Musculoskeletal Assessment

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Musculoskeletal: Review Anatomy& Physiology

- Skeleton: 206 bones
- Long: femur, humerus, radius
- Short: carpals, tarsals
- Irregular: vertebrae
- Bones protect, support, allow for locomotion and mineral storage (Ca,Mg)

Musculoskeletal

- Joints: Range from joints that don't move to joints that freely move.
- Ligaments and tendons: stabilize joints
- Ligaments: attached from bone to bone
- Tendons: attached from muscle to bone
- Cartilage: ends on bones

- Subjective Data Collection

Key Questions	Rationales
Note the patient's age, gender, and ethnic heritage	Some musculoskeletal diseases are age-related or more prevalent by gender or ethnic group.
Family History. **Do your parents or siblings have muscle, joint, or bone problems? Who had the problem?**	Musculoskeletal problems with a familial tendency include osteoporosis,
Past Medical History. **Have you had musculoskeletal trauma, injury, fracture, stroke, polio, bone or muscle infection, diabetes,**	A person who has had a stroke is at increased risk for shoulder *subluxation* (partial dislocation).

Nutrition/Medications. **What is your daily dairy intake?** **Smoking** **Alcohol**	**Calcium and vitamin D are essential for bone health anti-inflammatory medications and muscle relaxants can mask symptoms. Steroids can affect calcium absorption.**
Occupation, Lifestyle, and Behaviors. **What work do you do?**	Some occupations increase risk of injury through repetitive movement, twisting, lifting, vibration, exposure to cold, and pushing or pulling heavy objects
What hobbies and sports do you enjoy?	baseball, football, and soccer contribute to knee injuries. Skiing increases risk

***Pain*. Do you have pain or discomfort in your muscles, bones, or joints?**	**Site, radiation , nature , severity, duration and time of occurrence , aggravating and relieving factors ,associaed symptoms (fever …)**
***Weakness*. Do all or just certain muscles feel weak? Knowing involved muscles helps determine the disease. When does the weakness occur? How long does it last?**	**Muscle weakness after prolonged activity may result from *dehydration* or electrolyte imbalance**

***Stiffness/Limited Movement*.** **Do you have stiffness or limited movement in any body part?**	**Stiffness may result from pain in muscles or joints, swelling, or a disease process.**
Is the stiffness in one or more joints?	**Swelling from *renal failure* affects the entire body, while injury may involve one joint only.**
Is stiffness constant or intermittent?	**Early *rheumatoid arthritis* may cause stiffness that is worse in the morning. Stiffness from *osteoarthritis* is worse at the end of the day.**
Did stiffness follow an injury? Was onset gradual?	***Contracture* (shortening of tendons, fascia, or muscles) may result from injury or prolonged positioning**

Do you have a deformity? Was it present at birth?	
Does it affect the entire body or is it localized?	**Deformities may be general (SKELETAL DYSPLASIA) or localized**
Lack of Balance/Coordination.	Unusual gait or inability to perform ADLs(activity of daily living) may result from a balance or coordination problem, which may indicate a neurologic disorder. *Ataxia* (irregular, uncoordinated movements) or loss of balance may be from cerebellar disorders, *Parkinson's disease*, , stroke, brain tumor, inner ear problem, or medications.

Assessing: Subjective Data

- **Functional Assessment:**

ADL's- does MS problem create limits:

1. Toileting- getting on/off toilet
2. Dressing- buttons, tying shoes
3. Grooming- shaving, brushing teeth
4. Eating- preparing meals etc…

Assessing: Subjective Data

- **Functional Assessment:**

5.Mobility- walking up/down stairs,
in and out of car, out of house

6.Communicating- talking, using phone or computer, writing

7.Occupational/Environmental- heavy lifting, repetitive motions etc.

Assessing: Objective Data

- **Physical exam (LOOK, FEEL ,MOVE)**
- Guidelines for Physical Exam include:
- Full visualization of part being examined
- Drape other parts for privacy
- Orderly approach: head to toe and proximal to distal.

Physical Examination Guidelines

- Joint being examined should be supported.
- Compare paired joints, expect symmetry.
- LOOK: scar , sinus , swelling , m. wasting. Deformity
- Feel: Ask painful area, start palpation away from pain, look to patient
- Move: Assess Range of Motion (ROM) of each joint

Physical Examination

- Note patient's gait, posture
- Note any foot dragging, limping, shuffling

Physical Examination

Spine: Have pt. bend a waist, note curvature, ease of mobility. Note any spinal deformities

- Palpate vertebral column with fingertips, note tenderness or bony deformities.
- ROM

Flexion and extension

Lateral bending

Spinal rotation.

Physical Examination

- **Neck**:
- ROM and muscle strength:
- Flexion- touch chin to chest
- Extension- tilt head backward
- Cervical rotation- turn head to R and L.
- Lateral bending- touch ear to R. and L. shoulders
- Repeat against resistance

Physical Examination

Shoulder: Note posture erect, hunched.

- Assess symmetry and position of clavicles.
- Palpate clavicles toward shoulders, palpate deltoid muscle.
- ROM and muscle strength:
  Flexion,Extension
  Abduction,Adduction,Rotation
- Test muscle strength: shrug

Physical Examination

Elbow- bend elbow 70 degrees, inspect and palpate posterior surface

- Note- medial and lateral condyles of humerus and olecranon process of ulna
- ROM and muscle strength:

Flexion and Extension

Supination and Pronation

- Test muscle strength; flexion/extension

Physical Examination

Wrist- Grasp wrists, assess body processes of radius (thumb side) and the ulna. Palpate radiocarpal joint and remaining wrist joints.

- ROM and muscle strength:

Flexion and Extension

Radial and ulnar wrist deviation

Circumduction

- Test strength; flexion of wrist

Physical Examination

Hand- Use thumb and forefinger to palpate the metacarpophalangeal and interphalangeal joints.

- ROM and muscle strength:

Flexion and Extension

Abduction- have patient spread fingers apart

Adduction- have pt. hold fingers together.

Thumb/Finger Opposition

Physical Examination

Hip- palpate hip joint and surrounding structures. Position pt. side lying and palpate iliac crest, greater trochanter, hip, thigh and buttock muscles

- ROM and muscle strength:

Flexion, Extension,

Adduction and Abduction

External rotation and Internal rotation

Symmetry of length and position

Physical Examination

Knee- have pt. sitting, dangling. Inspect- note alignment, deformity, contour of quadricep muscle.

- Palpate the suprapatellar pouch and note any tenderness, edema.
- ROM and muscle strength:
- Flexion and Extension

Physical Examination

- **Ankle:** Compare the contour of R. and L. ankles. Palpate ankle and achilles tendons.
- ROM and muscle strength:

Dorsiflexion- point toes upward.

Plantar Flexion- point toes downward.

Inversion- turn soles of feet inward.

Eversion- turn soles of feet outward.

Circumduction

- Test muscle strength; plantar&dorsiflexion

Physical Examination

Foot: inspect skin integrity, condition of nails and any deformities.

- Palpate the metatarsal bones and joints, squeeze each foot.
- ROM and muscle strength:

Flexion and Extension

Abduction and Adduction

Summary Musculoskelatal Exam

- Inspect body parts
- Palpate each joint
- Assess ROM of each joint
- Assess muscle strength