

ANKYLOSING SPONDYLITIS

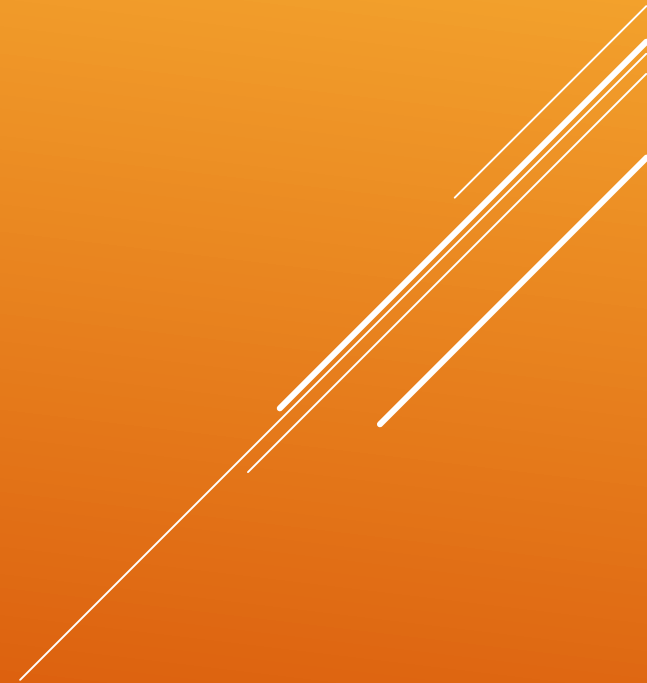
Tabz , 2015



SERONEGATIVE SPA'S

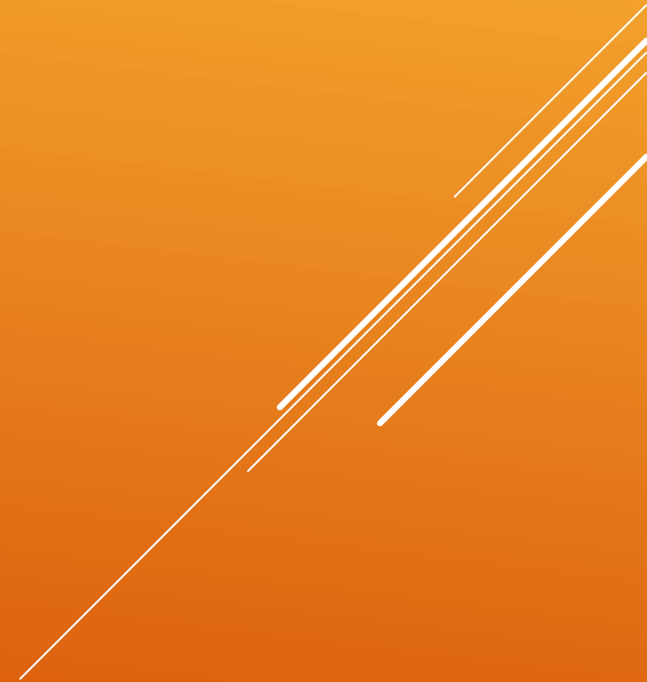
- ▶ Pathologic changes in the **ligamentous attachments rather than synovium**
- ▶ Involvement of SI joints with or without other joints
- ▶ **Absence of RF– Thus, seronegative**
- ▶ Association with **HLA-B27**
- ▶ **Immune-mediated manifestations**, triggered by a **T-cell response** presumably directed against an undefined antigen that may cross-react with native molecules of the MS system

ANKYLOSIS?



Ankylosis or anchylosis (from Greek ἀγκύλος, bent, crooked) is a stiffness of a joint due to abnormal adhesion and rigidity of the bones of the joint, which may be the result of injury or disease.

SPONDYLOSIS VS. SPONDYLITIS?



spon·dy·lo·sis

/ˌspændəˈlōsis/

noun MEDICINE

noun: **spondylosis**

a painful condition of the spine resulting from the degeneration of the intervertebral disks.

spon·dy·li·tis

/ˌspændəˈlītis/ 

noun MEDICINE

noun: **spondylitis**

inflammation of the joints of the backbone.

Origin

GREEK

spondulos
vertebra

ENGLISH

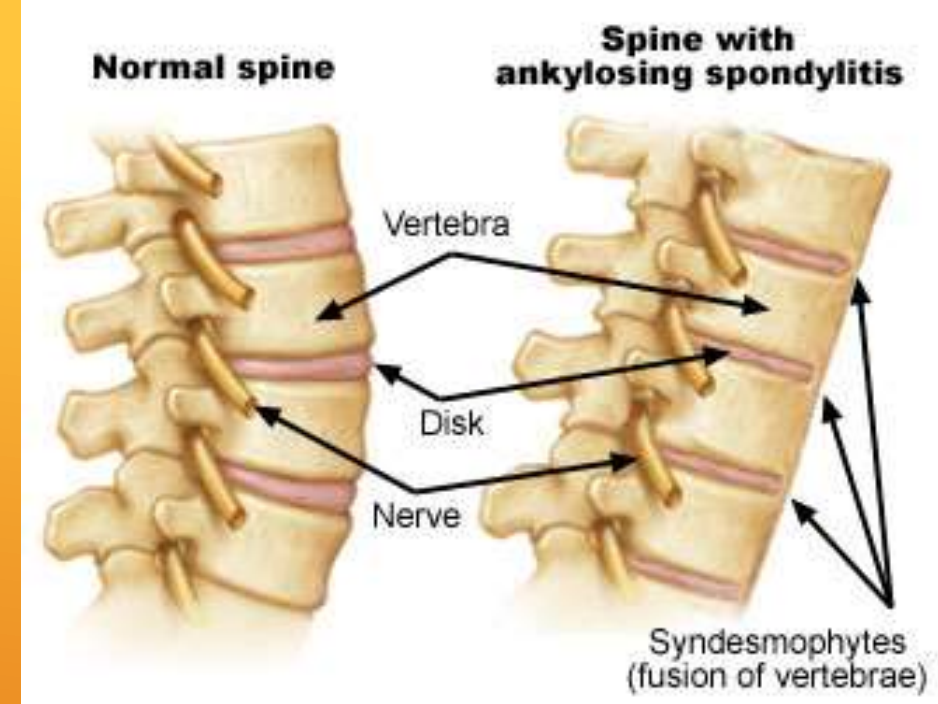
-osis

→ spondylosis
early 20th century

early 20th century: from Greek *spondulos* 'vertebra' + *-osis*.

ANKYLOSING SPONDYLITIS (AS)

- ▶ A **seronegative spondyloarthropathy**
- ▶ **chronic, multisystem inflammatory disorder**
- ▶ involves primarily the sacroiliac (SI) joints and the axial skeleton.
- ▶ outcome is generally good compared with that in patients with a disease such as rheumatoid arthritis



Etiology and Pathogenesis:



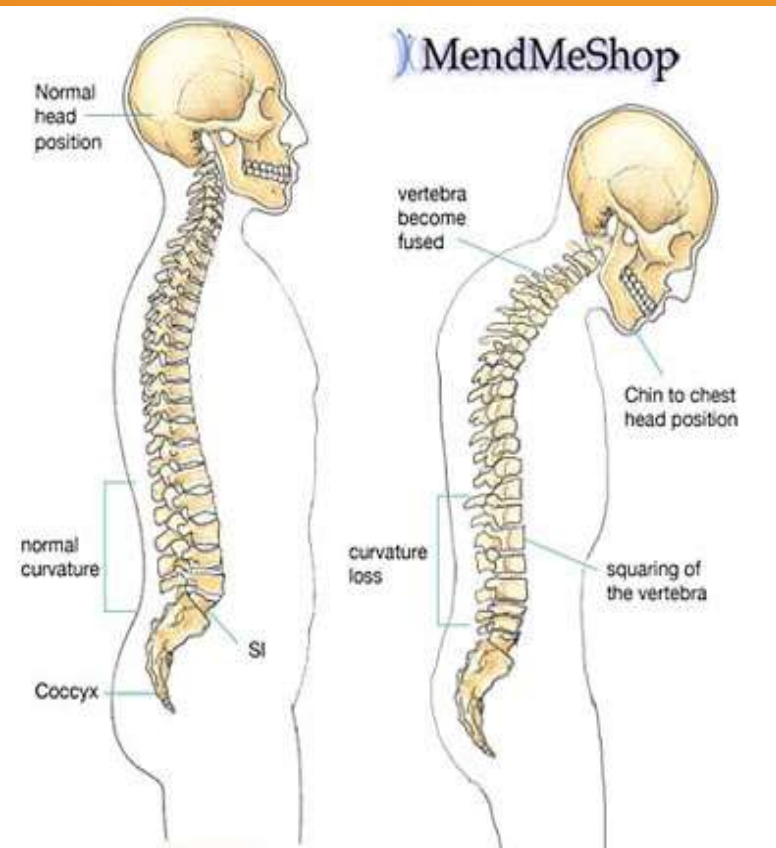
- ▶ Not fully established
- ▶ Environmental and genetic factors
- ▶ **HLA-B27 antigen-** associated hereditary marker
 - ▶ 90% of people with AS express the HLA-B27 genotype
- ▶ association of AS with HLA-B27 suggests the condition involves CD8 T cells, which interact with HLA-B.
- ▶ possibility that CD4+ T lymphocytes are involved since HLA-B27 possibly with an ability to interact with T cell receptors in association with CD4 (usually CD8+ cytotoxic T cell with HLAB antigen as it is a MHC class 1 antigen)
- ▶ **IL-23 receptor gene**

Hx: (Key components of the patient history that suggest AS include the following):

- ▶ Insidious onset of **low back pain** - The most common symptom
- ▶ Onset of symptoms **before age 40 years**
- ▶ Presence of symptoms for **more than 3 months**
- ▶ Symptoms **worse in the morning or with inactivity**
- ▶ **Improvement** of symptoms **with exercise**



General SSx:



- ▶ Those related to inflammatory back pain - **Stiffness of the spine** and **kyphosis** resulting in a stooped posture are characteristic of advanced-stage AS.
- ▶ **Sacroiliitis**- pathologic hallmark of Sero(-) SAp's
- ▶ Peripheral **enthesitis** and **arthritis**
- ▶ Constitutional and organ-specific **extra-articular** manifestations

▶ **Entheses**

- ▶ are any point of attachment of skeletal muscles to the bone, where recurring stress or inflammatory autoimmune disease can cause inflammation or occasionally fibrosis and calcification.

▶ **Enthesitis**

- ▶ inflammation of the entheses, the sites where tendons or ligaments insert into the bone.
 - ▶ Vs. synovium**
- ▶ It is associated with HLA B27 arthropathies like AS, PS, and ReAs.
- ▶ also called enthesopathy

Extra-articular manifestations:

- ▶ Uveitis
 - ▶ Cardiovascular disease
 - ▶ Pulmonary disease
 - ▶ Renal disease
 - ▶ Neurologic disease
 - ▶ Gastrointestinal (GI) disease
 - ▶ Metabolic bone disease
- 
- A decorative graphic consisting of several parallel white lines of varying lengths and orientations, located in the bottom right corner of the slide.

Dx:

combining the clinical criteria of inflammatory back pain (Hx) and enthesitis or arthritis (PE) with radiologic findings.

- ▶ Serologic Tests (ESR, CRP)
- ▶ Radiography
- ▶ Power Doppler ultrasonography
- ▶ MRI and CT scanning
- ▶ Genetic Testing
- ▶ Bath Ankylosing Spondylitis Disease Activity Index (BASDAI)



There is a ligament (arrow head) on sides of the vertebrae. It is flexible & not normally seen in a normal person. It gets calcified & thick in Ankylosing Spondylitis & is seen.
Dr. S. Akerkar <http://doctorakerkar.wordpress.com/>

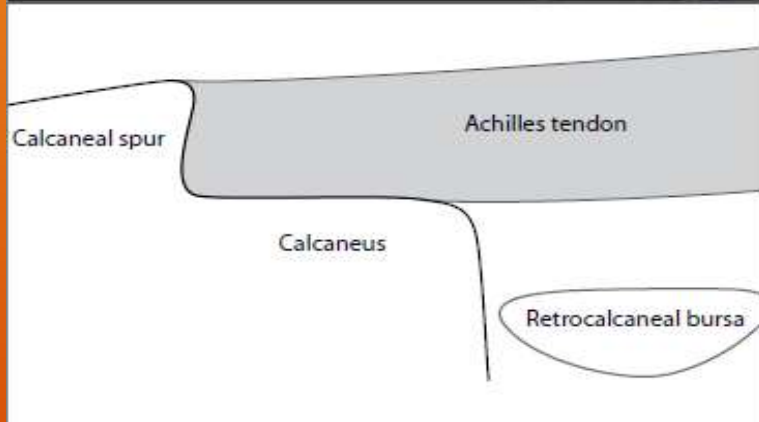
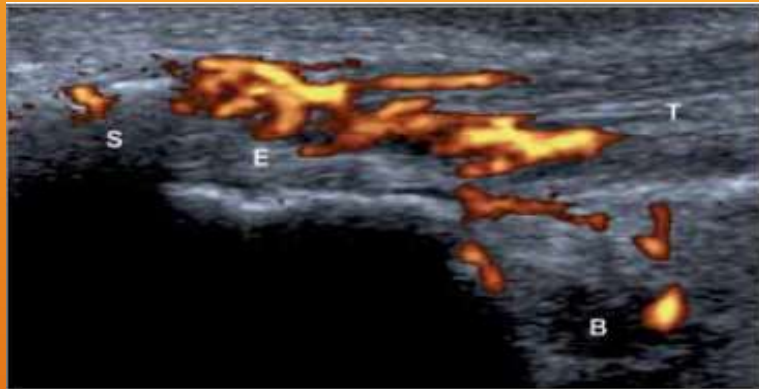


FIGURE 11. Enthesitis of the Achilles tendon insertion (dorsal longitudinal power Doppler scan). There is florid enthesitis in the superficial half of the Achilles tendon with an associated calcaneal spur and retrocalcaneal bursitis. [B retrocalcaneal bursa; E enthesitis; S calcaneal spur; T Achilles tendon]

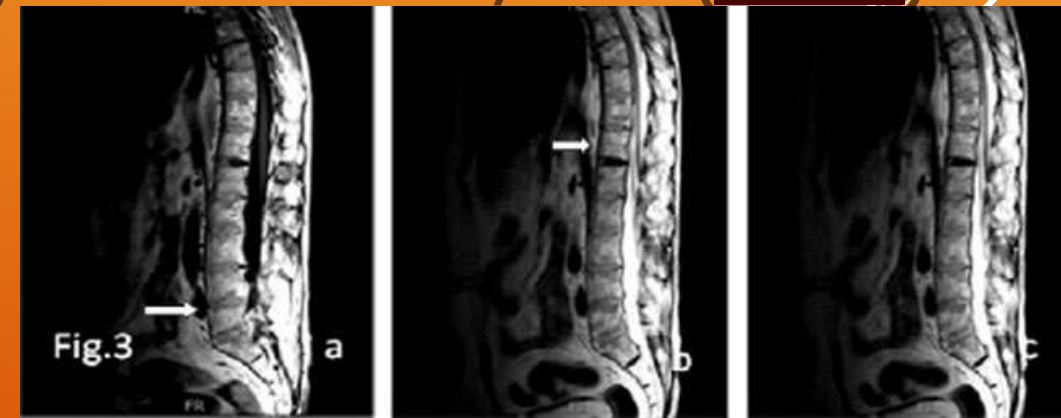


Figure-3: Ankylosing Spondylitis. (a) T1-weighted sagittal image. (b) T2-weighted sagittal image. (c) T1-weighted post contrast sagittal image. There is squaring of vertebral bodies with loss of intervertebral disc spaces in the dorso-lumbar spine. There is also a prominence of the prominent anterior longitudinal ligament.

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▶ Radiography

- ▶ inflammatory changes in the SI joints and spine
- ▶ earliest changes in SI shows **erosions and sclerosis**.
- ▶ inflammatory lesions at vertebral entheses may result in sclerosis of the superior and inferior margins of the vertebral bodies, called **shiny corners (Romanus lesion)**.
- ▶ Progression of the erosions → *pseudo widening* of the joint space and bony ankylosis
- ▶ **squaring of the vertebral bodies** caused by **erosions of the superior and inferior margins** → loss of the normal concave contour of the bodies' anterior surface.
- ▶ Syndesmophyte-bony growth originating inside a ligament, leading to fusion of vertebrae
- ▶ **bamboo spine appearance**.



Dx:

combining the clinical criteria of inflammatory back pain and enthesitis or arthritis with radiologic findings.

▶ Power Doppler ultrasonography

- ▶ can be used to document active enthesitis. In addition, this technology may be useful in the assessment of **changes in inflammatory activity at entheses** during the institution of new therapies.

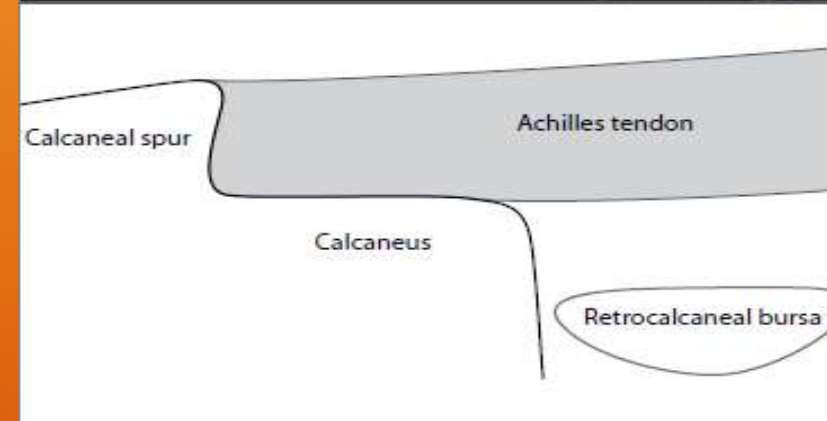
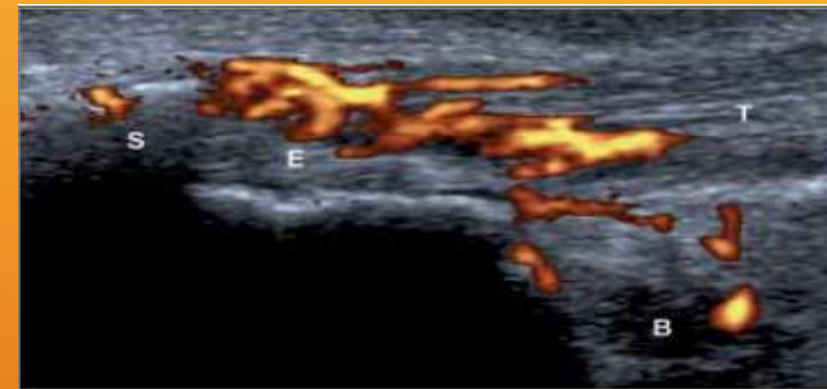


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▶ **MRI and CT scanning**

▶ Magnetic resonance imaging (MRI) or computed tomography (CT) scanning of the SI joints, spine, and peripheral joints may reveal evidence of early **sacroiliitis, erosions, and enthesitis** that are not apparent on standard radiographs.

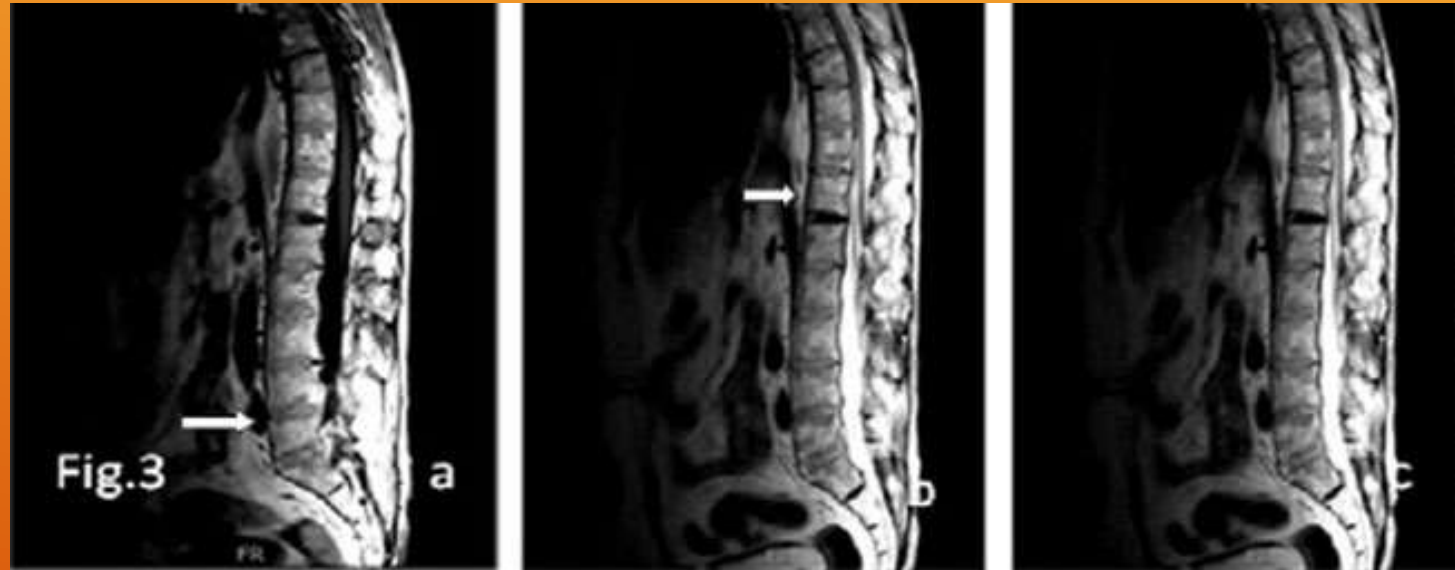


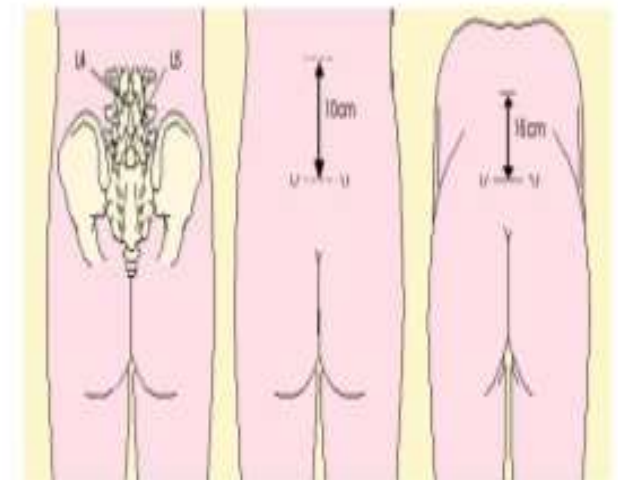
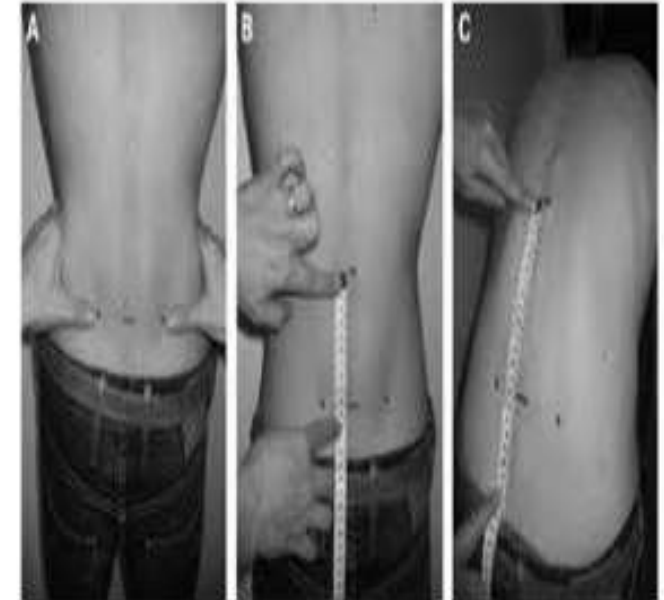
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Lumbar flexion (modified Schober)

Schober's test

- a test used in rheumatology to measure the ability of a patient to flex his/her lower back.
- ▶ **if the distance increases less than 5 cm, then there is an indication that the flexion of the lower back is limited.**
- ▶ **diagnostically useful as part of a clinical diagnosis of syndromes such as ankylosing spondylitis.**

- With the patient standing upright, place a mark at the lumbosacral junction (at the level of the dimples of Venus on both sides). Further marks are placed 5 cm below and 10 cm above. Measure the distraction of these two marks when the patient bends forward as far as possible, keeping the knees straight



The distance less than 5 cm is abnormal

The Bath Ankylosing Spondylitis Disease Activity Index (BASDAI)

Please place a mark on each line below to indicate your answer to each question relating to **the past week**

1. How would you describe the overall level of **fatigue/tiredness** you have experienced?

NONE _____ VERY SEVERE

2. How would you describe the overall level of AS **neck, back or hip pain** you have had?

NONE _____ VERY SEVERE

3. How would you describe the overall level of pain/swelling in joints other than **neck, back, hips** you have had?

NONE _____ VERY SEVERE

4. How would you describe the overall level of **discomfort** you have had from any areas tender to touch or pressure?

NONE _____ VERY SEVERE

5. How would you describe the overall level of **morning stiffness** you have had from **the time you wake up?**

NONE _____ VERY SEVERE

6. How long does your morning stiffness last from the time you wake up?

0 hrs ½ 1 1½ 2 or more hours

Bath Ankylosing Spondylitis Functional Index*

BASFI

*Calin et al. *J Rheumatol* 1994 21; 2281-85

Date _____

Patient Name _____

Please draw a mark on each line below to indicate your ability with each of the following activities, during the **past week**:

1. Putting on your socks or tights without help or aids (e.g. sock aids)?

EASY _____ IMPOSSIBLE
0 10

2. Bending forward from the waist to pick up a pen from the floor without an aid?

EASY _____ IMPOSSIBLE
0 10

3. Reaching up to a high shelf without help or aids (e.g. helping hand)?

EASY _____ IMPOSSIBLE
0 10

4. Getting up out of an armless dining room chair without using your hands or any other help?

EASY _____ IMPOSSIBLE
0 10

5. Getting up off the floor without any help from lying on your back?

EASY _____ IMPOSSIBLE
0 10

6. Standing unsupported for 10 minutes without discomfort?

EASY _____ IMPOSSIBLE
0 10

7. Climbing 12-15 steps without using a handrail or walking aid (one foot on each step)?

EASY _____ IMPOSSIBLE
0 10

8. Looking over your shoulder without turning your body?

EASY _____ IMPOSSIBLE
0 10

9. Doing physically demanding activities (e.g. physiotherapy exercises, gardening or sports)?

EASY _____ IMPOSSIBLE
0 10

10. Doing a full day activities whether it be at home or work?

EASY _____ IMPOSSIBLE
0 10

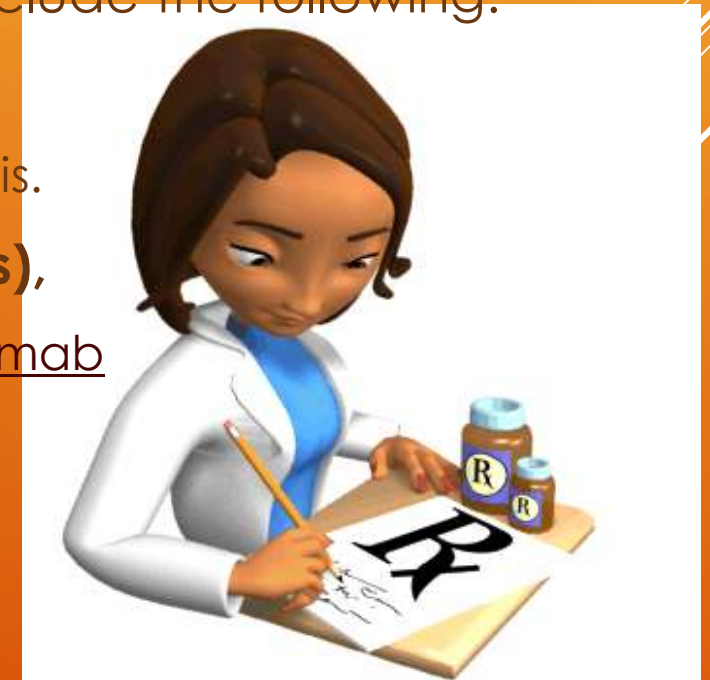
▶ **Pharmacologic therapy**

Tx:

- ▶ Nonsteroidal anti-inflammatory drugs (NSAIDs)-mainstay tx
 - ▶ ibuprofen, phenylbutazone, diclofenac, indomethacin, naproxen and COX-2 inhibitors. **Indomethacin** is a drug of choice.
- ▶ Opioid painkillers

Medications used to treat the progression of the disease include the following:

- ▶ **Disease-modifying antirheumatic drugs (DMARDs)**
 - ▶ sulfasalazine can be used in people with peripheral arthritis.
- ▶ **Tumor necrosis factor-alpha (TNFa) blockers (antagonists),**
 - ▶ biologics etanercept, infliximab, golimumab and adalimumab
- ▶ **Anti-interleukin-6 inhibitors**
 - ▶ tocilizumab and rituximab, undergoing trials.



Tx:

▶ ***Surgical therapy***

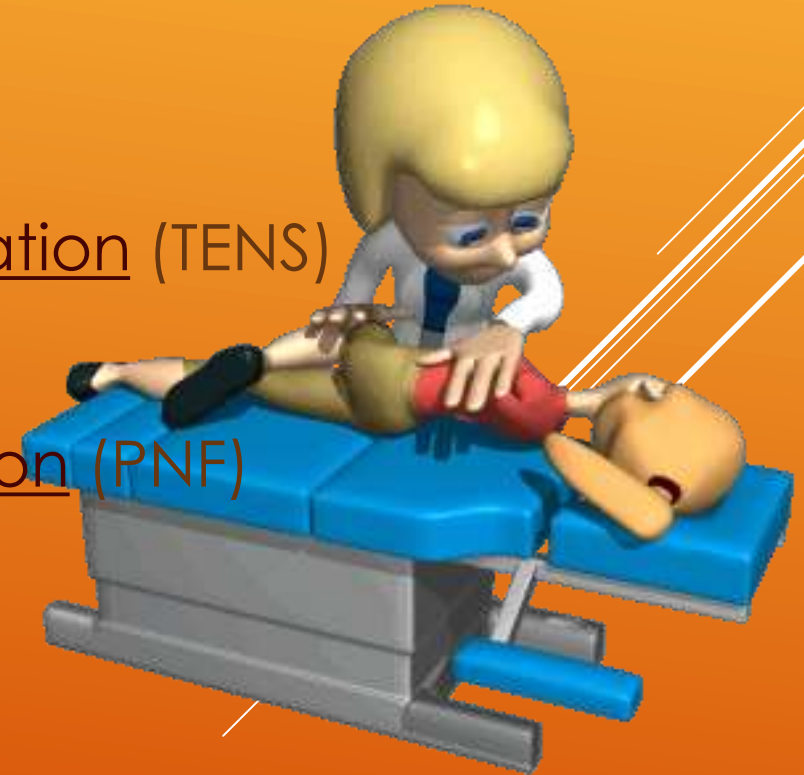
- ▶ Vertebral osteotomy - Patients with fusion of the cervical or upper thoracic spine may benefit from extension osteotomy of the cervical spine [11]
- ▶ Fracture stabilization
- ▶ Joint replacement - Patients with significant involvement of the hips may benefit from total hip arthroplasty



Tx:

▶ **Physical therapy**

- ▶ Though physical therapy remedies have been scarcely documented, some therapeutic exercises are used to help manage lower back, neck, knee, and shoulder pain.
- ▶ Low intensity aerobic exercise
- ▶ Transcutaneous electrical nerve stimulation (TENS)
- ▶ Thermotherapy
- ▶ Proprioceptive neuromuscular facilitation (PNF)



▶ **HISTORY:** A 72 year old woman was brought to the emergency room by her son-in-law after falling in her bath tub. She was previously in good health despite leading a relatively a sedentary lifestyle and having a 30-pack-year history of cigarette smoking. The only medication she currently takes is Inderal (propranolol) for mild hypertension. She fell upon entering the bath tub when her right leg slip out from under her; she landed on her right hip. There was no trauma to her head nor does she complain of right or left wrist pain. However, she reports severe pain in the right hip and upper thigh and was unable to get up after her fall. An injection of oxycodone HCl (Numorphan) helped relieve her pain and she was taken to the radiology department for an xray of her right leg and hip