

بِه نام خدا

اختلالات عضلانی اسکلتی و کمر دردهای شغلی

شرح حال و معاینه فیزیکی

معاینه فیزیکی عضلانی اسکلتی شامل:

1-Inspection

2-Palpation

3-ROM assessment

4-Joint stability assessment

5-Muscle strength testing

.M.SDx

- ▶ Skeletal muscle comprises 40% to 45% of total body mass&55%of total BM is distributed in lower limbs./
- ▶ Muscle contains 50% to 75% of total body protein.
- ▶ More than half of the protein in muscle is in the myosin and actin contractile filaments that generate and regulate force production.

MSDx

ارزیابی عمل و ساختمان عضله:

Mass,distance,time,force($\text{mass} \times \text{acceleration}$),work($\text{force} \times \text{distance}$),

Power($\text{force} \times \text{velocity}$),velocity,torque,angle,volume

Muscle actions:-dynamic(isotonic) concentric or shortening action,

Dynamic eccentric or lengthening action

Stretch shortening cycle: در فعالیت هایی مانند پیاده روی و دویدن ترکیب کانسنتریگ و

اکسنتریک عضله باعث

Isokinetic muscle action: constant angular velocity&variable resistance

Muscle strength

- ▶ 5 normal
- ▶ 4 good
- ▶ 3 fair
- ▶ 2 poor
- ▶ 1 trace
- ▶ 0 zero

M.S.Dx

- ▶ عضلات مخطط در تمام فعاليت های انسان نقش دارند.
- ▶ عضلات مخطط نقش مهمی در پاتوفیزیولوژی بسیاری از بیماری ها نقش دارند
- ▶ عمل عضلات مخطط نقش کلیدی در اختلالات و محدودیت های فعالیتی انسان دارند
- ▶ عمل عمده حدود 600 عضله در بدن انسان تبدیل انرژی شیمیایی (چربی و کربوهیدرات) به انرژی مکانیکی و تولید نیرو می باشد که از طریق فیبرهای فعال عضلانی به تاندون ها منتقل می شود.
- ▶ عمل تاندون ها در ساختمان های بدن انتقال نیرو به مفصل ، ثبات مفصل و حرکت و جابجایی بدن می باشد.
- ▶ Muscle strength:force generation can occur during brief moments
- ▶ Muscle endurance:// // can be maintained over a period of time
- ▶ Muscle weakness:the failure to generate force during a brief moment
- ▶ Muscle fatigue:the inability to maintain force (any reduction in force-generating capacity of total neuromuscular system

Muscle pain syndromes

- ▶ Myofascial pain Sx
- ▶ Fibromyalgia Sx
- ▶ Overuse Sx
- ▶ Delayed onset muscle soreness: occur after overactivity or doing unaccustomed exercise (lactic acid)

Etiologic classification of muscle pain

- ▶ 1-peripheral irritation or sensitization of the nociceptors in the muscle
- ▶ 2-irritation of the peripheral nerves involved in the transmission of pain messages to the CNS(neuropathic pain)
- ▶ 3-irritation of the pain pathway in the CNS:Central pain(a type of neuropathic pain)
- ▶ 4-central sensitization in the spinal cord or a higher CNS center:can cause referred pain,hyperalgesia,allodynia>>>important mechanism for activation of MTr P
- ▶ 5-Systemic decrease of the pain threshold: be a consequence of central sensitization,major clinical findings in fibromyalgia are due to a generalized decrease in the pain threshold.

Myofascial pain Sx

- ▶ Localized muscle pain(regional)
- ▶ Muscle pain caused by MTrPs
- ▶ Muscle tenderness
- ▶ Secondary to pathologic conditions such as chronic repetitive minor muscle strain,poor posture,systemic diseases,neuromusculoskeletal lesions(strain ,sprain,bursitis,arthritis,spinal disk lesions,etc
- ▶ Activation of MTrP is due to central sensitization.
- ▶ Overuse or inappropriate use of muscle can activate MTrP

Myofascial pain Sx

- ▶ 1-Trigger points
- ▶ 2-Taut bands
- ▶ 3-Local twitch responses

Fibromyalgia Sx

- ▶ Generalized chronic pain Sx(widespread pain)
- ▶ Pain the past 3 months,four quadrants,11 of 18 trigger points
- ▶ Comorbidities include sleep disturbance,depression,anxiety,cognitive dysfunction,chronic fatigue,endocrinopathies,IBSx,headache,subjective swelling,numbness,morning stiffness,dizziness,abd pain,diarrhea,urinary frequency,urgency,dysfunction of autonomic system.
- ▶ Primary FMS:pure FMS having no association with any other medical condition
- ▶ Secondary FMS:with another medical conditions>>RA,SLE,Hypothyroidism
- ▶ Lack of a gold standard diagnostic test for FMS

Fibromyalgia Sx

- ▶ The most important characteristic finding relating to the pathogenesis of FMS is neurosensory dysfunction.
- ▶ Serotonin and substance P involved in pathogenesis of FMS
- ▶ Dx
- ▶ Rx

Myopathies

- ▶ Primarily affecting skeletal muscle that produce weakness, fatigue, decreased endurance, and musculoskeletal deformities.

OA

- ▶ Most common cause of joint pain
- ▶ More common in women
- ▶ Symptoms :morning stiffness, joint swelling, night pain
- ▶ Causes are multifactorial
- ▶ Weight- bearing lower ext joints develop OA
- ▶ Obesity is the second strongest risk factor
- ▶ Musculoskeletal injury is a risk factor
- ▶ Occupations :repetitive joint loading(overuse), high physical demands(farming, ballet dancing)

OA

- ▶ Primary OA: believed that excessive loads cause failure of an otherwise normal joint. The changes eventually involve all of the previously named joint tissue.
- ▶ Secondary OA:

OA(Rx)

- ▶ Pharmacologic Rx
- ▶ Non-pharmacologic Rx:Pt education,self-management,social support(telephone contact),wt loss,aerobic exercise(aquatic),physical therapy ROM exercises(flexibility,strengthenig,balance and proprioceptinve training,joint protection,modalities),Muscle strengthening exercises,assistive devices for ambulation,patellar taping,appropriate footwear,lateral wedge insoles,OT(joint protection,energy conservation,ADL training)

LBP

- ▶ Back pain is the second leading cause of work absenteeism(after URI) and results in more lost productivity than other medical condition.
- ▶ Lifetime prevalence:70%
- ▶ 1-year prevalence USA:15-20%
- ▶ Highest prevalence:45-64 y/o
- ▶ The primary site of pain was lower back(85%),middle back(8%) and lower back(7%).
- ▶ The mean days of restricted activity due to back was 23.5.
- ▶ Eight days were completely lost from work.

کمر دردهای شغلی

- ▶ LBP is a symptom
- ▶ Risk factors of LBP:
- ▶ Pt related, Job (Occupational) related
- ▶ Occupational risk factors: heavy work, lifting, static work postures (prolonged sitting or standing), bending and twisting, vibrations
- ▶ Among women: heavy physical workload, sedentary work, smoking, whole-body vibrations

Mechanical LBP

- ▶ Mechanical disorders of spine are the most common cause of low back and neck pain.
- ▶ Mechanical disorders are local disorders of the spine.
- ▶ M.D are truly musculoskeletal diseases.
- ▶ M.D :very common,location of pain to LB,buttock,posterior thigh>>quality of pain:ache,spasm-intermittent,pain increased with activity,increased muscle tension,lab test :NI radiographic findings:No Rx:controlled physical activity,medications
- ▶ Back strain account for 60% to 70% of BP
- ▶ Back strain is a manifestation of anxiety and is psychosomatic in origin.

Muscle strain

- ▶ Classification :depends on the severity of the injury and nature of hematoma
- ▶ Mild (first degree) strain:causes a tear in a few muscle fibers,minor swellingm,and pain with minimal loss of strength or movement
- ▶ Moderate(second degree) strain:results in greater muscle fiber damage with loss of strength ,but structural integrity is preserved
- ▶ Severe (third degree) strain:is associated with a complete tear through the muscle belly,and such tears result in total loss of function

Rotator cuff tendinitis

- ▶ Sits(Rotator cuff) :supraspinatus(abd),infraspinatus,teres minor(ext.rot),subscapularis(int.rot)>>humeral tuberosities(insertion),main stabilizer of shoulder
- ▶ Tendinitis of rotator cuff caused by inflammation of tendon(s),painful shoulder
- ▶ **Supraspinatus tendon** is the most often affected, due to repeated impingement (imp.sx) between the humeral head and the undersurface of anterior third of acromion & coracoacromial lig above as well as the reduction in its blood supply(critical zone) that occurs c abduction of arm.

Rotator cuff tendinitis

- ▶ Symptoms usually appear after injury or overuse (abd&flex).
- ▶ Impingement sx occurs in persons in baseball, tennis, swimming, or occupations that require repeated elevation of arm.
- ▶ Age > 40 y/o susceptible.
- ▶ A dull aching in shoulder
- ▶ Severe pain is experienced when the arm is actively abducted into an overhead position.

Rotator cuff tendinitis

- ▶ Painful Arc: 60-120 degree
- ▶ Tenderness over lateral aspect of humeral head (below acromion)
- ▶ Rx: NSAIDs, local glucocorticoid inj, physical therapy, Surgery (refractory cases).
- ▶ Supraspinatus tendon tear by falling on outstretched arm or lifting of a heavy object >> atrophy of muscle: diagnosis by arthrogram or ultrasound, MRI
- ▶ Surgical repair: in pts c moderate to severe tears and functional loss

Adhesive capsulitis

- ▶ Frozen shoulder
- ▶ Is characterized by pain & restricted movement of the shoulder ,usually in the absence of intrinsic shoulder disease.
- ▶ May follow bursitis or tendinitis of shoulder, systemic disorders such as COPD,MI,DM,Thyroid dx.
- ▶ Prolonged immobility of the arm contributes to the development of AC.
- ▶ RSD is thought to be a pathogenic factor.

ADHC

- ▶ Frozen shoulder
- ▶ Is characterized by pain & restricted movement of the shoulder ,usually in the absence of intrinsic shoulder disease.
- ▶ May follow bursitis or tendinitis of shoulder, systemic disorders such as COPD,MI,DM,Thyroid dx.
- ▶ Prolonged immobility of the arm contributes to the development of AC.
- ▶ RSD is thought to be a pathogenic factor.

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- ▶ Pts improves spontaneously 1 to 3 years after onset, some permanent restriction of movement.
 - ▶ Diagnosis: clinically
 - ▶ NSAIDs, Analgesia, Heat modalities
 - ▶ Manipulation under aesthesia
 - ▶ Local steroid inj, Physiotherapy.
 - ▶ Codman, s pendulum exercise

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- ▶ Tennis elbow: Backhand
 - ▶ Is a painful condition involving the soft tissue over the lateral aspect of elbow
 - ▶ Pain originates at or near site of attachment of common extensor tendons
 - ▶ Occur in persons over 35 y/o
 - ▶ Manual laborers, officeworkers, homemakers

Lateral epicondylitis

- ▶ An inflammation lesion with degeneration occurs at the insertion of the extensor tendons, primarily ECRB.
- ▶ Hypervascularity, granulation tissue and fibrosis in extensor apponeurosis occur.
- ▶ Exam: increased pain c resisted wrist extension: Middle finger test
- ▶ Radiology: little help
- ▶ Rx: decreased repetitive stress, rest, NSAIDs, heat modalities (HP, US)
- ▶ Steroid inj
- ▶ Forearm bands (1 to 2 in): prevent full muscular forearm expansion and alleviate tension on the attachment site at the lateral epicondyle
- ▶ Proper exercise
- ▶ Lateral epicondyle release

با تشکر از همراهی و توجه شما



الامامُ الحُسَيْنُ عَلَيْهِ السَّلَامُ: مَا ذَا وَجَدَ مَنْ فَقَدَكَ وَمَا الَّذِي
فَقَدَ مَنْ وَجَدَكَ

خدایا! آنکه تو را گم کرده چه بدست
آورده و آنکه تو را یافته چه از دست
داده

بر این اثر نقاشی شده