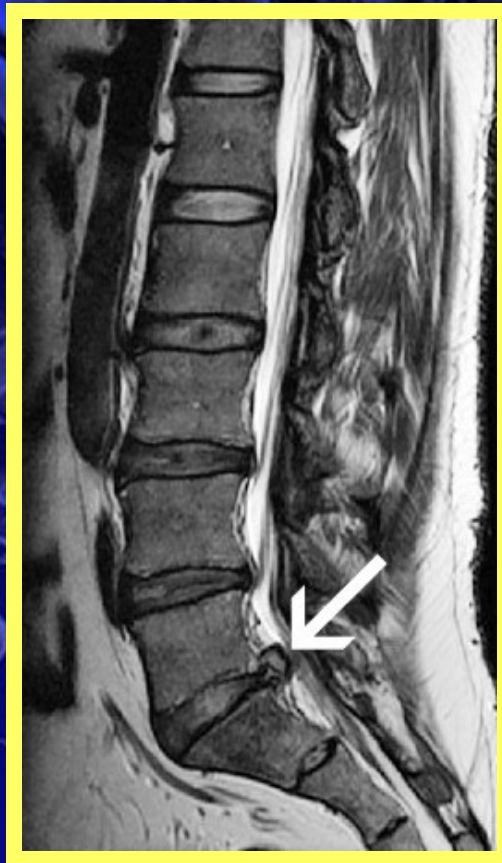




# Clinico radiological correlation



**Never treat a radiological investigation**



# Principles of Treatment



- **Treat**
  - **pain**
  - **cause**
- **Reduce recurrence rate**

# Treatment



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- **Proven** - Something that will change the natural course of disease
- **Unproven** - Provide some temporary relief but do not change the natural course

# Unproven Treatments

## Spinal manipulation



# Unproven Treatments

## Heat



# Unproven Treatments

## Massage



# Unproven Treatments

## Hot / Ice Packs



# Unproven Treatments

## Traction





# Unproven Treatments

## Corsets



# Unproven Treatments

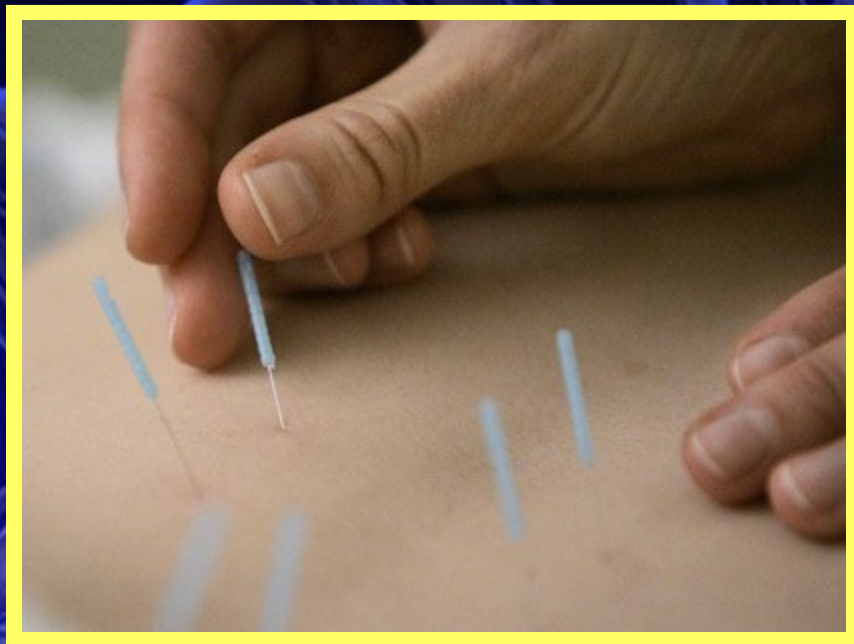
## TENS



# Unproven Treatments

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## Acupuncture / acupressure



# Unproven Treatments



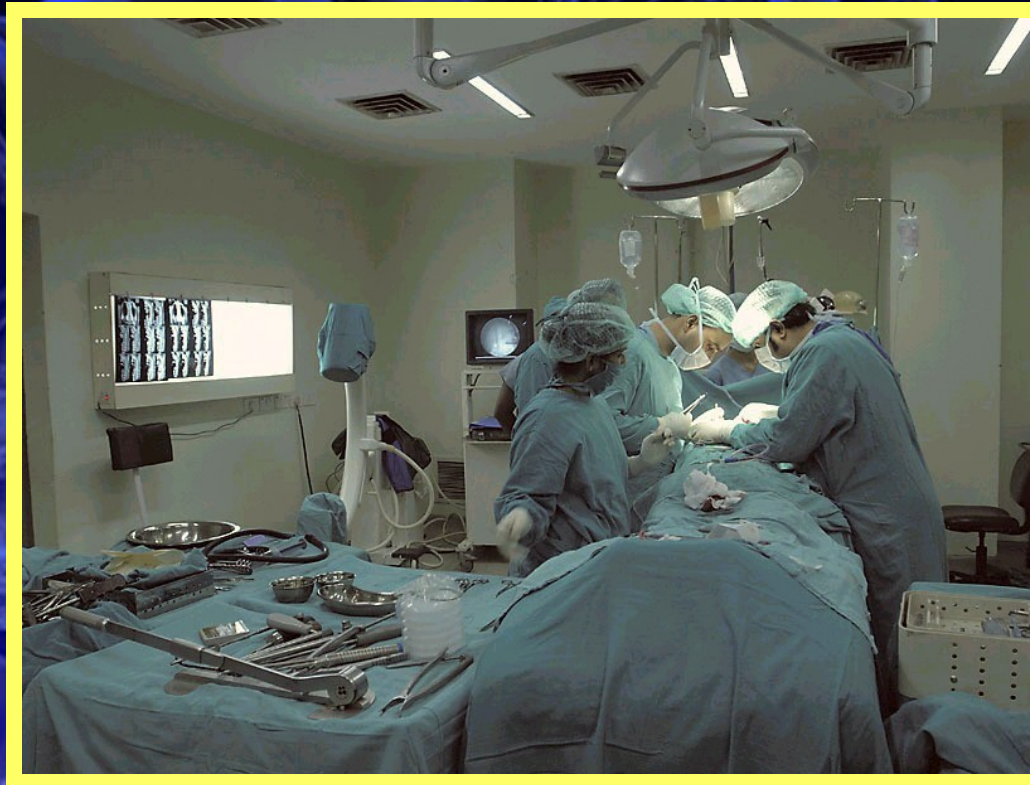
## Epidural steroids



# Proven Treatments

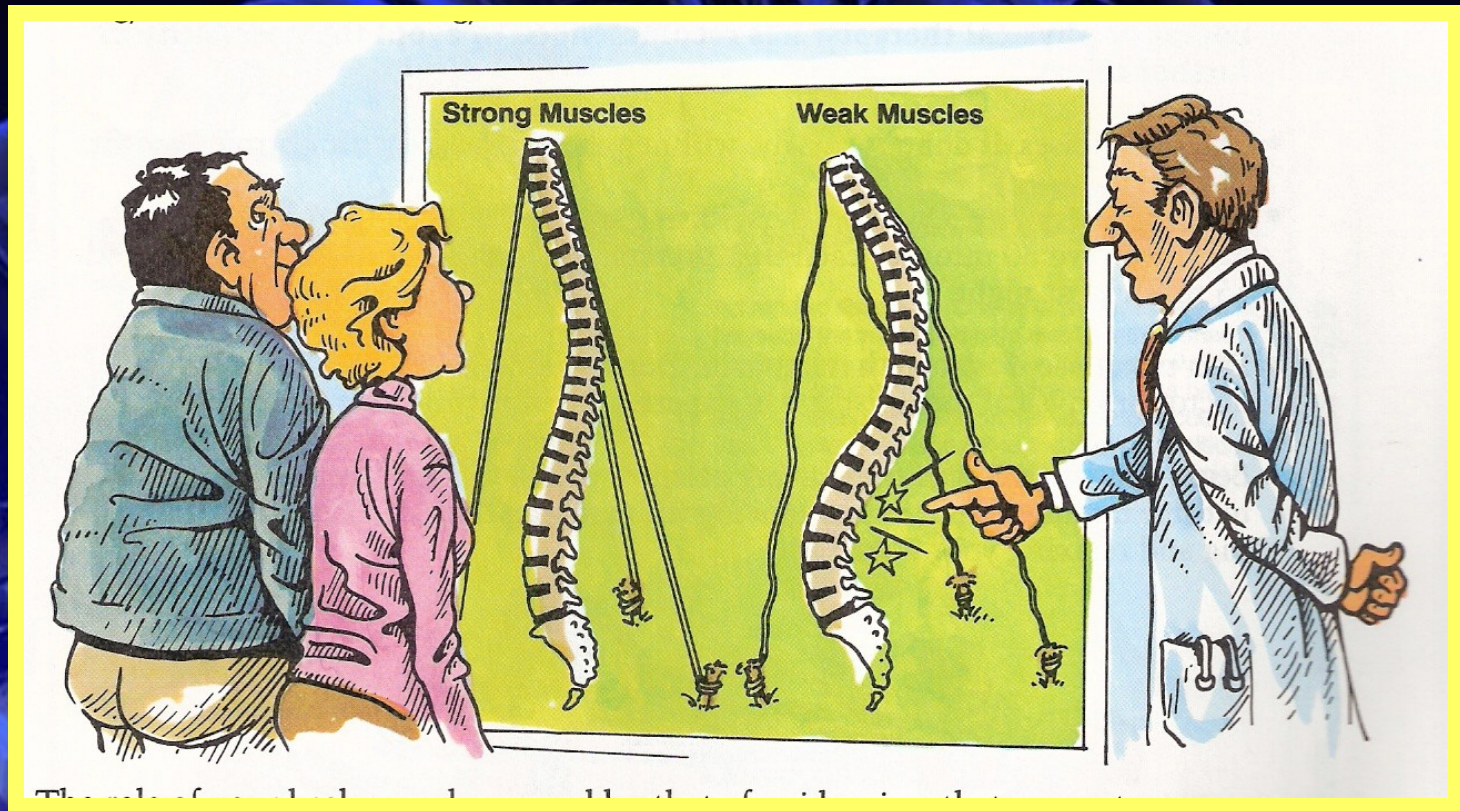
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**Surgery (only 1-3% of back pain sufferers require surgery)**



# Proven Treatment

## Education



# Proven Treatments

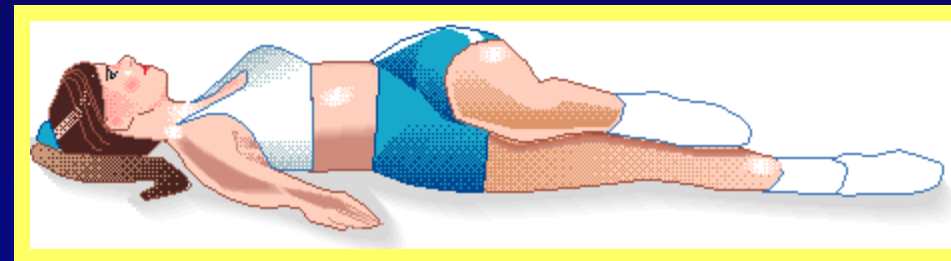
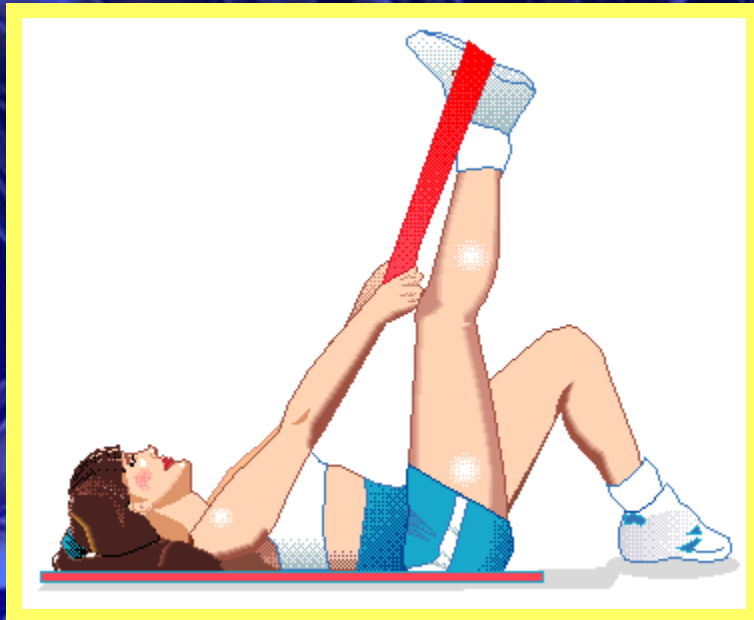
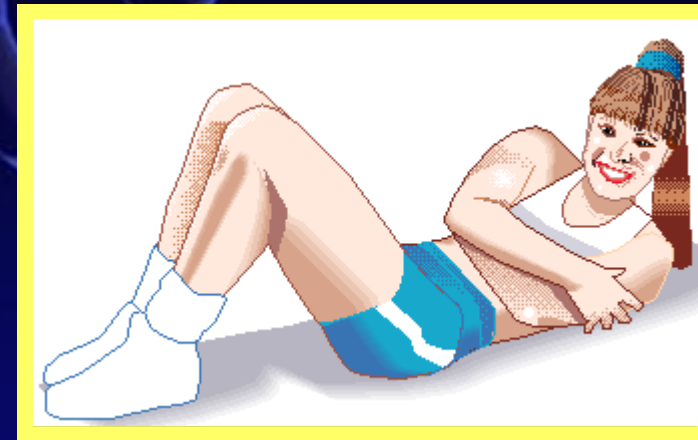
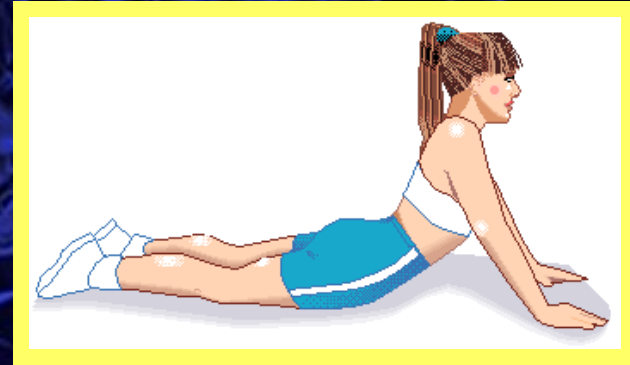


## Aerobic physical conditioning



# Exercises

- Strengthen the muscles
- Improve posture
- Strengthen the bones





# EXERCISE AND BACK PAIN

**Three types :**

- a) Aerobic (endurance)**
- b) Resistive (strengthening)**
- c) Stretching (flexibility)**



# EXERCISE AND BACK PAIN

## Aerobic Exercise

Increases the consumption of Oxygen  
Most important exercise to help the back

Examples :

Walking  
Stationary cycling  
Roadway cycling  
Swimming  
Stair climbing



# EXERCISE AND BACK PAIN



## Stretching Exercise

– Has not been shown by research to always help



# EXERCISE AND BACK PAIN



## Stretching Exercise

– In some cases makes patients worse

Must be started under care of a therapist.



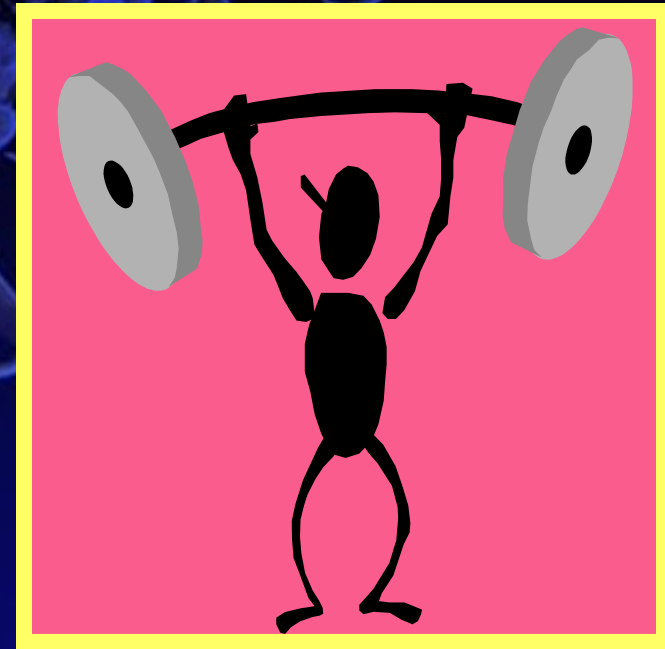
# EXERCISE AND BACK PAIN

## Resistive Exercises

*More commonly called weight lifting*

*Strengthens endurance muscles*

*To be performed with proper dosage of weight*



# Treat the Cause

- PIVD
- Lumbar canal stenosis
- Spondylolisthesis
- Osteoporosis
- Inflammation
- Infection
- Tumors etc



# Recurrence rate reduction



- **Removal of predisposing factors**
  - **General physical conditioning exercises**



# Recurrence rate reduction

**Removal of predisposing factors**

- **Specific back exercises**





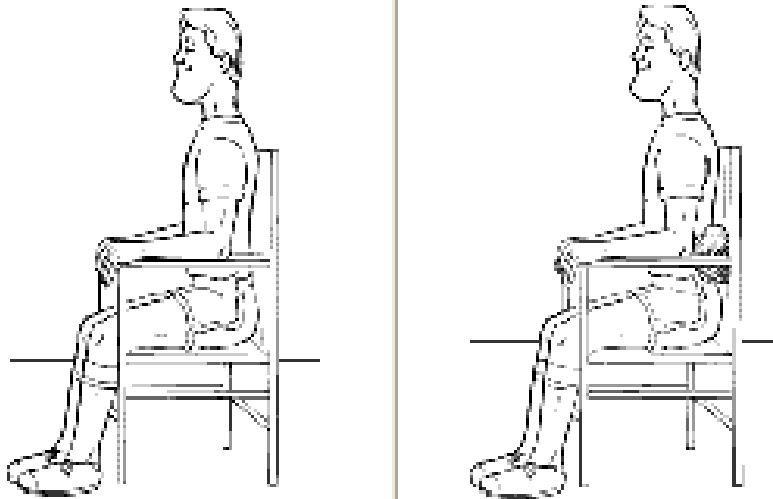
# Recurrence rate reduction

## Removal of predisposing factors

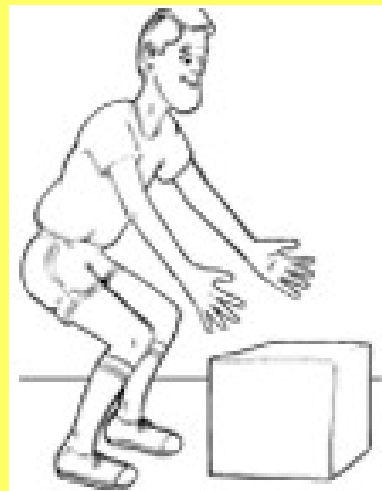
- Proper posture in everyday activities.



correct driving position



Correct sitting position without lumbar support (left) and with lumbar support (right)



correct lifting position

# Recurrence rate reduction

## Removal of predisposing factors

- Controlling any interfering psychosocial, professional or personal emotional factors.



# Back Pain - Red Flags



- **severe pain not responding to conservative treatment**
- **travelling down the legs**
- **associated**
  - **fever**
  - **weight loss**
  - **neurological deficit – weakness in legs or difficulty in bowel/bladder control**

# “MYTHS” OF BACK PAIN

- **Stay in bed**



# “MYTHS” OF BACK PAIN

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- You need prescription drugs to bring relief



# “MYTHS” OF BACK PAIN

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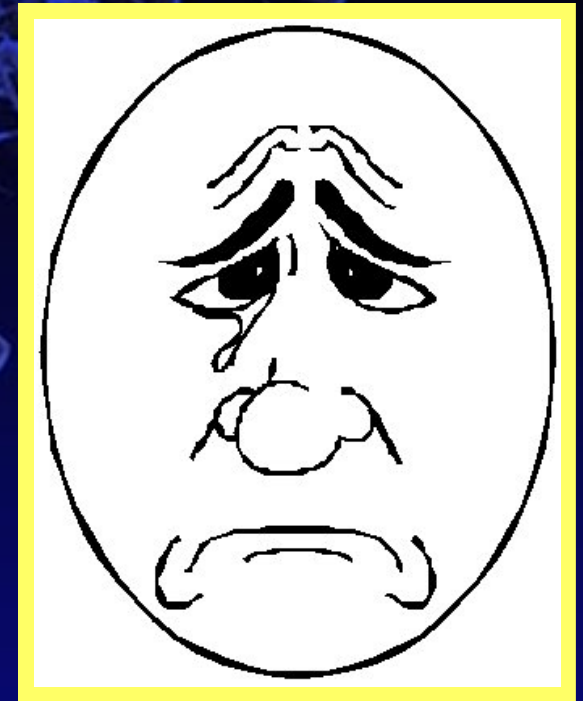
- **Stay away from surgery**
  - \* **Has poor results and high complication rate**



# “MYTHS” OF BACK PAIN

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- Don't exert yourself
- You should have restricted activities for life
- You can never get back to a normal life style



# SK, 29 yrs, Software professional

- What went wrong ?





# SK, 29 yrs, Software professional



## What went wrong ?

- Pain was treated, causes & predisposing factors (sedentary lifestyle, bad posture, stressful lifestyle etc) were overlooked
- Was prescribed prolonged bed rest

# Conclusions



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- **Back Pain is the 2nd most common ailment**
- **Sedentary lifestyles and bad postures have been responsible for back pain reaching epidemic proportions**
- **75% of sufferers will improve by themselves within 3 months**
- **One should treat not only the pain but also the cause and try to address any predisposing factors**
- **Only 1-3 % of back problems ever require surgery**
- **Proper life style including general conditioning exercises and proper posture help**

**Support your bones.  
They support you.**



*Thank You*

