

# INTRODUCTION TO RHEUMATIC DISEASES, CLASSIFICATION AND GENERAL APPROACH

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# CONTENTS

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Nomenclature

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History of the rheumatic  
diseases

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Classification of the  
musculoskeletal rheumatic  
diseases

## NOMENCLATURE

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Rheumatology

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Rheumatologist

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Rheumatic Diseases

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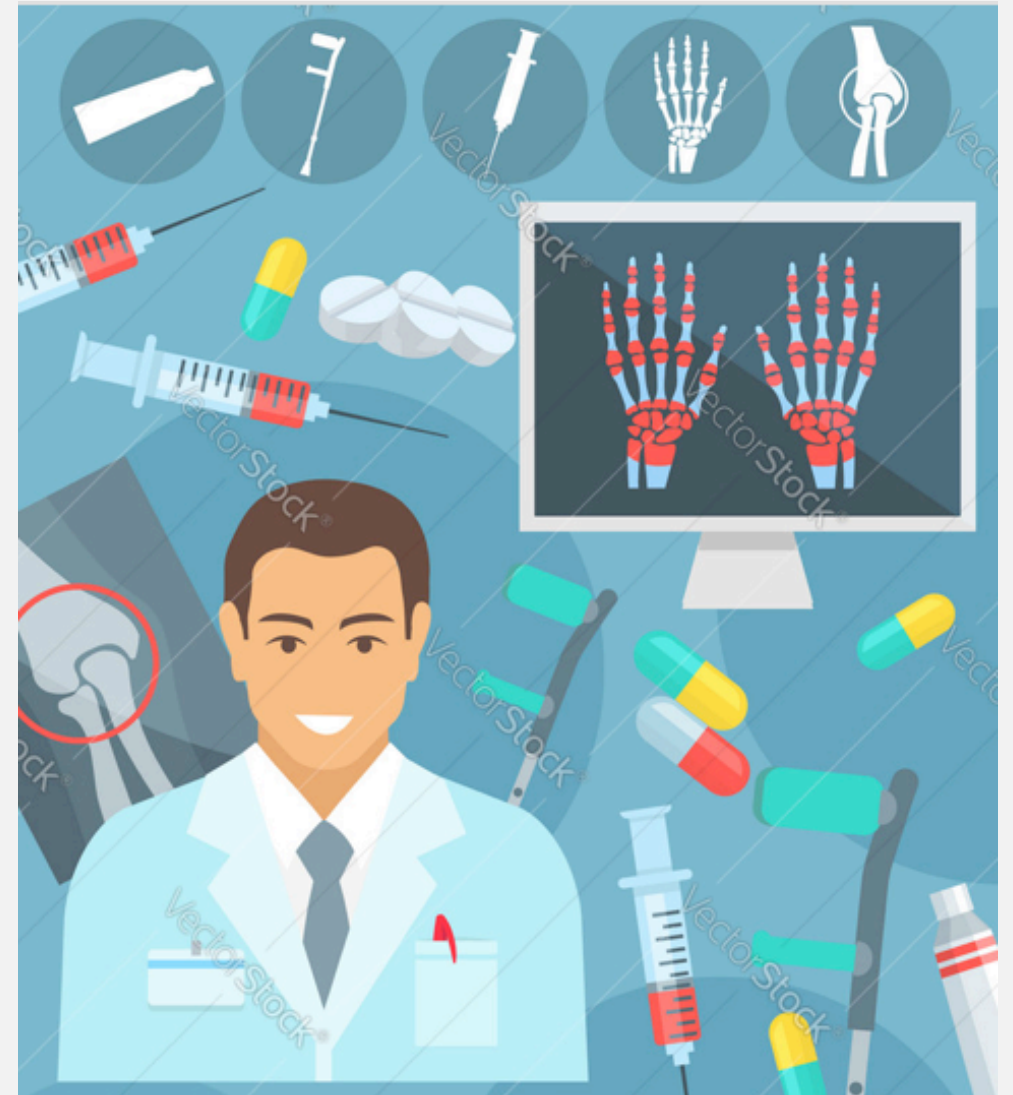
Arthritis

# RHEUMATOLOGY

- Rheumatology is a branch of medicine devoted to the diagnosis and therapy of rheumatic diseases. Physicians who have undergone formal training in rheumatology are called rheumatologists.
- Rheumatology specialty training in Turkey is a subspecialty which is made on internal medicine or PRM.
- Although rheumatologists are deal mainly with immune-mediated disorders of the musculoskeletal system, soft tissues, autoimmune diseases, vasculitides, and heritable connective tissue disorders , all kinds of musculoskeletal disorders fall into their core areas.

# RHEUMATOLOGIST

- Rheumatology developed as a well-recognized specialty of medicine in the 20th century. American Physicians Bernard Comroe and Joseph Lee Hollander coined the term rheumatologist in 1940.
- Rheumatology has rapidly advanced during the last 50 years due to improved diagnosis as a result of progress in immunology, molecular biology, genetics and imaging.



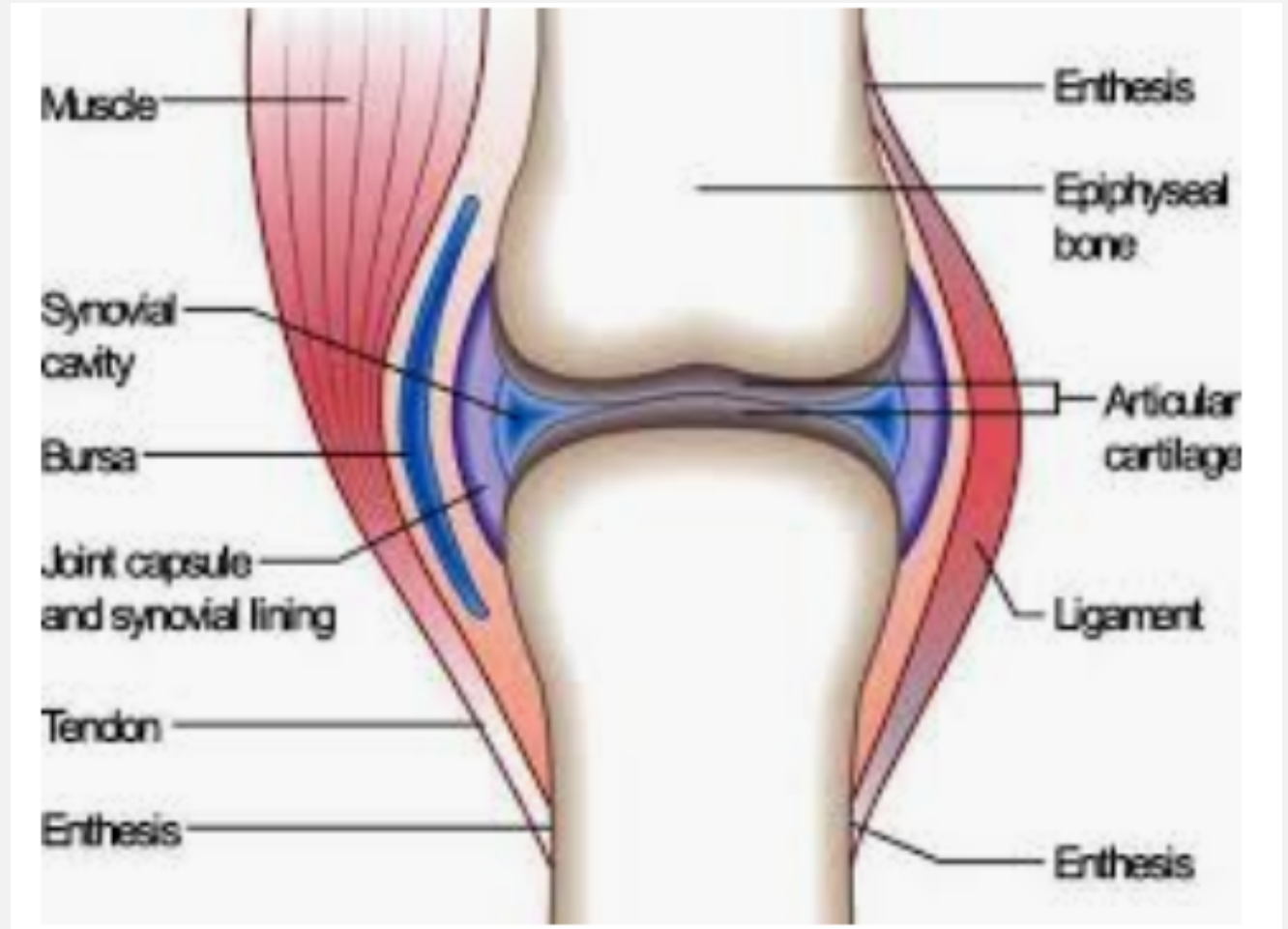
# RHEUMATIC DISEASES

- Rheumatic diseases, also called musculoskeletal diseases, are characterized by pain and a consequent reduction in the range of motion and function in one or more areas of the musculoskeletal system; in some diseases there are signs of inflammation: swelling, redness, warmth in the affected areas. like heart, kidney and vascular system.

# ARTHRITIS

- Arthritis is an inflammation of the joints. It can affect one joint or multiple joints. There are more than 100 different types of arthritis and related conditions. Two of the most common types are osteoarthritis (OA) and rheumatoid arthritis (RA).

# STRUCTURES OF NORMAL JOINT





## SYMPTOMS OF ARTHRITIS

- Pain,
- Erythema
- Swelling,
- Stiffness and decreased range of motion
- Lost of function



## CHARACTERISTICS OF ARTHRITIS

- Monoarticular
- Oligo/polyarticular
- Akut or chronic
- Self-limiting
- Simetric or asymmetric

# MAIN TOPICS OF RHEUMATOLOGY

- **Musculoskeletal Problems**
  - Osteoarthritis and related Disorders
  - Crystal-related arthritis
  - Inflammatory and infection-related rheumatic diseases
  - Regional and widespread pain problems
- **Systemic conditions**
  - Connective tissue diseases
  - Vasculitis
  - Other systemic illnesses

# OSTEOARTHRITIS AND RELATED DISORDERS

- Osteoarthritis
- Diffuse idiopathic skeletal hyperostosis
- Neuropathic arthropathy
- Osteonecrosis
- Rare osteoarthritis: *Ochronosis, Kashin-Beck disease, and Mseleni joint disease*

# OSTEOARTHRITIS

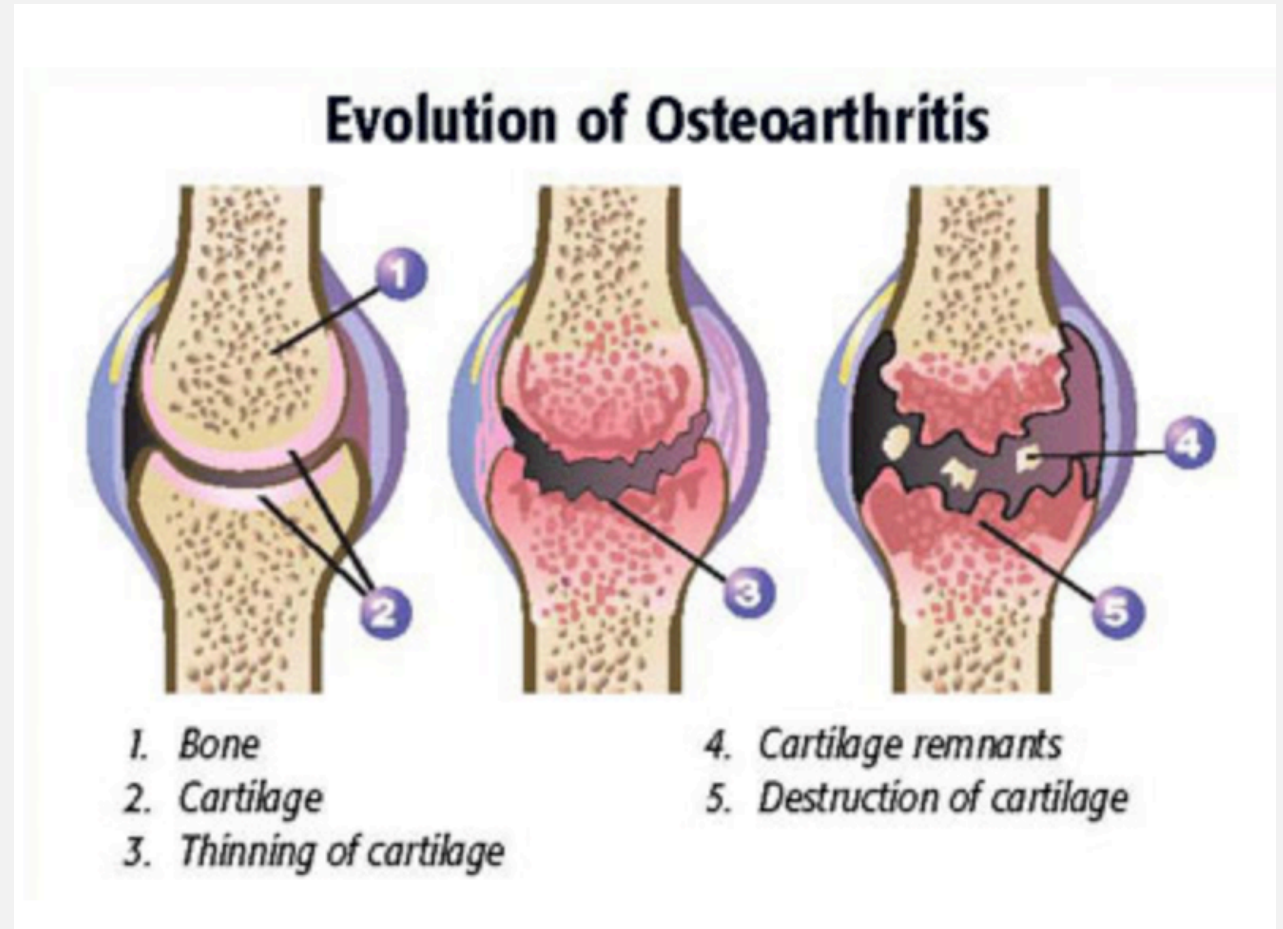
- Osteoarthritis is the most common form of arthritis. It is strongly associated with aging and typically affects the knee, hip, spine, great toe, the first carpometacarpal joint, and the proximal and distal interphalangeal joints of the hand.
- Adults have a 40% to 50% lifetime risk of developing symptomatic OA.



<https://livewellrehab.com.au/>

# THE PATHOGENESIS OF OA

- The pathogenesis of OA involves a degradation of cartilage and remodelling of bone due to an active response of chondrocytes in the articular cartilage and the inflammatory cells in the surrounding tissues.



# CLASSIFICATION OF OSTEOARTHRITIS

- Idiopathic
  - Localized
  - Generalized
- Secondary
  - Posttraumatic
  - Congenital or developmental diseases
  - Calcium deposition disease
  - Other bone and joint disorders

# OSTEOARTHRITIS

- Symptomatic OA of the proximal and distal joints of the extremities is common and affects a large segment of the population, particularly those older than 50 years of age.
- Although OA can affect nearly any joint in the body, OA of the weight-bearing joints leads to the most disabling symptoms. Hip and knee OA can cause significant morbidity, disability, and impairment.
- Pain is the most common complaint that brings the patient to seek a physician's assistance. Examination often reveals loss of function and may reveal some of the signs of inflammation.
- The findings on careful history and physical examination should lead to the formulation of an individualized program of therapy.



# MAIN TOPICS OF RHEUMATOLOGY

- **Musculoskeletal Problems**
  - Osteoarthritis and related Disorders
  - **Crystal-related arthritis**
  - Inflammatory and infection-related rheumatic diseases
  - Soft tissue rheumatism
  - Regional pain problems
- **Systemic conditions**
  - Connective tissue diseases
  - Vasculitis
  - Other systemic illnesses

## CYRISTAL-RELATED ARTHRITIS

- Gout (monosodium urate crystal deposition disease)
- Calcium pyrophosphate crystal-associated arthropathy (CPPD)
- Basic calcium phosphate crystal deposition disease (hydroxyapatite crystals)

# GOUT

- Gout is a form of arthritis caused by excess uric acid in the bloodstream.
- The symptoms of gout are due to the formation of uric acid crystals in the joints and the body's response to them.
- The most commonly involved joints are the metatarsophalangeal joints, affected in 50% of cases, followed by the ankle, midfoot, and hands.
- Gout is the most common inflammatory arthritis in men. It is an inflammatory and destructive arthritis resulting from the deposition of crystals from extracellular fluids saturated with urate, the end product of human purine metabolism



<https://www.bbc.com/news/av/health>



## GOUT DISEASE

The erythema overlying the affected joint(s) during an attack is characteristic of gouty synovitis and may extend beyond the joint, leading to a monosodium urate (MSU) crystal-induced cellulitis.

Other signs of inflammation include swelling, warmth, decreased range of motion, and extreme tenderness.

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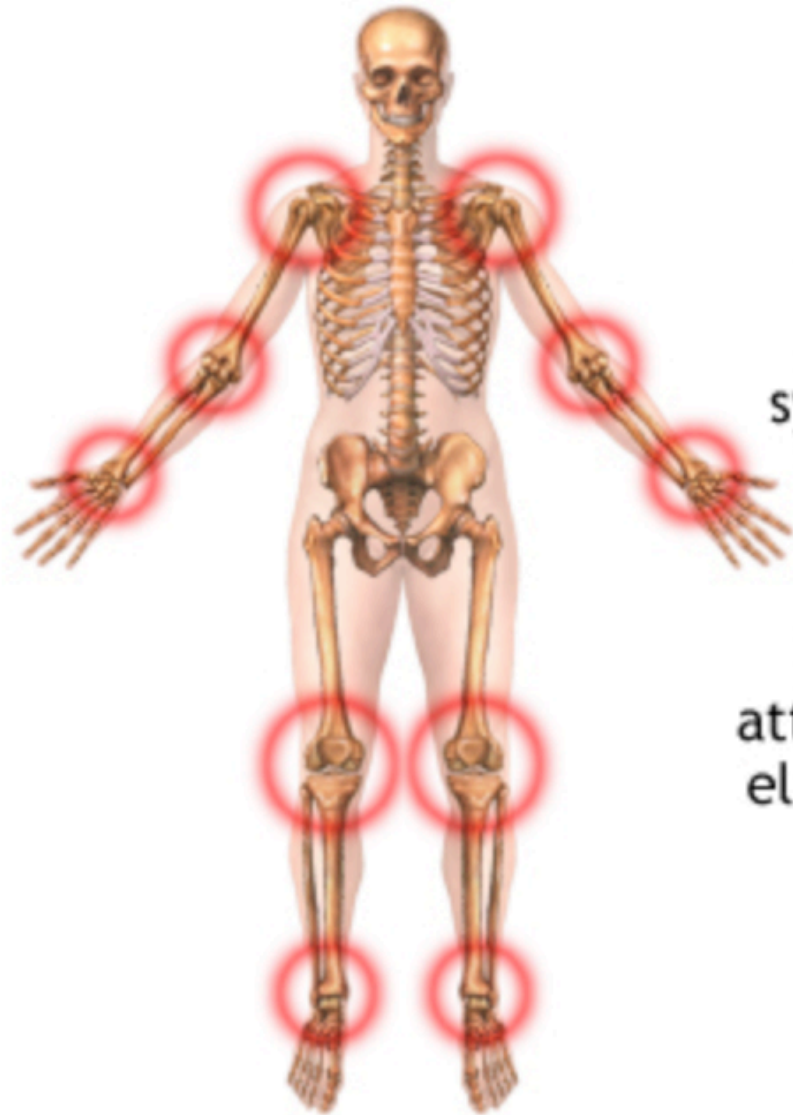
# INFLAMMATORY RHEUMATIC DISEASES

- **Rheumatoid Arthritis**
- **Spondyloarthritis (SpA)**
  - Axial SpA
    - Radiological Axial SpA (Ankylosing spondylitis)
    - Non-radiological Axial SpA
  - Periferal SpA (+ Axial)
    - Psoriatic arthritis
    - Inflammatory bowel disease-associated arthritis
    - Reactive arthritis
  - Undifferentiated SpA

# RHEUMATOID ARTHRITIS

- Rheumatoid arthritis (RA) is the most common type of autoimmune arthritis.
- RA is a chronic inflammatory disorder that can affect more than one joints. In some people, the condition can damage a wide variety of body systems, including the skin, eyes, lungs, heart and blood vessels.
- As an autoimmune disorder, RA occurs when the immune system mistakenly attacks the body's self-tissues
- Unlike the wear-and-tear damage of osteoarthritis, rheumatoid arthritis affects the lining cells of synovium, causing a painful swelling that can eventually result in bone erosion and joint deformity.





Rheumatoid arthritis usually affects joints symmetrically (on both sides equally), may initially begin in a couple of joints only, and most frequently attacks the wrists, hands, elbows, shoulders, knees and ankles

 ADAM.

THE JOINTS INVOLVED IN RHEUMATOID ARTHRITIS



# SPONDYLOARTHRITIS

- **Spondyloarthritis (SpA)**
  - Axial SpA
    - Radiological Axial SpA (Ankylosing spondylitis)
    - Non-radiological Axial SpA
  - Periferal SpA (+ Axial)
    - Psoriatic arthritis
    - Inflammatory bowel disease-associated arthritis
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  - Undifferentiated SpA

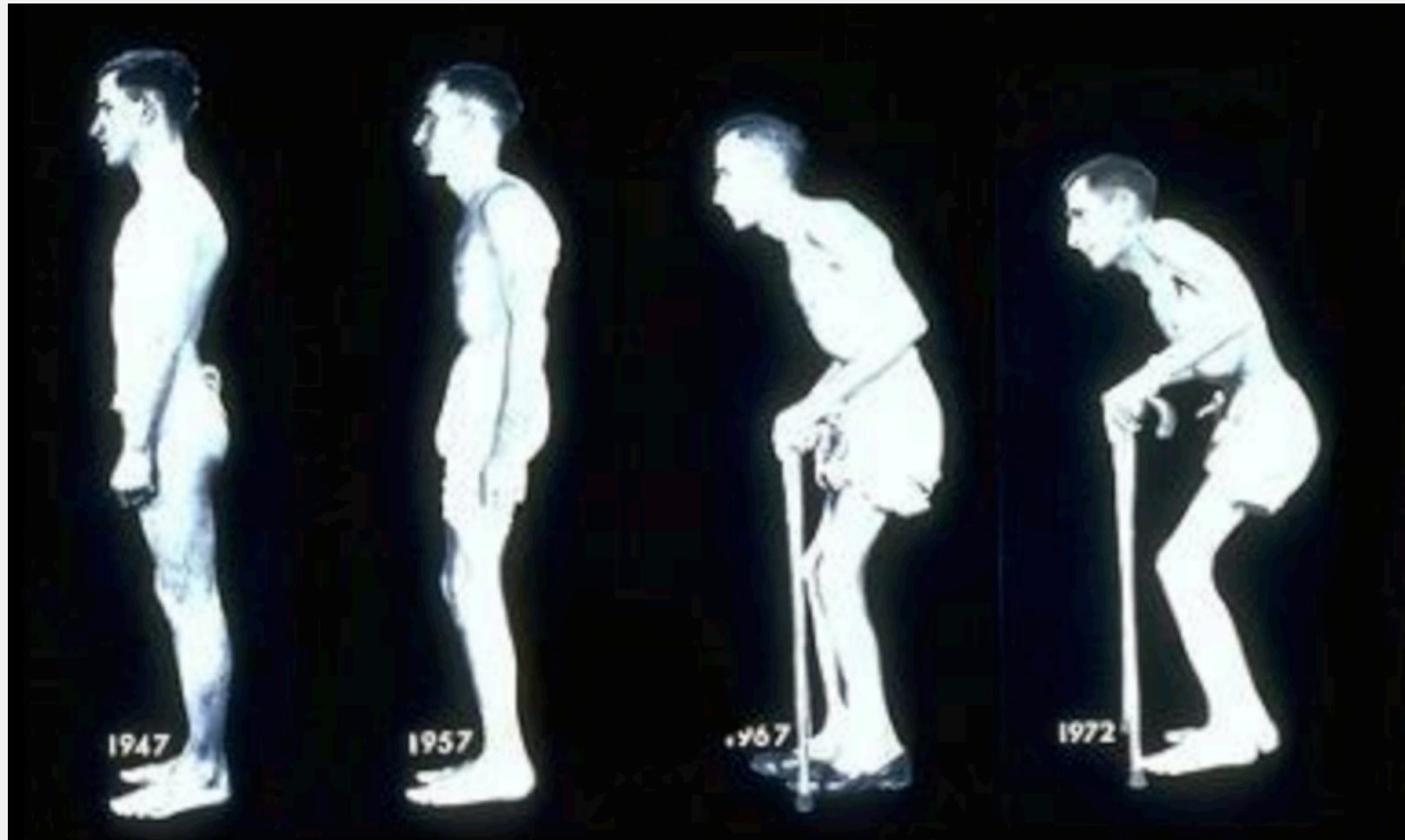
## ANKYLOSING SPONDYLITIS

- Ankylosing spondylitis (AS), the radiographic form of axial spondyloarthritis (axSpA), is perhaps the best known and characterized of the spondyloarthritis (SpA) family. It is a chronic inflammatory disease affecting the axial skeleton, the entheses, and occasionally the peripheral joints
- The hallmark of axSpA is inflammatory back pain (IBP) associated with sacroiliitis and spondylitis. In addition to the axial, enthesal, and appendicular skeletal involvement, axSpA can be associated with extraarticular manifestations, especially uveitis and, less commonly psoriasis and inflammatory bowel disease (IBD).
- There is a strong genetic predisposition associated with HLA-B27.

# INFLAMMATORY BACK PAIN

- The first symptoms of AS usually appear in adolescence to early adulthood and almost invariably start before the 45 years of age. The most characteristic presentation is that of IBP, though this is common in chronic back pain, affecting up to one third of this population
- This is dull, chronic low back pain (lasting >3 months), insidious in onset, usually in the buttocks (or hips, as interpreted by the patient). It is worse in the second part of the night and early part of the morning, when it is associated with morning stiffness lasting more than 30 minutes; is relieved with exercise or activity or a hot shower; is worsened by rest; and usually is improved by the use of nonsteroidal antiinflammatory drugs (NSAIDs)

# ANKYLOSING SPONDYLITIS



## INFECTION-RELATED RHEUMATIC DISEASES

- Septic arthritis, osteomyelitis
- Mycobacterial, brucellar, fungal, and parasitic arthritis
- Lyme disease
- Acute rheumatic fever
- Reactive arthritis

# MAIN TOPICS OF RHEUMATOLOGY

- **Musculoskeletal Problems**
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- **Systemic conditions**
  - Connective tissue diseases
  - Vasculitis
  - Other systemic illnesses

# REGIONAL PAIN PROBLEMS

- Periarticular
- Neurogenic,
- Referred pain, or
- Articular

## PERIARTICULAR PAIN PROBLEMS

- Periarticular pain is characterized by local or regional distribution. It typically affects the shoulder and elbow, and there is selectivity of painful movements. Active mobilization is much more painful than passive, there is no passive range limitation. Palpation of the structure is painful, and specific distention or resisted movements are painful.



## NEUROGENIC PAIN PROBLEMS

- Neurogenic pain is characterized by distribution in a dermatome or peripheral nerve territory and dysesthetic nature of pain. The most common sites are sciatica, carpal tunnel syndrome, and ulnar syndrome. It is associated with a normal local osteoarticular examination with local alterations in the neurologic examination (late onset), exacerbation with mobilization of the spine (in radiculopathies), and Tinel sign (in nerve entrapment) may be positive.

## REFERRED PAIN PROBLEMS

- Referred pain is characterized by local or regional distribution, and uncharacteristic rhythm, a dysesthetic nature (neurogenic pain), associated symptoms (neighboring joints, viscera, neurologic changes), and a normal local examination.

## COMMON PATTERNS OF REFERRED PAIN

Source of pain	Pattern of referral
Cervical spine	Occiput, shoulders
Shoulder	Lateral aspect of arm
Lateral epicondyle	Mid forearm
Carpal tunnel	Radial fingers, occasionally forearm or arm
Lumbar spine	Sacroiliac joints, buttocks, posterior thigh, lower leg, foot
Hip joint	Groin, medial thigh, medial knee, greater trochanter, buttock above gluteal fold
Trochanteric bursa	Lateral thigh, buttock

# ARTICULAR PAIN PROBLEMS

- Neck pain
- Low back pain
- The Shoulder
- The Wrist and hand
- The Hip
- The Knee
- The Ankle and foot

## NECK PAIN

- Although less common than low back pain, neck pain is a common human experience.
- At any one time, 1 in 20 people has neck pain, and it is ranked fourth highest in contributing to global disability.
- 1-year incidence is between 10% and 21% and a mean 1-year prevalence of 25.8%.

## CAUSES AND FEATURES OF NECK PAIN

Cause	Clinical Clues
<b>Trauma</b>	History of trauma or occupational factors
<b>Spondylosis</b>	Pain is usually mechanical. Chronic or recurring pain that can be associated with neurogenic manifestations, with pain in shoulder and numbness or paresthesia in the hand, often on waking. Radiographic features are nonspecific.
<b>Inflammatory joint disease</b>	Pain tends to be inflammatory, usually associated with arthritis in other locations. RA, seronegative spondyloarthropathies, and JIA often affect the cervical spine.
<b>Infection</b>	Acute or chronic infections of the vertebral bones or disks—TB or brucellosis
<b>Metastases</b>	Metastases of thyroid, lung, breast, or kidney and prostate cancer; multiple myeloma. Primary bone tumors are rare.
<b>Referred pain</b>	From shoulder, pulmonary vertex, and heart
<b>Nonmusculoskeletal pain</b>	Lymphadenopathy caused by oropharyngeal infections, thyroiditis, meningitis, or meningism

# LOW BACK PAIN

- Low back pain is the most frequent disorder of humanity.
- Back pain develops in between 65% and 80% of the world's population at some point during their lives.
- Lumbar spine disorders can be categorized broadly as being mechanical, neuropathic, or medical in origin. Up to 90% of patients with back pain have a mechanical or neuropathic reason for their pain. Mechanical implies that the pain is secondary to overuse of a normal anatomic structure, trauma, or deformity of an anatomic structure.

# CAUSES AND FEATURES OF LOW BACK PAIN

Nature of the problem	Suggestive manifestations
<b>Acute mechanical low back pain</b>	Acute pain, paravertebral muscle spasm; usually in young persons
<b>Chronic mechanical low back pain</b>	Chronic, recurring mechanical pain; no systemic manifestations; no neurologic signs
<b>Fibromyalgia</b>	Generalized pain; no limitations to mobility; diffuse tenderness on palpation of the paravertebral (and other) muscles
<b>Spondylodiscitis</b>	<b>Alarm signals (“red flags”)</b> Inflammatory low back pain Localized pain Nocturnal pain Fever Weight loss History of neoplasm Associated visceral manifestations Risk or evidence of osteoporosis Onset before age 30 or after 50 years Neurologic manifestations Limitation of movement in all directions
<b>Spondylitis or sacroiliitis</b>	
<b>Metastases</b>	
<b>Referred pain</b>	
<b>Interspinous ligamentitis</b>	
<b>Neurologic compromise</b>	
<b>Osteoporotic fracture</b>	



## GENERALIZED PAIN

- Patients whose symptoms include widespread, diffuse musculoskeletal pain are commonly referred for rheumatological evaluation, even when the underlying cause may lie out with the remit of rheumatology.
- Studies have shown that 4.7-13.2% of people have generalized chronic widespread pain. Fibromyalgia is one of the most common diagnoses associated with generalized pain

# FIBROMYALGIA

- Fibromyalgia is a medical condition associated with chronic and widespread musculoskeletal pain, fatigue, sleep disturbance, and cognitive alteration.
- Researchers believe repeated nerve stimulation causes the brains of people with fibromyalgia to change. This change involves an abnormal increase in levels of certain chemicals in the brain that signal pain (neurotransmitters). In addition, the brain's pain receptors seem to develop a sort of memory of the pain and become more sensitive, meaning they can overreact to pain.

## MUSCLE PROBLEMS

- There may be pathologic muscle involvement with muscle weakness, typically proximal with difficulty with stairs, rising from squatting or sitting, but neuropathy is typically distal with poor hand grip. There may be muscle atrophy, pain, and tenderness. Other muscle problems may be nonspecific weakness, stiffness, and pain or specific weakness related to a nerve lesion or pain.

## **BONE DISORDERS**

- Bone pain is uncommon. It is characterized by deep, unlocalized, continuous pain occurring night and day, unrelated to movement. There may be bone tenderness. Possible causes are local and metastatic bone tumors, metabolic disease such as Paget disease, stress fracture, infection, or inflammation of the periosteum.

## CONNECTIVE TISSUE DISEASE

- A connective tissue disease is any disease that affects the parts of the body that connect the structures of the body together. Connective tissues are made up of proteins, which, when inflamed, are themselves harmed and cause harm to related body parts.
- Diseases of connective tissue include a large number of different disorders that can affect skin, fat, muscle, joints, tendons, ligaments, bone, cartilage, and even the eye, blood, and blood vessels.

## CONNECTIVE TISSUE DISEASE

- Systemic lupus erythematosus (SLE)
- Systemic sclerosis
- Sjogren syndrome
- Antiphospholipid syndrome
- Inflammatory muscle diseases
- Vasculitis

# VASCULITIS

- Vasculitis is inflammation of the blood vessels. It causes changes in the blood vessel walls, including thickening, weakening, narrowing or scarring. These changes can restrict blood flow, resulting in organ and tissue damage.
- There are many types of vasculitis, and most of them are rare. Vasculitis might affect just one organ, or several. The condition can be short term (acute) or long lasting (chronic).
- Vasculitis can affect anyone, though some types are more common among certain groups. Depending on the type you have, you may improve without treatment. Some types require medications to control the inflammation and prevent flare-ups.
- Vasculitis is also known as angiitis and arteritis.

## OTHER SYSTEMIC ILLNESSES

- Herediter recurrent fevers
- Sarcoidosis
- Relapsing polychondritis
- Amyloidosis
- Heritable diseases



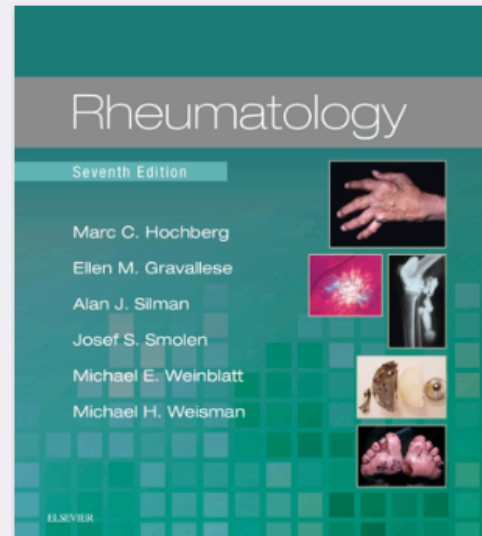
## WHAT WE HAVE LEARNED

We have learned;

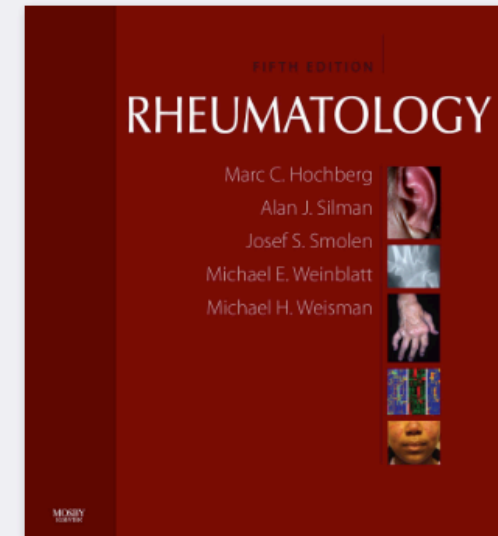
- Some information about rheumatic diseases, their nomenclature, classification, and some important points.
- Thank you for your attention!

# REFERENCE TEXTBOOKS

- **RHEUMATOLOGY**
- **Marc C. Hochberg**
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- **Josef S. Smolen**
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- **Michael H. Weisman**



Rheumatology



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