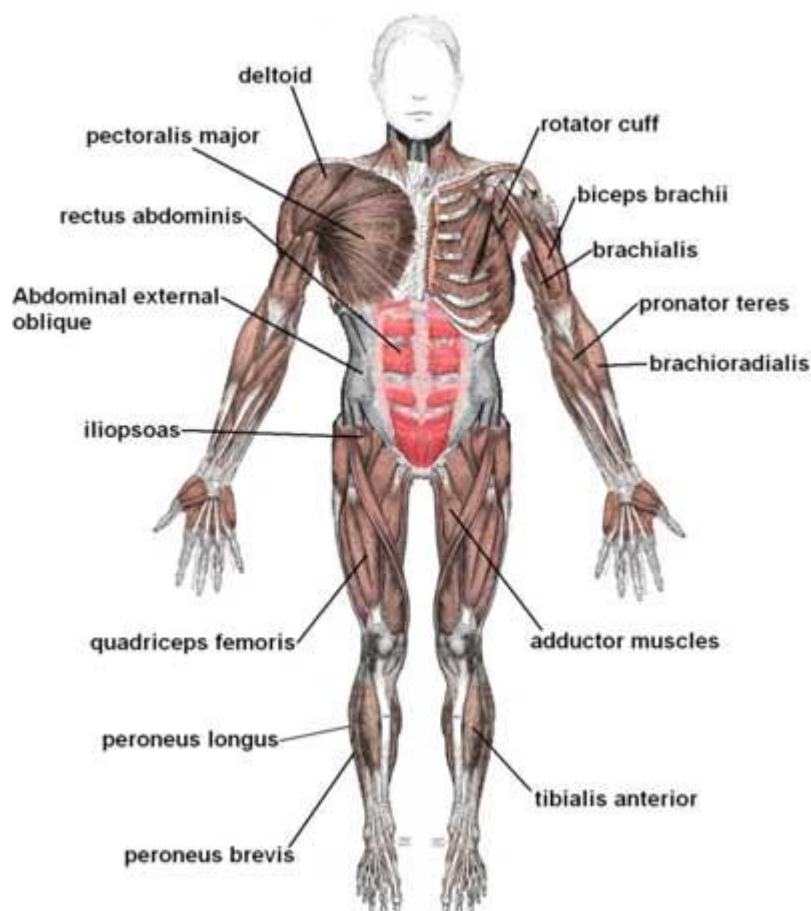


## Application of health assessment

NUR 225

### Module Eight

## Physical examination of Musculoskeletal system



## 1.Obtaining a health history:

### Ask about chief complain:

- History of presence of muscle pain (onset, location, Aggravating and alleviating factors character) associated phenomena (redness, swelling of joint)
- any limitation to movement or inability to perform activity of daily living ,previous sport injury any loss of function without pain

### ask About current health

- Are the patients activities of daily living affected
- Ask if he has noticed grating sounds when he move certain parts of his body
- Does he use ice, heat, or other remedies to treat the pain

### Ask about past health

- The patient ever has gout ,arthritis, Tuberculosis, or cancer which may have bony metastases, osteoporosis
- If he has had a recent blunt or penetrating or trauma if so ,how did it happen
- Did he suffer knee and hip injury
- Use an assistive device such as walker , brace
- Watch him use the device to assess how he move

### Ask About medication:

- Ask about what medication he regularly takes
- Many drugs can affect the musculoskeletal system such as  
\***corticosteroid** can cause muscle weakness (myopathy), osteoporosis, pathologic fracture and \***anticoagulant** can cause bleeding inside the joint

## THE 6 P ~S OF MUSCULOSKELETAL INJURY

### ○ **pain**

Ask the patient if he is having pain. If he is assess the location, Severity and quality of the pain as well as anything that seems to relive or worsen it

### ○ **Paresthesia**

Assess for loss of sensation by touching the injured area with the tip of an open safety pin or the point of a paper clip. Then assess the same area on the unaffected side and compare abnormal sensation or loss of sensation indicator neurovascular involvement.

### ○ **Paralysis**

Can the patient move the affected area? If he can't, or if Movement cause severe pain and muscle spasm, he might have nerve or tendon damage.

### ○ **Pallor**

Paleness, discoloration, and coolness on the injured side, may indicate neurovascular compromise from decrease blood supply to area.

- **Pulse**

Check all pulses distal to the injury site. If pulse is decrease or absent, blood supply to the area is reduced

- **Polar:** Coldness

## 2. Examination Techniques

1. Inspection – Visual examination, range of motion of joints (active and passive)
2. Palpation – Joint muscle examination, use finger tips and thumbs
3. Motor Examination – Neuromuscular testing for strength, sensation and reflexes.

## 3. Equipment

Measuring tape

## Physical examination Techniques

### Assessment

### Normal finding

### Abnormal finding

#### I Muscle

##### ○ **Inspection**

**Inspect the muscle for size** compare the muscle on one side of the body to the same muscle on the other side, for any discrepancies, measure muscle with tape.

Smoothness of movement

Equal size on both side of the body

**Muscle atrophy**

(decrease in size)

**Muscle hypertrophy**

(an increase in size)

**Inspect the muscle and tendons for contractures (Shortening)**

No contractures

**Malposition of body part** (foot fixed in

dorsiflexion)

**Inspect the muscles for fasciculation and tremors**; inspect any tremors of the hand, and arms by having the client hold out in front of the body

No fasciculation or tremor

Presence of fasciculation

##### ○ **Palpation:**

**Palpate muscle at rest to determine muscle tonicity** (the normal condition of tension, or tone, of muscle at rest)

Normally firm

(lacking Tone)

**Palpate muscle while the client is active and passive movement**  
For flaccidity, Spasticity, and

Smooth coordinated Movement

Flaccidity (weakness or laxness) or Spasticity (Sudden involuntary muscle contraction)

#### **OLDER ADULT CONSIDERATIONS**

Older clients usually have slower movements, reduced flexibility, and decreased muscle strength because of age-related muscle fiber and joint degeneration, reduced elasticity of the tendons, and joint capsule calcification.

## 1.Test muscle strength

### Upper extremities

#### 1.Sternocleidomastoid

Client turned the head to one side against the resistance of your hand, repeat with the other side

Firm jaw pressure against your hand



#### 2.Trapezius :

Stand behind your patient back place your hand on his shoulder as you apply moderate pressure

Client shrugs the shoulder against the resistance of your hand



#### 3.Deltoid:

Client hold arm up and resists while you try to push it down



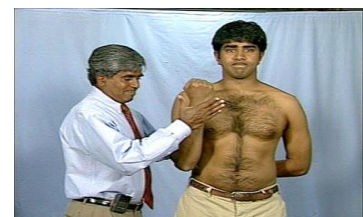
#### 4.Biceps:

Client fully extends each arm and tries to flex it while you attempt to hold arm in extension



#### 5.Triceps:

Client flex each arm and then tries to extend it against your attempt to keep arm in flexion



## 6.Wrist and finger

Client spread the fingers and resist as you attempt to push finger together



## 7.Grip strength

Client grasps your index and middle fingers while you trying to pull the



## Lower extremities

### 1.Hip muscle

Client is supine, both leg extended client raises one leg at a time while you attempt to hold it down

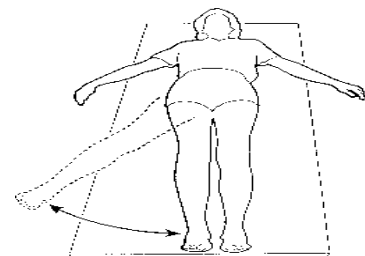


### 2.Hip abduction

Client is supine, both leg extended, place your hand on the lateral surface of each knee

### 3.Hip adduction

Client is supine; place your hand between knees Client bring the legs together against your resistance



### 4.Hamstrings

Client is supine both knee bent ,client resists while you attempt to straighten the legs

### 5.Quadriceps

Client is supine, knee partially extended Client resists while you attempt to flex the knee

## 6.ankle and feet

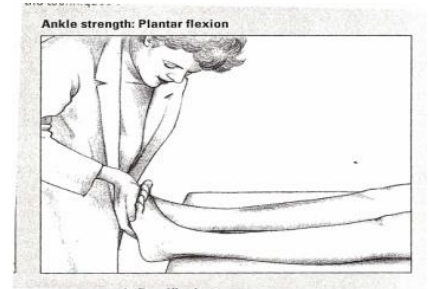
### Plantar flexion:

Clients resist while you attempt to flex the foot



### Dorsiflexion:

Client resist while you attempt to dorsiflex the foot



### **Clinical TIP**

Do not force the part beyond its normal range. Stop passive motion if the client expresses discomfort or pain. Be especially cautious with the older client when testing ROM. When comparing bilateral strength, keep in mind that the client's dominant side will tend to be the stronger side.

## II- Bones:

### ○ **Inspect**

**the skeleton for normal structure and deformities**

No deformities and straight spin

**Examine for scoliosis in persons over age 12** (occurs in adolescence into adulthood )

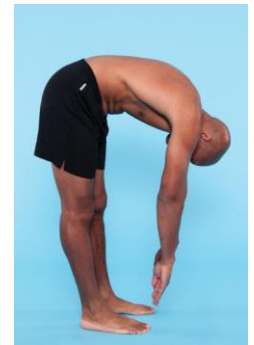
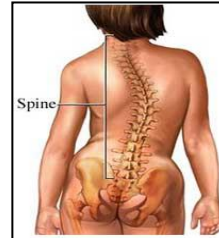
Clients stand facing away from the nurse and bend over touch the toes

### ○ **Palpate**

**the bones to locate any areas of edema or tenderness**

No tenderness or swelling

Bony enlargement – degenerative joint disease (osteoarthritis)



Presence of tenderness or swelling indicate fracture, neoplasms or osteoporosis

## III- Joints:

### ○ **Inspect**

**joint for swelling**

No swelling

One or more swollen joint

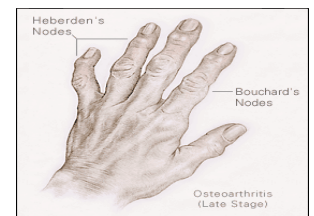


### ○ **Palpate**

**each joint for**

tenderness, swelling, and smoothness of movement, crepitating, and presence of nodule

Presence of tenderness, Swelling, crepitation, or nodules indicated of **rheumatoid arthritis**



## **1.Joint range of motion**

Limited range of motion in one or more joint

Decreased range of motion – suggests arthritis / inflammation of the joints

## **OLDER ADULT CONSIDERATIONS**

Joint-stiffening conditions may be misdiagnosed as arthritis, especially in the older adult.

### **Clinical TIP**

Do not force the part beyond its normal range. Stop passive motion if the client expresses discomfort or pain. Be especially cautious with the older client when testing ROM. When comparing bilateral strength, keep in mind that the client's dominant side will tend to be the stronger side.



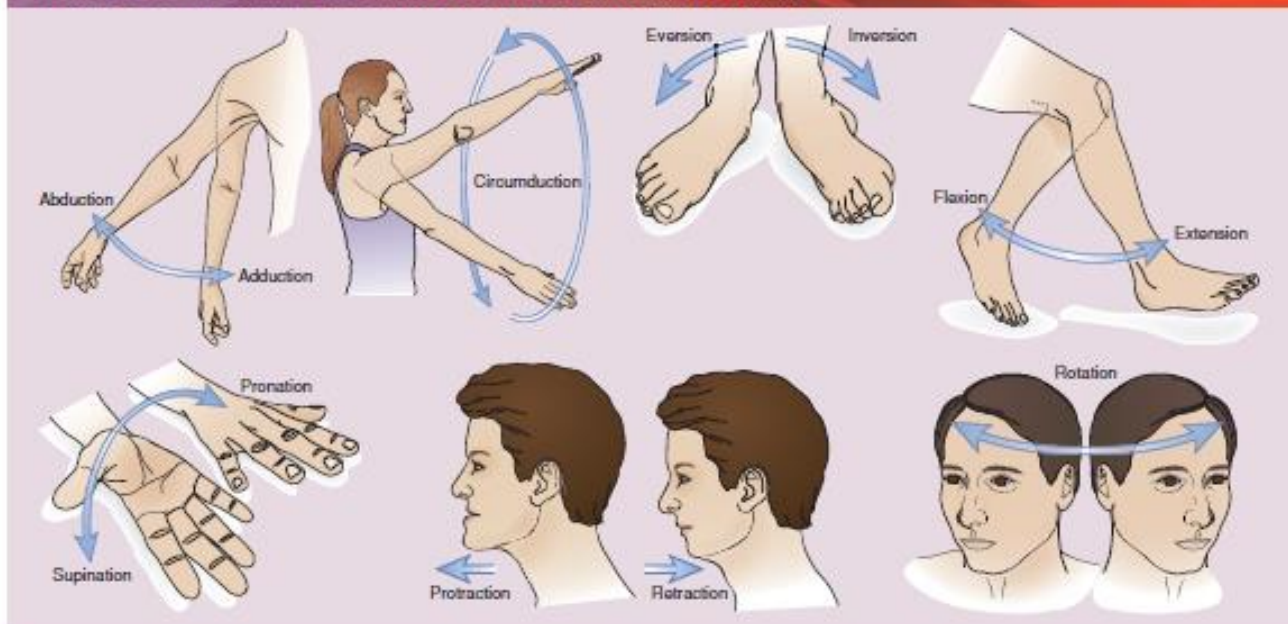
**Caution:** If the client has had a total hip replacement, do not test ROM unless the physician gives permission to do so, due to the risk of dislocating the hip prosthesis

### Range of Motion Exercises

**Include:**

- Abduction: Moving away from midline of the body
- Adduction: Moving toward midline of the body
- Circumduction: Circular motion
- Inversion: Moving inward
- Eversion: Moving outward
- Extension: Straightening the extremity at the joint and increasing the angle of the joint
- Hyperextension: Joint bends greater than 180 degrees
- Flexion: Bending the extremity at the joint and decreasing the angle of the joint
- Dorsiflexion: Toes draw upward to ankle
- Plantar flexion: Toes point away from ankle
- Pronation: Turning or facing downward
- Supination: Turning or facing upward
- Protraction: Moving forward
- Retraction: Moving backward
- Rotation: Turning of a bone on its own long axis
- Internal rotation: Turning of a bone toward the center of the body
- External rotation: Turning of a bone away from the center of the body

#### BOX 24-1 ILLUSTRATED GLOSSARY OF SKELETAL MOVEMENT TERMS

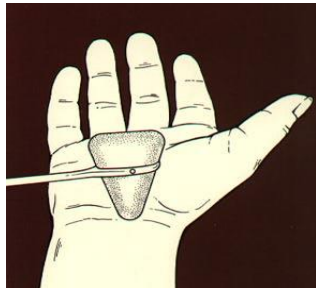


## 2. Testing for carpal tunnel syndrome

*Two simple tests, tinels sign and phalens sign can confirm carpal tunnel syndrome*

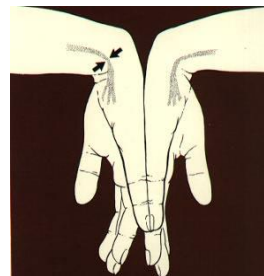
### **Tinels Sign**

lightly percuss the transverse carpal ligament over the median nerve where the patient palm and wrist meet, if this action produce discomfort ,such as numbness and tingling shooting in to the palm and finger ,the patient has tingle sign and probably has carpal tunnel syndrome



### **Phalens Sign**

if flexing the patient wrist for about 60 second cause pain or numbness in his hand or finger ,he has phalens sign, the more sever the carpal tunnel syndrome the more rapidly the syndrome develop





Application of Health Assessment  
NURS 225  
Performance checklist

**Musculoskeletal System**

Student name-----

Student # -----

Performance Criteria	Competency Level					
	Trial 1			Trial 2		Comment
	Done Correctly	Done with Assistance	Not Done	Competent	Not Competent	
Collect Appropriate objective data related to general survey						
Collect appropriate subjective data related to Cardiovascular system.						
Explain procedure.						
<b>I - MUSCLE</b>						
<b>A - Inspection</b>						
1. Inspect the muscle for size, bilaterally, compare						
2. Inspect the muscle and tendons for contractures (Shortening, shape mal position)						
3. Inspect the muscles for fasciculation and tremors, involuntary movement. - hold arms away of body & check for tremors						
<b>B - Palpation:</b>						
1. Palpate muscle at rest to determine muscle tonicity						
2. Palpate muscle while the client is active and passive for (flaccidity, Spasticity and smoothness of movement)						
3. Test muscle strength (equal strength on each side or less than 20 % of the normal strength)						
a. Sternocleidomastoid						
b. Trapezius						

c. Deltoid:						
d. Biceps						
e. Tricep						
f. Wrist and finger muscle						
g. Grip strength						
h. Hip muscle						
i. Hip abduction						
j. Hip adduction						
k. Hamstrings						
l. Quadriceps						
m. Muscles of ankle and feet						
<b>II. Bones</b>						
1. Inspect the skeleton structure for deformities						
2. Examine for scoliosis( posterior), Kyphosis, Lordosis (lateral)						
3. Palpate the bones to locate any areas of edema or tenderness						
<b>III. Joint</b>						
1. Inspect joint for swelling bilaterally						
2. Palpate each joint for tenderness, swelling, and smoothness of movement, crepitation, and presence of nodule						
3. joint range of motion						
4. Assess for carpal tunnel syndrome by: <ul style="list-style-type: none"> <li>▪ Tinels sign</li> <li>▪ Phalens sign</li> </ul>						
<b>Document Findings</b>						
<i>Instructor's signature</i>						