

Musculoskeletal examination in rheumatology

symptoms, clinical examination

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Rheumatology

- Subspecialty of Internal medicine focused on diseases of
 - Joints, muscles, bones

Musculoskeletal complaints are among the most common symptoms

More than 200 different rheumatic diseases

- Inflammatory rheumatic diseases
 - Degenerative rheumatic diseases
 - Extraarticular rheumatic diseases
 - Reactive arthritis
 - Systemic diseases
 - Metabolic bone and joints diseases
- } Different treatment
Differernt prognosis

Musculoskeletal examination

Musculoskeletal conditions should always be part of any general history and examination

Once an abnormality has been identified, a more detailed assessment is necessary

Diagnosis in rheumatology

- The diagnosis in rheumatology is mainly based on:
 - Detailed medical history
 - Physical examination including the arthorlogical
- **Imaging and laboratory tests are auxiliary methods**
it is necessary to know their sensitivity and specificity for the specific diagnosis and therefore right interpretation of these results is important

**rheumatologist must also cooperate with doctors
of other specialties**

- History taking is the most important skill in rheumatology.
- The physical examination is pivotal in confirming the cause and effect of musculoskeletal problems.
- Assessment of the musculoskeletal system should form part of any general medical examination.
- The consultation involves a patient-centered phase for the patient's story; a physician-centered phase to clarify the story by interrogation and examination; and an interactive phase during which the patient and physician discuss their concerns, findings, conclusions, and plans.
- The consultation must meet the expectations of the patient.
- Musculoskeletal conditions cause a broad range of problems that need to be assessed by a multidisciplinary team to develop an appropriate plan of management.

Textbook of Rheumatology, Hochberg 2016

History

First clarify what has brought the patient to the consultation

What the patient's expectations are

Patient expectation	Clinician expectation
What is wrong?	Is any abnormality present?
What will happen? Will I get better? Will I become worse and unable to do what I want and need to do?	What is the abnormality? What is the cause? What effect is it having?
What can you do about it? Can it be cured or just relieved?	Are any predisposing or risk factors present?
What can I do about it? Will a diet or complementary therapies help? Should I exercise?	Have any complications occurred? What treatment is indicated?
Am I getting better?	What has been the response to previous treatment?
If I am not improving, am I receiving the best treatment?	Has the patient responded to current treatment? What is the prognosis?

Musculoskeletal complaints

evaluating of patients:

- establish the cause
- to characterize the problem and its impact
- develop a management plan

If unable to identify the cause, physicians must at least be able to describe the abnormality and recognize whether it need more skilled assessment.

The physician must be able to assess response to treatment and be able to recognize the lack of expected response.

Medical history – what is important

- Several diseases are associated with musculoskeletal manifestations
- Some diseases can modify the course of rheumatic disease
- Some diseases may represent potential risk factor for the treatment of rheumatic disease
- Exclude other diseases - infectious foci, diarrhea, urinary infection, tonsillitis, malignant diseases (paraneoplastic sy.)

Drugs history

- Adverse reactions on musculoskeletal system
- Mask or modify the course of rheumatic disease
- Induce rheumatic diseases
- Drug interactions after treatment initiation

Medical history – what is important

- Family history: there is a typical genetic predisposition for lots of rheumatic diseases, some of the genes are associated with higher risk of autoimmune diseases generally
- What do we ask for?
 - occurrence of rheumatoid arthritis, psoriatic arthritis, psoriasis, inflammatory bowel diseases, antigen HLA B27, systemic diseases of connective tissue, osteoporosis

Medical history – what is important

- Social history: degenerative diseases occur more often when overload – typically one-sided (osteoarthrosis)
- work with vibrating tools may cause circulatory disorders of the fingers with Raynaud's phenomenon

Gynaecologic history

- Recurent abortions (by some systemic diseases like SLE),
- Premature menopause (risk of osteoporosis)
- Climacteric sy.

BOX 28.1 CHARACTERIZATION OF A MUSCULOSKELETAL PROBLEM

- What are the symptoms?
- Site and distribution of the symptoms
- Chronology
- Associated symptoms
- Preceding illnesses or injuries and other relevant clues
- Response to health interventions
- Its impact on activities, participation, and quality of life

BOX 28.2 SYMPTOMS OF A MUSCULOSKELETAL PROBLEM

Specific symptoms

- Pain
- Stiffness
- Swelling
- Deformity
- Weakness
- Instability
- Loss of function

General symptoms

- Fatigue and malaise
- Emotional lability—fear, anxiety, depression
- Sleep disturbance
- Symptoms of systemic diseases

Red flags

- Weight loss
- Fever
- Temple headache/pain with scalp tenderness/visual disturbance
- Loss of sensation
- Loss of motor function
- Difficulties with urination or defecation

Other possible symptoms

- Color changes or coldness of digits or limbs
- Altered sensation

Patterns of pain

Type	Pain pattern	Cause
Bone pain	Pain at rest and at night	Tumor, Paget disease, fracture
Mechanical joint pain	Pain related to joint use only	Unstable joint
Osteoarthritic joint pain	Pain on joint use, stiffness after inactivity, pain at the end of the day after use	Osteoarthritis
Inflammatory joint pain	Pain and stiffness in the joints in the morning, at rest, and with use. Acuteness and severity can indicate the probable cause	Inflammatory, infective, crystal induced (acute, exquisite tenderness)
Periarticular and soft tissue pain	Pain on selective movements, localized periarticular or soft tissue tenderness	Bursitis, tenosynovitis, tendinitis, enthesitis
Neuropathic	Diffuse pain and paresthesia in the dermatome worsened by specific activity	Root or peripheral nerve compression
Referred	Pain unaffected by local movement	

Common patterns of referred pain

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

Origin and localisation of the referred pain

- Lumbar region - Retroperitoneum
- Right shoulder – bile ducts
- Left shoulder - heart, spleen
- Hip and inguinal region (groin) - urinary tract
- Sacral area - genitals
- Chest wall - pleura
- Back and sternum - esophagus, aortic aneurysm

Pain localisation

- Periarticular - the patient can often point the finger exactly on the location of the pain, the pain occurs only with certain movements when irritation of the affected site
- Articular - patient shows a hand on the entire joint, typically worsens during movement (active and passive)
- Muscles - the patient shows across the muscle, there might be cramps, feeling of muscle weakness

What are characteristics pattern of the pain?

Certain musculoskeletal conditions are characterized by specific patterns of pain

The features of the pain
 the time and mode of onset
 its diurnal pattern provide diagnostic clues
 Severity of the pain is subjective and is not diagnostic alone

For example, gout usually begins in the middle of the night with a pricking sensation in the great toe and quickly escalates into an intolerable persistent burning pain

osteoarthritis is characterized by use-related pain and stiffness of the affected joints with inactivity.

Mechanical pain is generally related to use

Inflammatory joint pain is present at rest and with use and is usually worse

What precipitates, worsens, or improves the pain?

Periarticular problems are often induced by a specific type of repetitive activity.

Spinal stenosis can be suspected from a history of activity-related buttock and leg pain that improves rapidly with rest only to recur after further activity,

The response to exercise in contrast to rest is a typical feature of sacroiliitis or spondylitis.

Rest usually improves the pain from osteoarthritis but has little effect on inflammatory pain.

The response to NSAID versus simple analgesics

can help distinguish an inflammatory cause of the symptoms, such as ankylosing spondylitis, from mechanical back pain;

The effect of treatment

- NSA – inflammatory pain responds well
- Common analgetics – inflammatory pain will not respond but mechanical will
- CS– inflammatory pain and pain by polymyalgia rheumatic responds well
- Colchicine – pain by gout flare (but also by treatment with NSA in full doses)

Response to treatment

heat vs cold in arthritis vs arthralgias

ATB vs corticosteroids in systemic diseases

Associated symptoms, signs, and conditions

	Symptom	Possible diagnosis
Neurologic	Headaches	SLE, temporal arteritis
	Numbness or paresthesia	Neuropathy—compression
	Weakness	Myositis, neuropathy
	Stroke	Antiphospholipid syndrome
	Epilepsy	SLE
Mouth	Dry mouth	Sjögren syndrome
	Mouth ulcers	Reactive arthritis, Behçet disease, inflammatory bowel disease
Eyes	Dry eyes	Sjögren syndrome
	Red eyes	Spondyloarthritis
	Visual loss	Temporal arteritis
Skin	Rash	Psoriatic arthritis
	Psoriasis	SLE
	Livedo reticularis	Acute sarcoid or erythema nodosum arthropathy
	Erythema nodosum	Systemic sclerosis
	Telangiectasia	Viral—rubella, human parvovirus
	Other	Connective tissue disease
	Photosensitivity	Behçet disease, vasculitis
	Ulcers	Connective tissue disease
	Raynaud phenomenon	Osteoarthritis, rheumatoid arthritis, gout, hyperlipidemia, SLE,
	Nodules	multicentric histiocytosis
Alopecia	SLE	

Examination in rheumatology

System for examination of the musculoskeletal system

Look	At rest for Swelling Deformity Wasting Attitude Skin
	During movement
Feel for	Tenderness Swelling Movement—crepitus Temperature
Move	Active Passive Resistance Listen
Stress	Stability
Tests	

BOX 28.3 CLINICAL SIGNS OF MUSCULOSKELETAL CONDITIONS

- Attitude
- Deformity
- Swelling
- Skin changes
- Muscle wasting
- Tenderness
- Restricted movement
- Crepitus
- Warmth
- Muscle weakness
- Instability
- Limited function

SWELLING
What is important

- Whether it comes suddenly or gradually
- Whether it is associated with pain and limited function
- Whether there is a temperature and skin colour change



Characteristic patterns of involvement of the musculoskeletal system

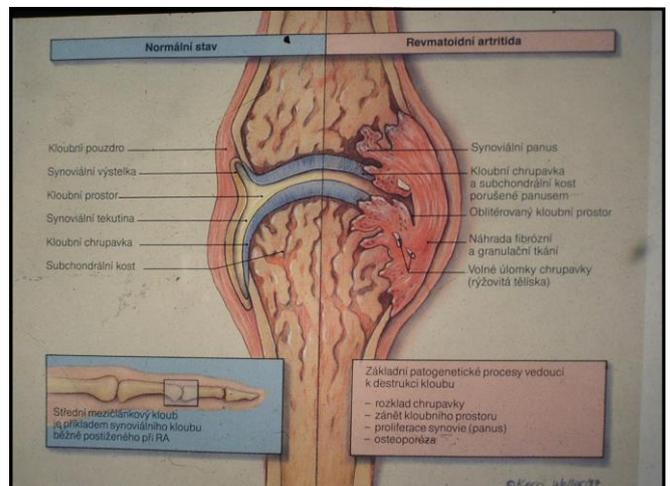
Diagnosis	Symmetry	No. of joints involved ¹	Large or small	Distribution
Rheumatoid arthritis	Symmetric	Polyarthritis	Large/small	Peripheral
Ankylosing spondylitis	Asymmetric	Oligoarthritis	Large	Central and peripheral
Psoriatic arthritis	Asymmetric	Oligo/polyarthritis	Large/small	Peripheral
Reactive arthritis	Asymmetric	Oligo/polyarthritis	Large/dactylitis	Peripheral
Cout	Asymmetric	Mono/oligoarthritis	Large/small	Peripheral

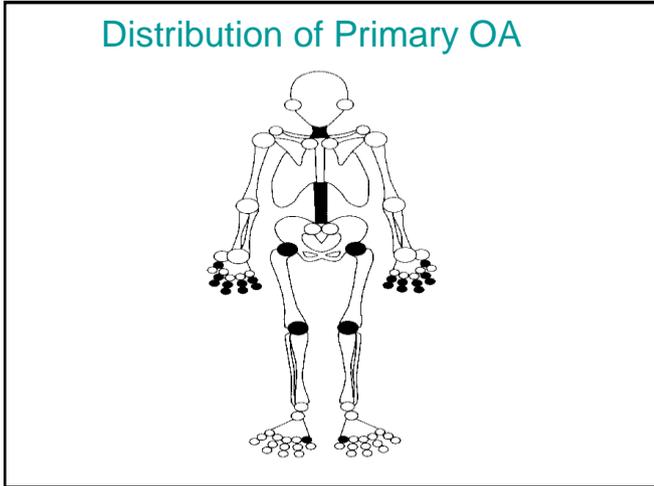
¹With oligoarthritis, five or fewer joints are affected; with polyarthritis more than five joints are affected.

Rheumatoid Arthritis: PIP Swelling



Swelling is confined to the area of the joint capsule
Synovial thickening feels like a firm sponge





Stiffness

- Typical symptom for inflammatory diseases
- The duration of stiffness corresponds with disease activity
- By active RA lasts for more than an hour
- By osteoarthritis there are so called starting problems - short-term pain and stiffness (a few minutes) at the beginning of the movement with quick disappearance
- Rigidity in Parkinson's disease and other neurological diseases persists after motion

Hand and wrist deformities

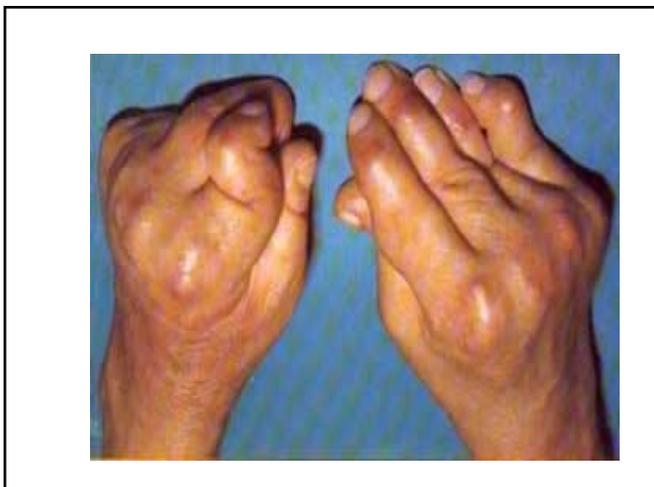
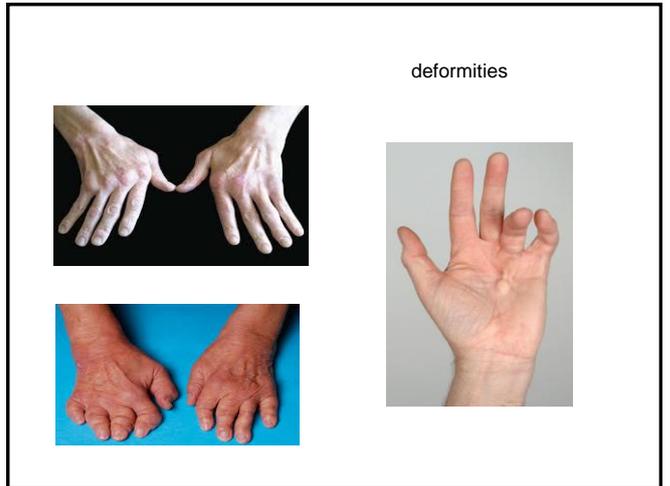
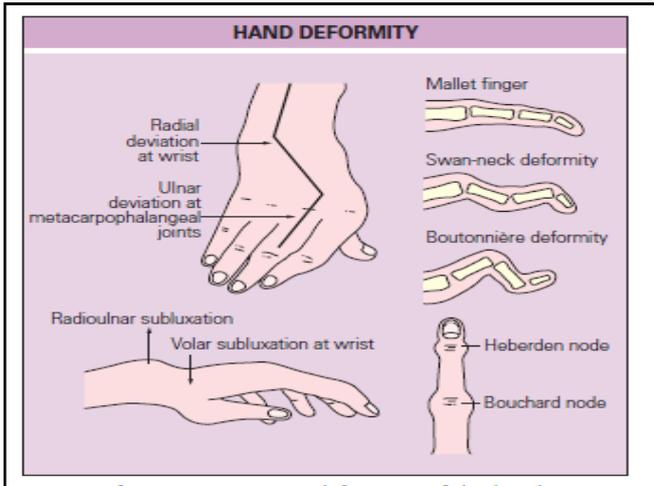
- Ulnar deviation
- Buttonhole deformity
- Swan neck deformity

Rheumatoid Arthritis
(Late stage)

Boutonniere deformity of thumb

Ulnar deviation of metacarpophalangeal joints

Swan-neck deformity of fingers



Weakness

- Muscle weakness
 - myopathy and myositis - patients often describe it as the inability to perform certain tasks such as to comb the hair, lift things off the shelf above the head or sit up from a chair without helping hands
 - atrophy of muscles on the affected joints and movement restrictions
 - manifestation of neuropathy

General symptoms

- Tiredness – demonstration of activity of inflammatory disease or anaemia, drugs AE
- Subfebrilities - with active rheumatoid arthritis or systemic CTDs
- Febrile - systemic diseases (SLE or vasculitis)
- Sleep disorders or mood disorders, anxiety
- Necessary to rule out other causes of the difficulties - malignancies, the effect of drugs, infections

Inspection

- Changes in the mucous membranes, nails, fingertips (ulcers by systemic diseases - scleroderma, vasculitis)
- Gouty tophi, calcifications, rheumatic nodules
- Skin - psoriasis, rash typical for systemic diseases and vasculitis, erythema sweet wrapper in SLE, changes typical for myositis (Gottron papules, heliotropic rash, periorbital oedema, hand drive), skin changes in SCL
- Raynaud's phenomena

Nails

- Clubbing - hypertrophic pulmonary osteoarthropathy, fibrosing alveolitis
- Onycholysis and dystrophic changes - psoriatic arthropathy, chronic Reiter's syndrome
- Hyperaemia of nail bed - dermatomyositis
- Haemorrhages under nails - vasculitis of small vessels
- Reiter syndrome



Psoriasis



vaskulitis



kalcifications, reumatic nodules



Digital ulcerations



SLE



Polymyositis (DM/PM)



Polymyositis (DM/PM)



Gottron papulae



Source: IMACS

Heliotrope Rash

Violaceous hue

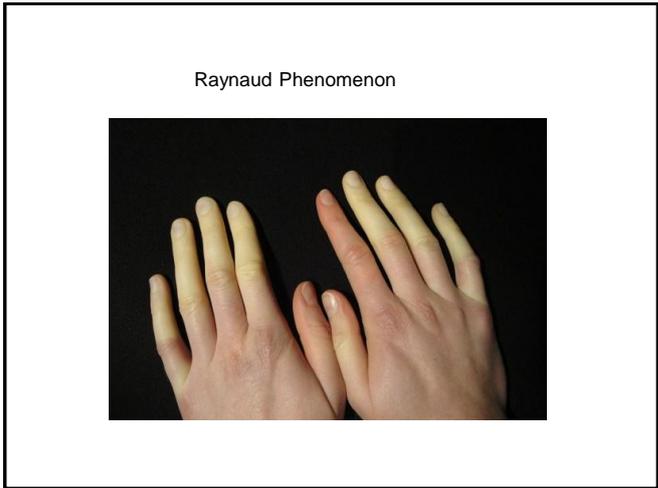
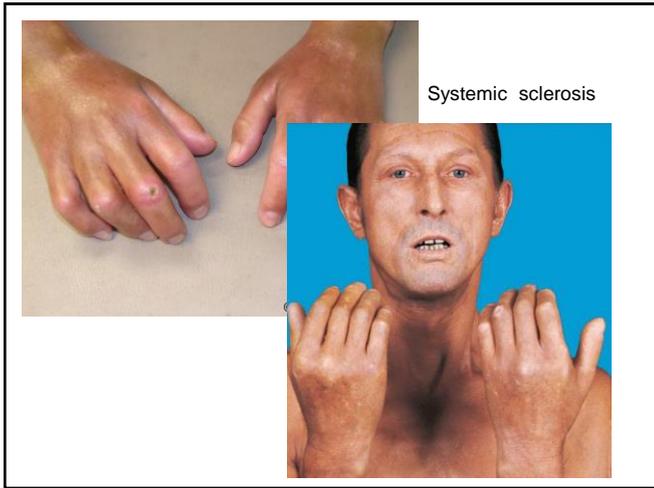
Periorbital edema



Malar rash

SSc

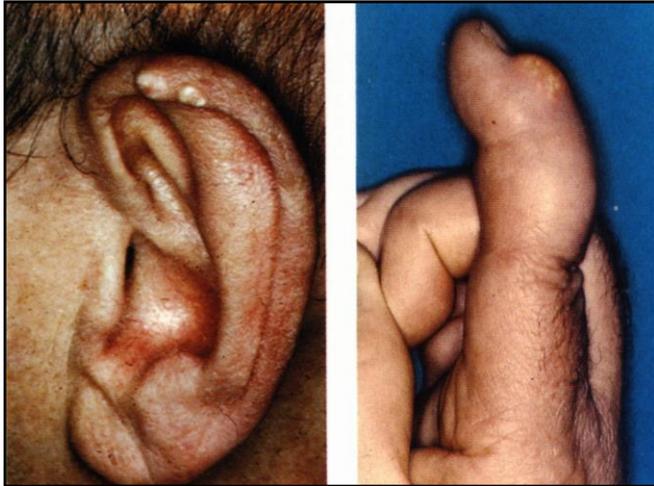




5 Causes for Raynaud's Disease or Raynaud's Phenomenon

1. Diseases of the arteries (atherosclerosis)
2. Drugs that cause narrowing of the arteries (amphetamines, some beta-blockers, some cancer drugs, some migraine medications)
3. Certain autoimmune conditions (SLE, lupus, scleroderma, sjogrens, RA)
4. Smoking
5. Repeated injury or usage (i.e., typing, piano, heavy use of hand tools)





Associated skin lesions		
Region	Type of skin lesions	Associated conditions
Torso/limbs	Livedo reticularis Erythema ab igne Erythema migrans Palpable purpura Psoriasis Erythema nodosum Nodules Ulcers Calcinosis cutis	SLE, antiphospholipid syndrome, vasculitis Sign of external heat applied to relieve pain Lyme arthritis Leukocytoclastic vasculitis Psoriatic arthritis Acute sarcoid Heberden nodes, rheumatoid arthritis, gout, hyperlipidemia, SLE, nodosa, multicentric histiocytosis, sarcoidosis Vasculitis, Behçet disease, Crohn disease? Limited cutaneous systemic sclerosis
Face and mouth	Butterfly rash Psoriasis Heliotrope discoloration Oral ulcers Telangiectasia	SLE Psoriatic arthritis Dermatomyositis SLE, reactive arthritis, Behçet disease Limited cutaneous systemic sclerosis
Nails	Clubbing Pitting Onycholysis Splinter hemorrhages	Hypertrophic pulmonary osteoarthropathy Psoriatic arthritis Psoriatic arthritis Small-vessel vasculitis, endocarditis
Hands	Raynaud phenomenon Nail fold capillary abnormalities Palmar erythema Gottron papules Telangiectasia Sclerodactyly Vasculitic lesions	SLE, scleroderma, mixed connective tissue disease Scleroderma, dermatomyositis Active rheumatoid arthritis, SLE Dermatomyositis Limited cutaneous systemic sclerosis Limited cutaneous systemic sclerosis Rheumatoid arthritis, connective tissue diseases
Feet	Keratoderma blennorrhagica	Reactive arthritis

SLE, systemic lupus erythematosus.

Respiratory	Pleuritis Breathlessness	Connective tissue disease Pulmonary involvement with inflammatory disease, e.g., systemic scl
Gastrointestinal	Indigestion, history of peptic ulcer Diarrheal illness	Nonsteroidal-associated gastritis or ulceration Reactive arthritis, inflammatory bowel disease
Genitourinary	Renal stones Dysuria Genital ulcers Vaginal discharge	Cyst Reactive arthritis, Behçet disease, acute gonococcal arthritis Reactive arthritis, Behçet disease, acute gonococcal arthritis Reactive arthritis, Behçet disease, acute gonococcal arthritis
Trauma	Fracture Ligament rupture Sprains and strains	Osteoporosis Osteoarthritis in the future Hypermobility syndrome
Nonspecific symptoms	Malaise Fever Weight loss Fatigue Anorexia Aging	Inflammatory disease, malignancy SLE, septic arthritis Inflammatory disease, malignancy Inflammatory disease Inflammatory disease, malignancy Polymyalgia rheumatica
Hematologic	Thrombosis/thromboembolism Anemia	Antiphospholipid syndrome Inflammatory disease
Obstetric history	Fetal loss—early and late Intrauterine growth retardation Preeclampsia	Antiphospholipid syndrome Antiphospholipid syndrome Antiphospholipid syndrome

Palpation

- Examination of the typical symptoms of arthritis - swelling and palpable sensitivity
- Symptom of buckling - the presence of articular effusion cavity = compression of one part filled with liquid causes bowing in another part
- Hypertrophy of the synovial lining (normal is not palpable)
- Pain on passive movement - sign of inflammation
- Changes in skin temperature
- Crepitation - fine by hypertrophy of the synovium in arthritis
- gross by degenerative changes

Palpation

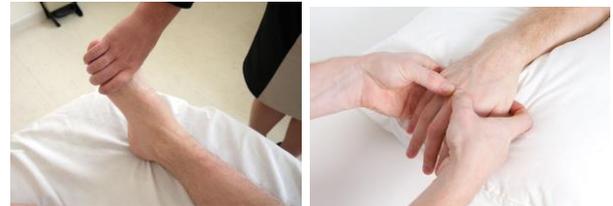
- Range of motion in the joint - a restriction is usually due to swelling, pain, deformity, contracture,
- passive motion - only assess joint,
- active also includes tendons, muscles, nerves,
- muscle strength
- increased range is at hypermobility

Symptoms typical for synovitis

- Holding the joint in a neutral position
- Restriction of movement in all direction
- Pain when moving in any direction
- Swelling / effusion of the joint capsule (the most specific symptom)
- Increase of the skin temperature over the joint

Examination of the hand and wrist

- The normal range of motion
 - Radial flexion 20-30 °
 - Ulnar flexion 50 °
 - Palmar flexion of the wrist 80-90 °
 - Extension of the wrist 70-80°
 - Flexion in PIP 20-30°
- Palpation - Arthritis diff. dg. arthrosis



Characteristic symptoms of hypermobility

- Extension of 5th finger over 90° (1 point for each side)
- Adduction of the thumb to the forearm (1 point for each side)
- The extension of the elbow more than 10° (1 point for each side)
- Extension of the knee more than 10° (1 point for each side)
- Touch the floor a flat of the hands when legs are outstretched (1 point)
 - The maximum score 9
 - Hypermobility 6 and more

Examination of elbow

- Joints – humeroulnar (flexion, extension), humeroradial and proximal radioulnar (pronation, supination) - joint articular capsule
- The elbow joint effusion – palpation when gentle flexion of the elbow between the lateral epicondyle and the olecranon
- Bursitis olecrani
- Palpable sensitivity epicondyle
 - Radial epicondylitis - tennis elbow
 - Ulnar epicondylitis - golf elbow

Elbow

Look Look for any swelling or deformity. Joint swelling is first apparent in the para-olecranon groove. The olecranon is a common site for bursitis and rheumatoid nodules.

Feel Palpate over the para-olecranon groove for synovial swelling or tenderness. Palpate over the medial and lateral epicondyles for tenderness. Assess the tautness of the skin if considering hypermobility.

Move Passively extend and flex the elbow and look for hyperextension.

Palpate over the medial and lateral epicondyles for tenderness.

Elbow flexion. Elbow extension. Assess for elbow hyperextensibility.

Wrist

Look Look for any swelling or deformity. Swelling over the dorsum involves the joint or extensor tendon sheath. With active extension of the fingers, swelling of the extensor tendon sheath moves—the back.

Feel Look for squaring of the base of the palm because of swelling of the carpometacarpal joint seen in osteoarthritis. Typical deformities in established rheumatoid arthritis are volar subluxation and radial deviation at the wrist with dorsal subluxation of the ulnar styloid.

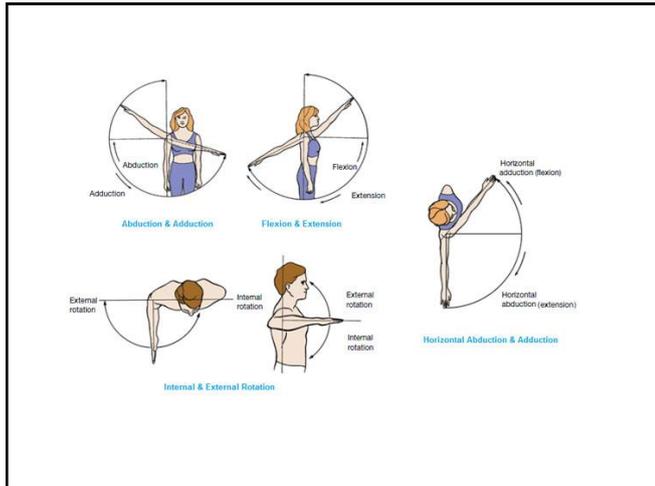
Feel Palpate over the joint line for tenderness or synovial swelling.

Move Passively flex and extend the wrist. Assess for hypermobility by passively moving the thumb toward the volar aspect of the forearm with the wrist in full flexion. Use resisted flexion, extension, or pronation if assessing epicondylitis at the elbow.

Stress Assess stability of the inferior radioulnar joint by demonstrating movement when pressing down on the radial head—the piano key sign.

Examination of shoulder

- Sternoclavicular joint
- Acromioclavicular joint
- Glenohumeral joint
- Tendons of rotator cuff - m.supraspinatus, m.infraspinatus, m.teres minor
- Muscles and ligg



Examination of shoulder

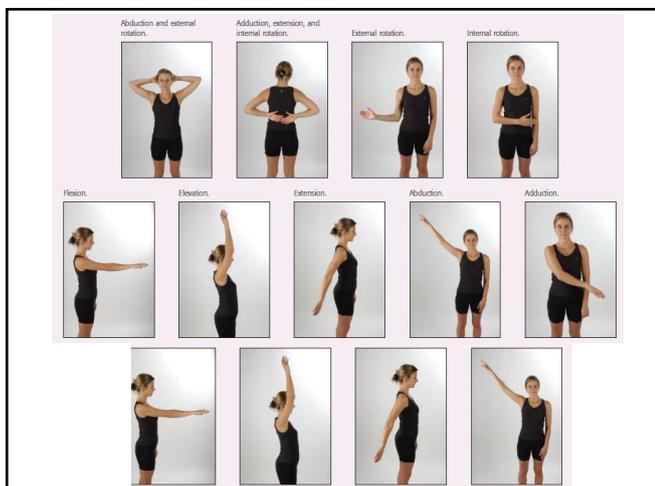
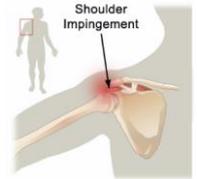
- Indicative assessment of the glenohumeral joint and rotator cuff - no more severe pathology if the patient is capable of following movements
- Abduction of shoulders and closure of hands on the neck
 - Abduction, external rotation, flexion GH joint, m.supraspinatus, m.infraspinatus, m.teres minor
- Placing hands on the dorsal side of the back (at the cross)
 - Internal rotation, abduction, extension GH joint, m.subscapularis

Examination of shoulder

- Pain and limitation of active and passive movements of the arm - Pathology GH articulation
- Passive movements are clearly more extensive and less painful - probably affected muscle / tendon (or nerve)
- Active movements against resistance (Abduction, internal and external rotation)
- Palpation of rotator cuff - palpation for and behind acromium
 - The patient puts his hand on the contralateral arm from the front of the chest
 - In a similar way, the patient puts his hand behind the back

Examination of shoulder

- Palpation - position, subluxation, pain, skin temperature, crepitation, swelling, balloon symptom
- Painful middle arc (impingement)
 - In about 30° of the whole movement – typical for lesion of m. supraspinatus and subacromial bursitis
- Painful upper arc
 - last 20-30° – typical for lesion of acromioclavicular joint



Examination of the spine

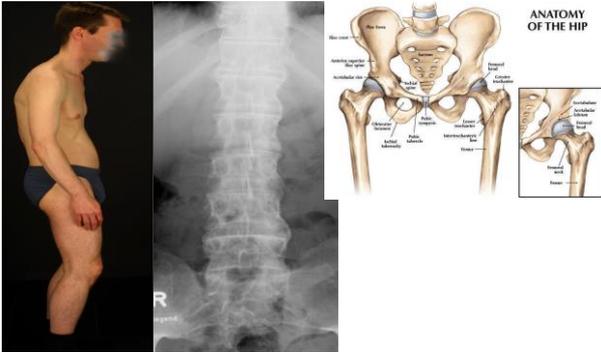
Lumbar spine

Look Look for a normal lordosis or any scoliosis. Look for any asymmetry
Feel Percuss the vertebrae for tenderness.

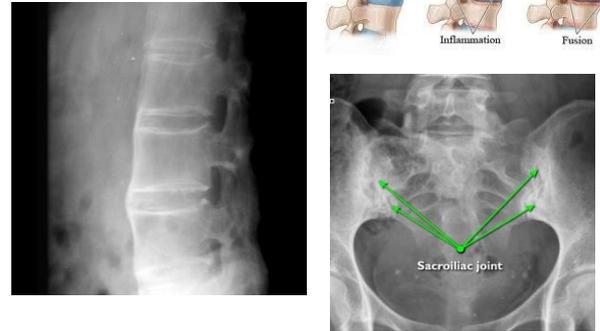
Palpate the paraspinal muscles for spasm or tenderness.

- **Functional metric tests** : Thomayer's distanc, Stibor's, Schober's, Otto's distance, distance nape-wall Measurement of chest excursions
- **Stress Tests for tension of the lumbar roots**
 - Femoral nerve stretch test*
 - Sciatic nerve stretch test:*
 - Lasegue test - the patient lies on his back, he slowly raises stretched leg to about 70°
 - 0-40° there is no tension on the nerve root, but the n.ischiadicus is stretched
 - 40-70° there is a tension of roots L5, S1 and S2
 - > 70° there is no distortion of roots

Spondylitis ankylosans



AS



Examination of sacroiliac joint

- SI articulation are not available for inspection
- Basis - palpation and tests
- Inflammatory back pain (4/5 of symptoms)
 - Age <40 years
 - duration of the pain > 3 months
 - slow start
 - morning stiffness
 - Improvement after movement

Inflammatory Back Pain (IBP) According to Various Criteria

Calin et al. ¹	Rudwaleit et al. ²	IBP experts (ASAS) ³
<ul style="list-style-type: none"> • age at onset < 40 yrs • duration of back pain > 3 months • insidious onset • morning stiffness • improvement with exercise 	<ul style="list-style-type: none"> • morn. stiffness > 30 min • improvement with exercise, not with rest • awakening at 2. half of the night because of pain • alternating buttock pain 	<ul style="list-style-type: none"> • age at onset < 40 yrs • insidious onset • improvement with exercise • no improvement with rest • pain at night (with improvement upon getting up)
IBP if 4 / 5 are present.	IBP if 2 / 4 are present.	IBP if 4 / 5 are present.

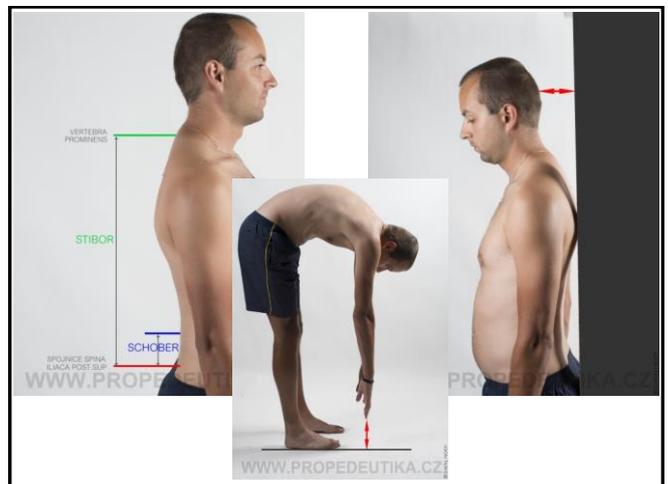
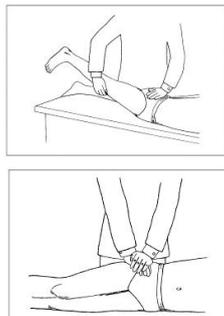
1 Calin A et al. JAMA 1977;237:261; 2 Rudwaleit M et al. Arthritis Rheum 2006;54:569-78; 3 Sieper J et al. Ann Rheum Dis. 2009; 68: 784-788



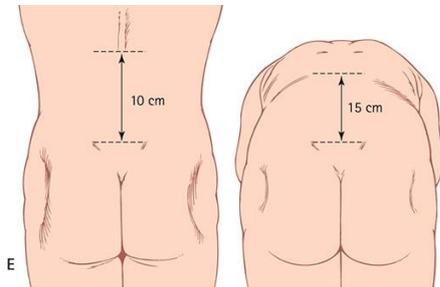
Examination of sacroiliac joint

Menellov's tests

Leg hyperextension when lying on the stomach or the pressure on the iliac crest when lying on the side causes pain

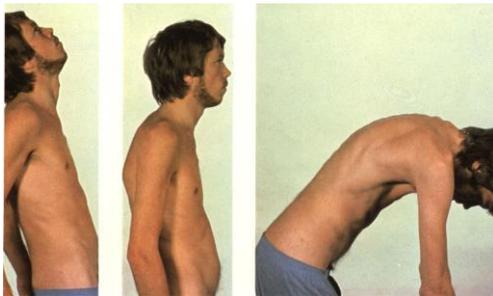


Schoberov test

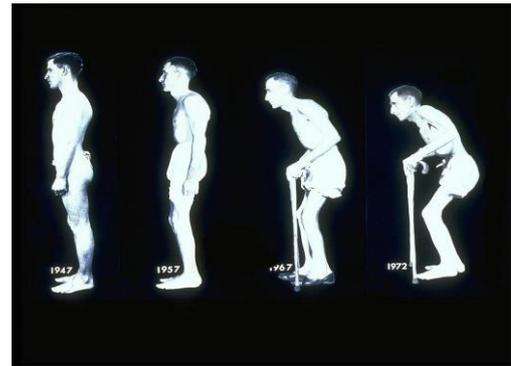


Examination of spine– normal values of distances

- Stibor > 6 cm
- Schober > 4 cm
- Thomayer < 10 cm
- Chest expansions > 5 cm
- Nape -wall 0 cm



Course of AS



DIFFERENTIATION OF INFLAMMATORY VERSUS MECHANICAL LOW BACK PAIN

	Inflammatory pain	Mechanical pain
Age at onset	<40 yr	Any age (usually later)
Type of onset	Insidious	Acute
Symptom duration	>3 mo	<4 wk
Morning stiffness	>30 min	<30 min
Nocturnal pain	Common	Absent
Effect of exercise	Improvement	Exacerbation
Sacroiliac joint tenderness	Frequent	Absent
Back mobility	Loss in all planes	Abnormal flexion
Chest expansion	Often decreased	Normal
Neurologic deficits	Unusual	Possible

Examination of the spine

Cervical spine

Look Look for hyperextension caused by thoracic kyphosis or loss of normal lordosis.

Feel Percuss the vertebrae for tenderness.

Palpate the paraspinal muscles for spasm or tenderness.

Move Actively turn the head to the flexion, extension, rotation and lateral flexion with the gently guiding the head to ensure that maximum range is reached.

Tests Problems related to the cervical spine are often associated with neurologic symptoms and signs,

Rheumatologic patient

systemic connective tissue disease

- Typical patient hospitalised at Internal medicine dpt. with FUO, fatigue, malaise, weakness, artralgia myalgia
- increase CRP and FW levels, anemia
- difficulties in diff. Dg.
- cooperation with other internal medicine subspecialties orthopaedics, neurology, gastroenterology, dermatology, ophthalmology, infectology, haematology, psychiatry

Laboratory tests in rheumatology

- Confirm/exclude diagnosis
- Monitor the disease activity and response to our treatment
- Assessment of disease prognosis
- Assessment of disease or treatment complications



Inflammatory markers

Acute phase reactant

- CRP, FW, protein ELFO

sensitive but not specific

positive in other diseases

- infections, malignancy, CKD, DM, anemia

Confirm/exclude diagnosis

To know the sensitivity and the specificity

Rheumatoid factor (70% in RA) less than 5% in healthy people

Anti CCP in RA

muscle enzymes in PM

ANA, ANCA, DsDNA, complement in SLE, vasculitides

HLA B 27 in AS

Serology antibodies detection in reactive arthritides dif.dg.

(borelia, chlamydia, mykoplazma, EBV, CMV

ASO (febris rheumatica)

Uric acid (gout)

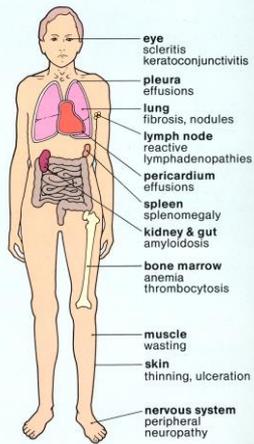
Immunological methods

- Autoantibodies (RF, tissue-specific / non-specific)
- circulating immune-complexes
- immunoglobulin levels
- Complement and its components
- phagocytic activity
- Subpopulations of T-cells
- Lymphocyte function tests
- Immunohistology (deposits of immunoglobulins)
- Immunogenetics - HLA B27

Microbiologic methods

- Direct evidence - culture tests, PCR, direct immunofluorescence
- Serological examinations - antibodies against viruses, bacteria, fungi

Extraarticular involvement in rheumatology



Confirm/exclude organ involvement in systemic diseases

Kidney

(urin examination - protein, blood ...
blood examin. - glomerular filtration, creatinin, urea,...)

Lung (spirometry, x- Ray, HR CT)

Heart (pericarditis, valve disorders, pulmonary hypertension)

Brain (MRI – vasculitis)

Eyes (uveitis, sicca sy)

Liver (hepatálne enzýmy, albumín, koagulačné faktory)

Biopsy

Imaging methods

- USG, RTG, CT, MRI, ECHOkg., PET/CT..
- Sensitivity and specificity – coincidence of several diseases
- Capillaroscopy of nail bed



Conclusion

For the right understanding of rheumatology
as well as the proper management of these diseases

it is necessary to have good knowledge

from internal medicine

and enough time