

semiology

Approach to Articular and Musculoskeletal Disorders

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- Semiology in rheumatology :
 - Definition of terms and rules
 - Description of symptom and sign

General point in musculoskeletal complaints

- Effects of current or previous therapy on the course of the illness
- Response to anti-inflammatory or glucocorticoid medications may suggest an inflammatory etiology
- The physician must assess compliance with therapies
- Noncompliance with the recommended treatment must be differentiated from treatment failure
- Verbal and nonverbal clues to the nature of the illness

Characterization of a musculoskeletal problem

- What are the symptoms?
- Localization 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

Musculoskeletal symptoms & sign

Symptoms

- Pain
- Stiffness
- Limitation of motion
- Swelling
- Weakness
- Fatigue and malaise
- Deformity
- Instability
- Loss of function
- Depression and fear
- Sleep disturbance
- Symptom of systemic disease

sign

- Swelling
- Warmth
- Tenderness
- Redness
- Crepitation
- Deformity
- Abnormal joint movement (instability)
- Loss of joint range of motion
- Pain on motion
- Locking

Definition musculoskeletal symptoms - Pain

- Pain is **the most common** symptom
- Pain is a subjective hurting sensation or experience described in various terms
- Difficult to **define, qualify, and measure.**
- Modified by **emotional factors** and previous experiences.
- Character of the pain
 - Aching suggests an arthritic
 - “burning” or “numbness” suggests a neuropathy
 - “excruciating” or “intolerable” a clue to emotional or psychosocial factors
- **Distribution** of the patient's pain and determine if this fits with **anatomic structures**



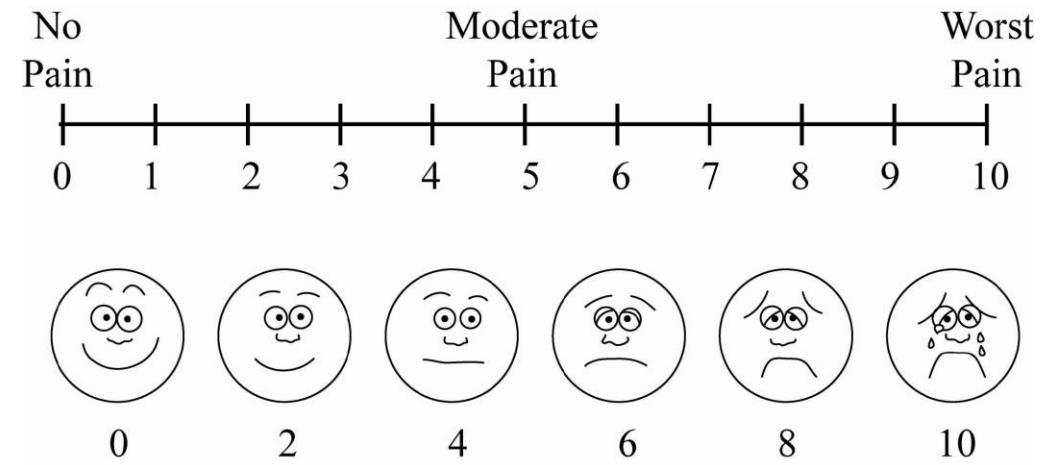
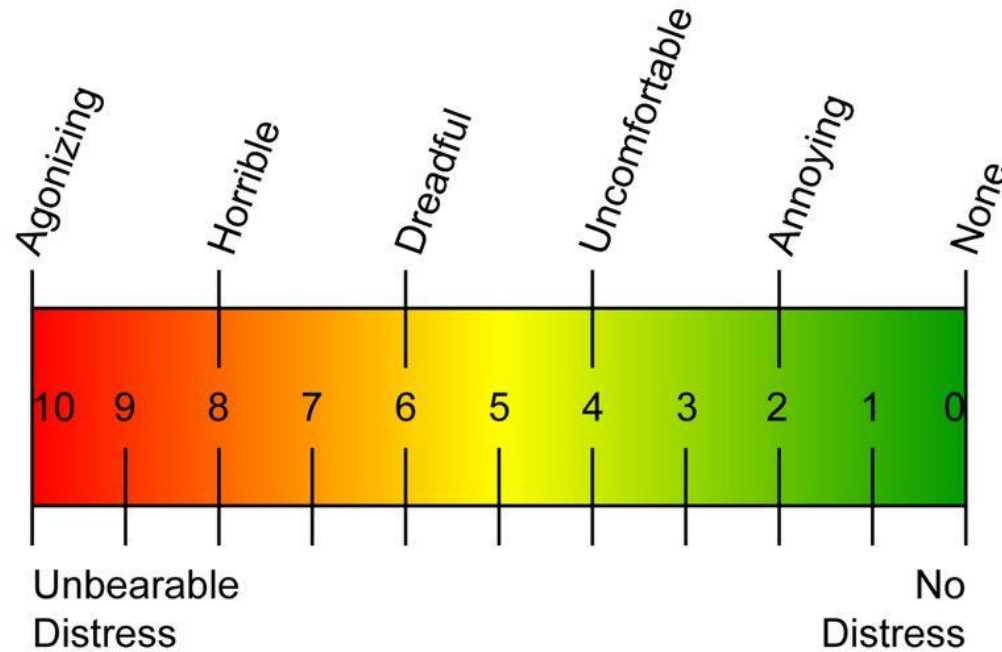
Pain

- **Character-** What is the pain like?
- **Location-** Where does it start? Ask specifically. joint distribution
- **Onset-** When and how did it come on? (acute vs. gradual/insidious)
- **Radiation-** Does the pain move/travel anywhere? Deep pain can be poorly localized.
- **Intensity-** Scale of 1 to 10; effect on ADL and IADLs. Is it getting better, worse, the same?
- **Duration-** How long as it been there?
- **Pattern:** intermittent, migratory, or additive
- **Events associated**
 - Falls (frail elderly!)
 - morning stiffness/swelling/redness (less or more than ½ hr helps differentiate inflammatory vs mechanical arthritides)
 - joint clicking or locking (think meniscal tears in the knee)
 - muscle pain/cramping
 - wasting
 - limitation of movement/weakness
 - numbness/tingling (neurological sequelae)
 - fevers/chills/night sweats/wt loss
 - trauma (always describe how injury happened!)
 - job vs sports vs repetitive movements?
- **Frequency-** New vs recurrent pain (intermittent vs. constant)
- **Palliative factors-** What makes the pain better? (rest/activity/pain meds/heat or cold?)
- **Provocative factors-** As above, but what makes pain worse?

Definition musculoskeletal symptoms - Pain

- Pain **localized** in the distribution of a joint or joints bursa, tendons, ligaments, or nerves, implying disorders of these structures
- In contrast to **superficial** structures, **deep** structures often give rise to poorly localizing pain (pain arising from small, peripheral joints is often more focal than pain arising from proximal, large joints, such as the shoulders and hips)
- Pain that is **widespread, vaguely described**, and not respecting anatomic distributions generally suggests a chronic pain syndrome, such as fibromyalgia or psychiatric disease.
- The **severity of pain** should be assessed (visual analog scale)
- Determine what **exacerbates and alleviates** the pain
- Joint pain present at rest but worse with movement suggests an **inflammatory process**, whereas pain occurring primarily with activity and relieved by rest generally indicates a **mechanical disorder**

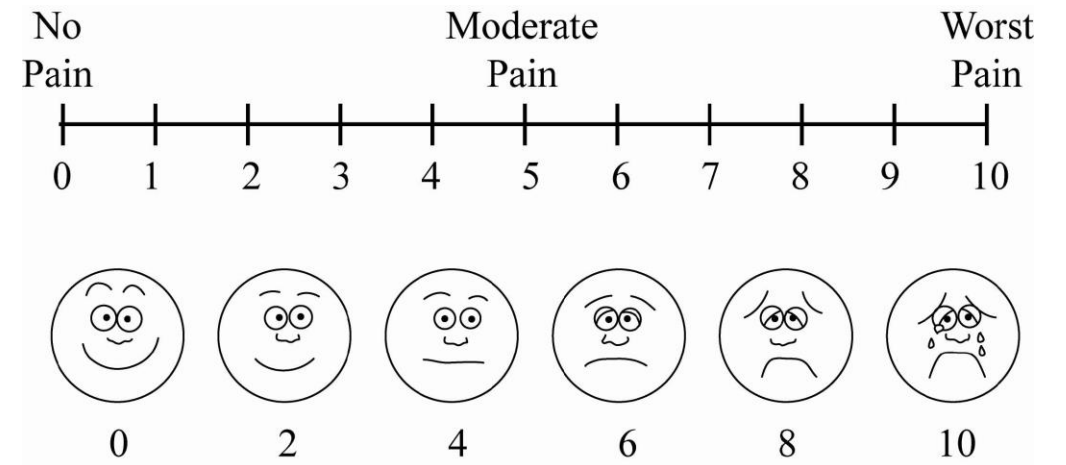
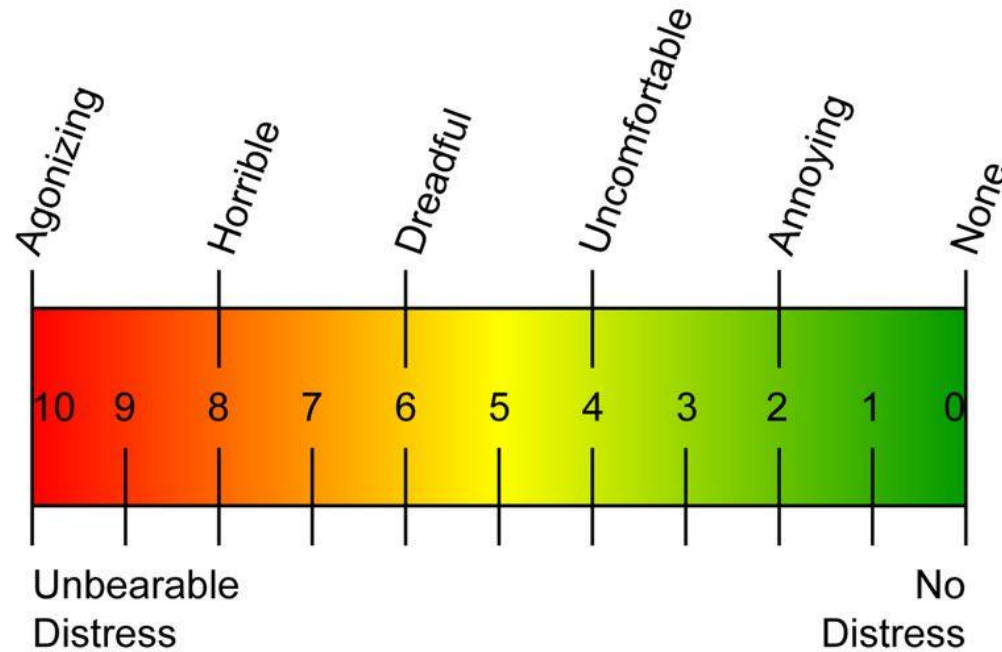
Definition musculoskeletal symptoms – visual analog scale



Task _____

Date _____ Start _____ End _____

Definition musculoskeletal symptoms – visual analog scale



Task _____

Date _____ Start _____ End _____

Patterns of pain

- **Type**

- Bone pain

- **Pain pattern**

- Pain at rest and at night

- **Cause**

- Tumor, Paget disease,
- Fracture

- **Type**

- Mechanical joint pain

- **Pain pattern**

- Pain related to joint use only

- **Cause**

- Unstable joint

Patterns of pain

- **Type**

- Osteoarthritic joint pain

- **Pain pattern**

- Pain on joint use, stiffness after inactivity, pain at the end of the day after use

- **Cause**

- Osteoarthritis

- **Type**

- Inflammatory joint pain

- **Pain pattern**

- Pain and stiffness in the joints in the morning, at rest, and with use.
- Acuteness and severity can indicate the probable cause

- **Cause**

- Inflammatory, infective, crystal induced (acute, exquisite tenderness)

Patterns of pain

- **Type**

- Periarticular and soft tissue pain

- **Pain pattern**

- Pain on selective movements, localized periarticular or soft tissue tenderness

- **Cause**

- Bursitis, tenosynovitis, tendinitis, enthesitis

- **Type**

- Neuropathic

- **Pain pattern**

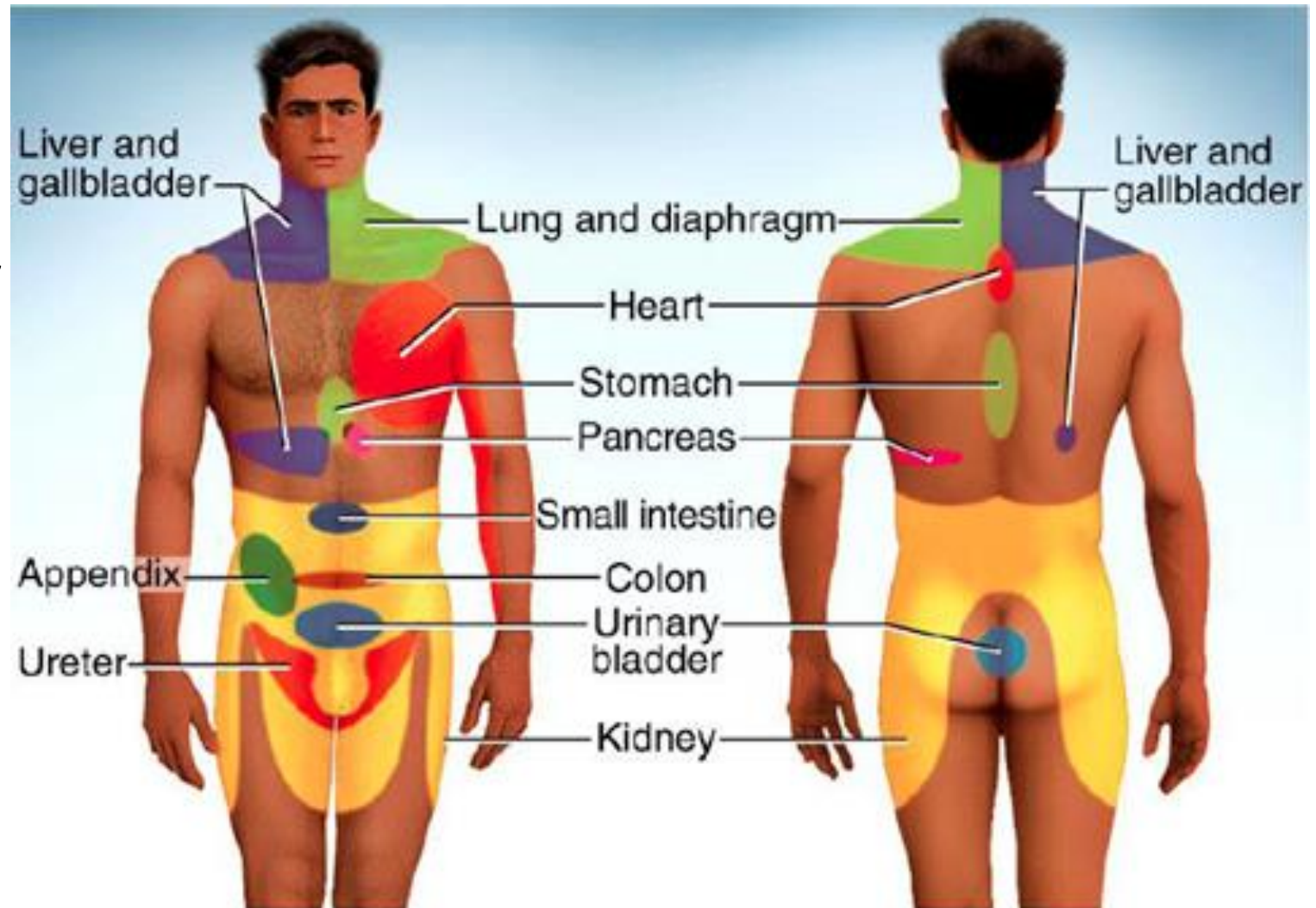
- Diffuse pain and paresthesia in the dermatome worsened by specific activity

- **Cause**

- Root or peripheral nerve compression

Patterns of pain

- **Type**
 - Referred
- **Pain pattern**
 - Pain unaffected by local movement
- **Cause**
 - Heart pain radiating to Neck or Back



Definition musculoskeletal symptoms STIFFNESS

- What is **meant** by stiffness varies from **patient to patient**
 - (pain, soreness, weakness, fatigue, or limitation of motion)
- **Rheumatologists** generally use the term **stiffness** to describe discomfort and limitation on attempted movement of joints after a period of inactivity
 - - “gel” phenomenon
- **Duration** of stiffness
- Morning stiffness is an early feature of **inflammatory arthropathies**



Definition musculoskeletal symptoms STIFFNESS

- *“In the morning, how long does it take for your joints to limber up as good as they are going to get for the day?”*
- Morning stiffness associated with **noninflammatory joint diseases** (usually <30 minutes)
—stiffness is worse after excessive use



Definition musculoskeletal symptoms STIFFNESS

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Definition musculoskeletal symptoms STIFFNESS

- Morning stiffness is **not specific for inflammatory arthropathies** and may be described in:
 - Fibromyalgia
 - Chronic idiopathic pain syndromes
 - Neurologic disorders such as parkinson's disease (although generally without limbering up)
 - Sleep-related breathing disorders



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Definition musculoskeletal symptoms LIMITATION OF MOTION

- › **Limitation of motion** must be differentiated from **stiffness**, which is usually transient and variable, whereas limitation of motion secondary to joint disease is generally fixed and varies less over time.
- › The **extent of disability** resulting from the restriction in joint motion
- › Determining the **rapidity of onset** of the limitation of motion may be helpful in the differential diagnosis



Definition musculoskeletal symptoms SWELLING

To determine if the swelling is related to **joint synovitis** as opposed to **soft tissue** conditions, clarifying the anatomic location and distribution of the swelling is key

- Joint swelling
 - Non articular (soft tissue)
 - Articular
 - Effusion
 - Synovial hypertrophy
 - Bony swelling



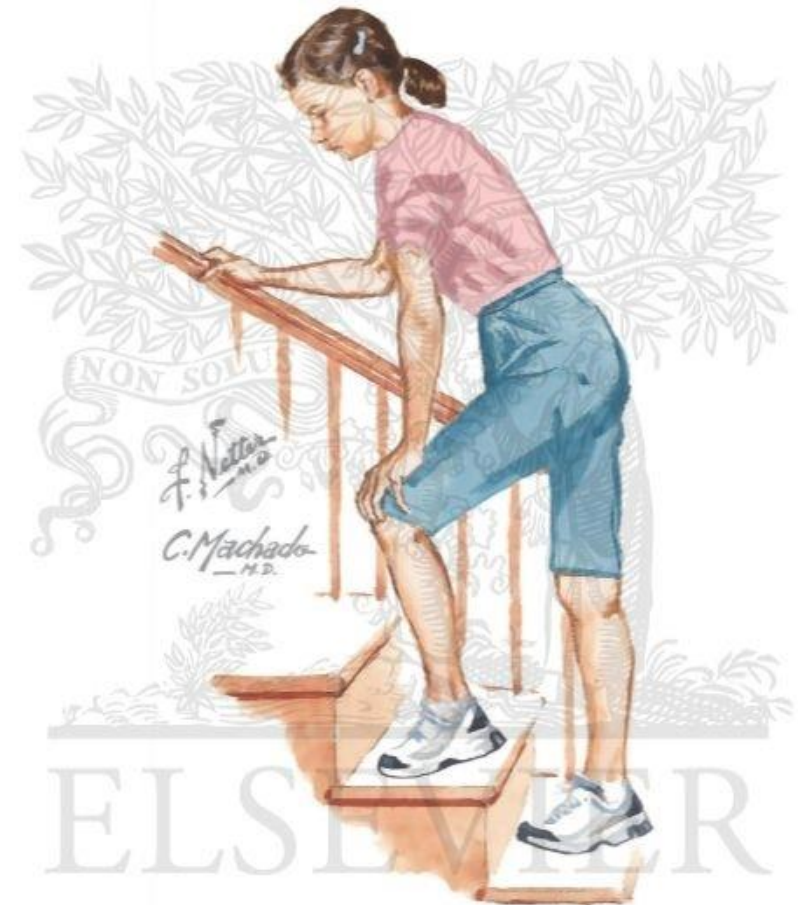
Definition musculoskeletal symptoms -WEAKNESS

- True weakness is the loss of muscle power
 - **Sudden onset** without trauma often indicates a neurologic disorder
 - **Insidious onset** more often suggests a muscle disease
 - **Intermittent suggests** a disorder of the neuromuscular junction



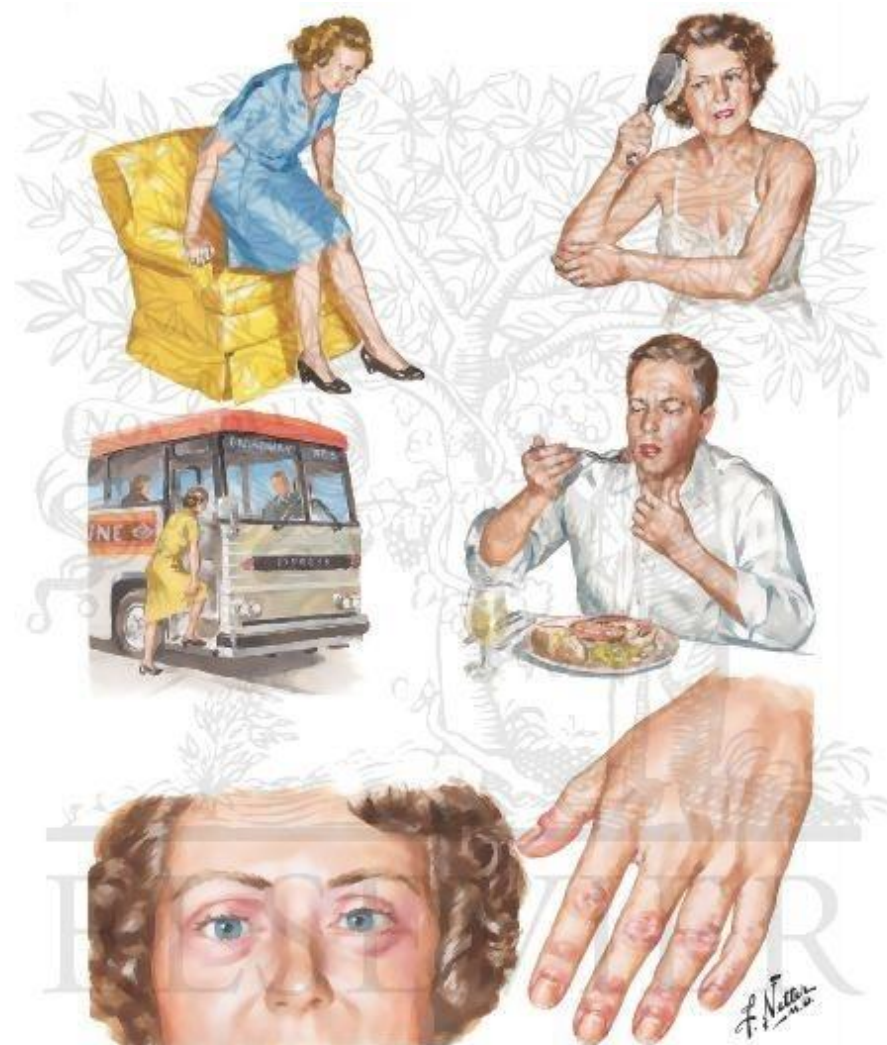
Definition musculoskeletal symptoms -WEAKNESS

- Distribution of the patient's weakness
 - **Proximal** weakness that is bilateral and symmetric suggests an inflammatory myopathy
 - Inclusion body myositis causes an **asymmetric and more distal weakness**
 - A **unilateral** or isolated deficit generally indicates a neurogenic etiology
 - **Distal weakness**, in the absence of joint findings, generally indicates neurologic disorders, such as peripheral neuropathy

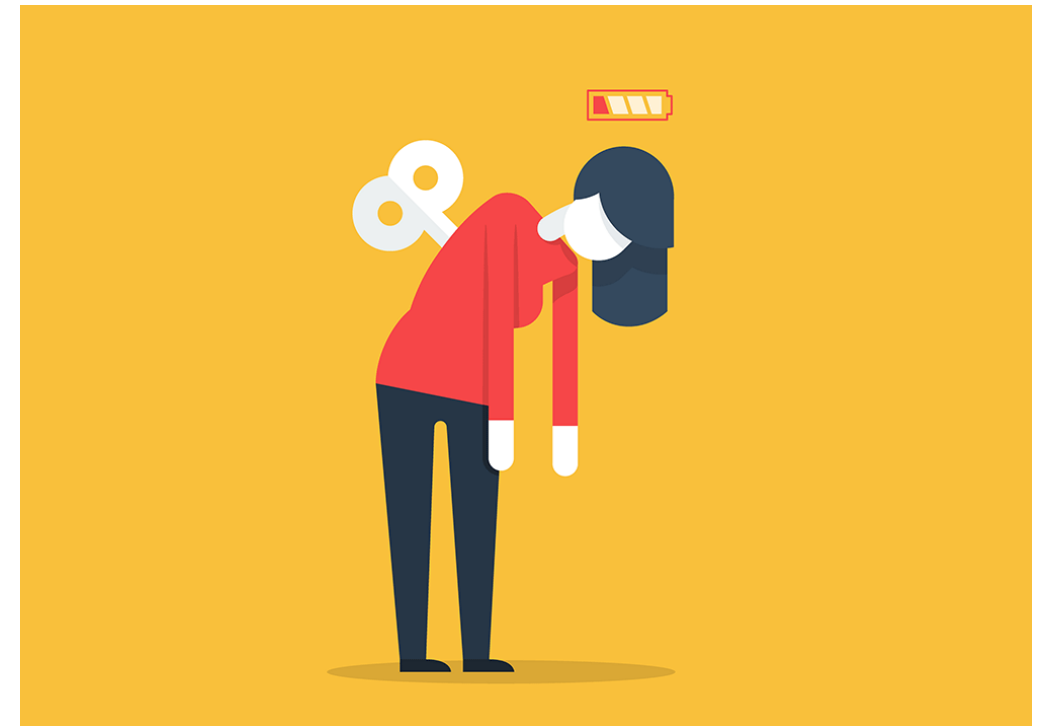
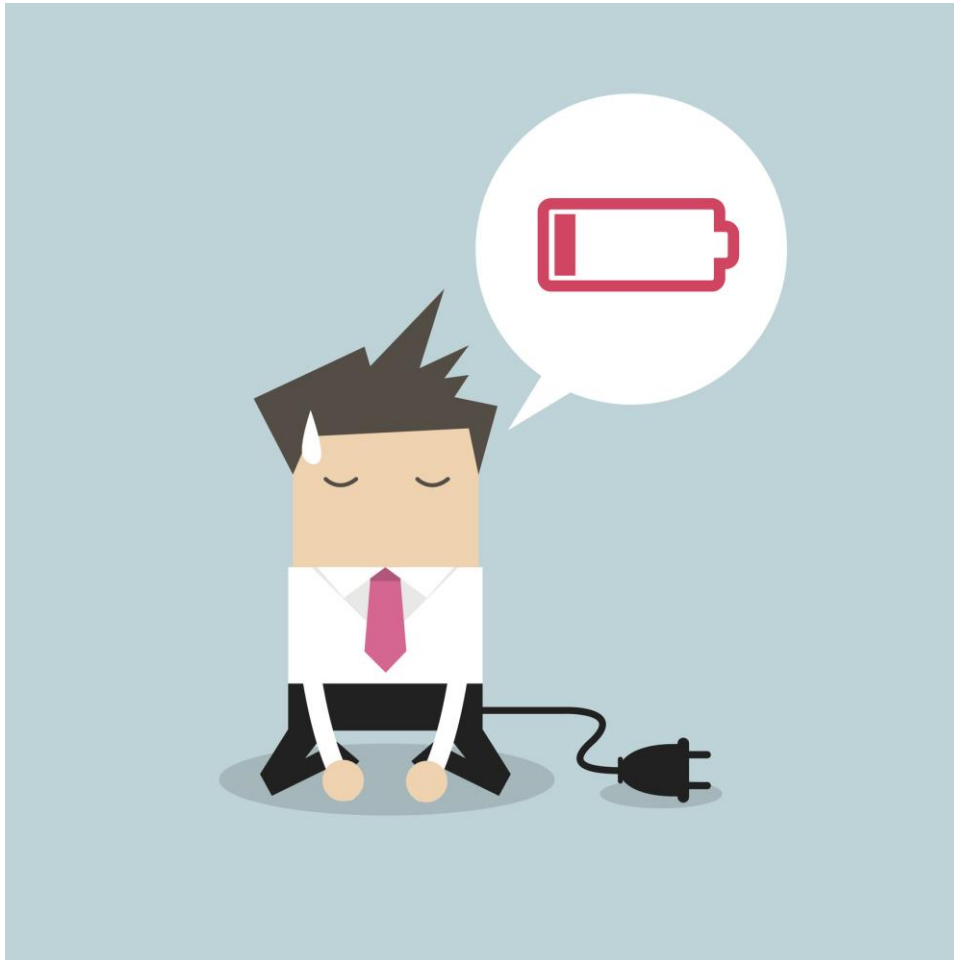


Definition musculoskeletal symptoms -WEAKNESS

- Patients with **peripheral neuropathies** also complain of pain and sensory symptoms, such as **paresthesias**.
- In contrast, patients with **inflammatory myopathy** typically present with **painless weakness**.
- **Family history**
- It is important to review **medication** taken recently or currently
- Taking a complete **review of systems**



Definition musculoskeletal symptoms - FATIGUE



Definition musculoskeletal symptoms - FATIGUE

- **Fatigue** can be defined as an **inclination to rest** even though pain and weakness are not limiting factors.
- Fatigue after varying degrees of activity that is relieved by rest is **normal**.
- Patients with rheumatic diseases experience fatigue even without activity.



Definition musculoskeletal symptoms - FATIGUE

- Fatigue generally improves as the systemic rheumatic disease improves.
- **Malaise** frequently occurs with, but is not synonymous with, fatigue.
- **Malaise indicates the lack of well-being** that often occurs at the onset of an illness.
- **Fatigue and malaise** may occur in the absence of identifiable disease, and **psychosocial factors**, anxiety, or depression may account for the symptoms.



Definition musculoskeletal sign

- Swelling
 - Tenderness
 - Warmth
 - Limitation of motion
- (STWL)
- Redness
 - Crepitation
 - Deformity
 - Abnormal joint movement (instability)
 - Pain on motion
 - Locking

Definition musculoskeletal sign - Swelling

- Swelling around a joint may be caused by
 - Intra-articular **effusion**,
 - Synovial **proliferation**,
 - **Periarticular** subcutaneous tissue inflammation, bursitis, tendinitis,
 - **Bony** enlargement,
 - **Extra-articular** fat pads.



Definition musculoskeletal sign - Swelling

- First, the examiner should inspect the joints for visible evidence of swelling, such as loss of normal landmarks or contours.
 - It is frequently helpful to compare the same joints on both sides of the body visually to detect subtle evidence of swelling and to appreciate symmetry.
- Second, the examiner should palpate each joint
 - Reliable differentiation between synovial membrane thickening and effusion is not always possible by physical examination



Definition musculoskeletal sign - Swelling



Definition musculoskeletal sign -Tenderness

- In the musculoskeletal examination, tenderness indicates unusual discomfort on palpating and putting pressure on articular and periarticular tissues.
- **Localizing** the tenderness to palpation may assist the examiner in determining whether the pathology is in an articular or a periarticular structure, such as a fat pad, tendon attachment, ligament, bursa, muscle, or skin.
- Finding **tender joints** in a patient who also has numerous other myofascial **tender points** is less concerning for arthritis than finding tender joints in a patient with no extra-articular tenderness.

› Definition musculoskeletal sign - Range of Motion

- Range of Motion

- Active
 - Passive
 - Resistance
 - Listen
 - Range and quality of motion
 - Stability and gait
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- If the problem is articular, both active and passive causes pain.
 - If para-articular, then passive ROM is much better than active. Muscle/tendon stretch can also do this.

Definition musculoskeletal sign

Abnormal joint movement (instability)

- Joint instability is present **when the joint has greater than normal movement in any plane.**
- **Subluxation** refers to a joint in which there is partial displacement of the articular surfaces, but still some joint surface-to-surface contact.
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- A **dislocated** joint has lost all cartilage surface-to-surface contact.
- **Instability is best determined** by supporting the joint between the examiner's hands and stressing the adjacent bones in directions in which the normal joint does not move.
- The patient **must be relaxed** during the examination because muscle tension may stabilize an otherwise unstable joint.
- A knee with a deficient ligament might appear stable if the patient contracts the quadriceps muscles during evaluation

Definition Musculoskeletal Terms

Crepitus

- A palpable (less commonly audible) vibratory or crackling sensation elicited with joint motion; fine joint crepitus is common and often insignificant in large joints; coarse joint crepitus indicates advanced cartilaginous and degenerative changes (as in osteoarthritis)

Subluxation

- Alteration of joint alignment such that articulating surfaces incompletely approximate each other

Dislocation

- Abnormal displacement of articulating surfaces such that the surfaces are not in contact

Range of motion

- For diarthrodial joints, the arc of measurable movement through which the joint moves in a single plane

Contracture

- Loss of full movement resulting from a fixed resistance caused either by tonic spasm of muscle (reversible) or to fibrosis of periarticular structures (permanent)

Deformity

- Abnormal shape or size of a structure; may result from bony hypertrophy, malalignment of articulating structures, or damage to periarticular supportive structures

Enthesitis

- Inflammation of the entheses (tendinous or ligamentous insertions on bone)

Epicondylitis

- Infection or inflammation involving an epicondyle