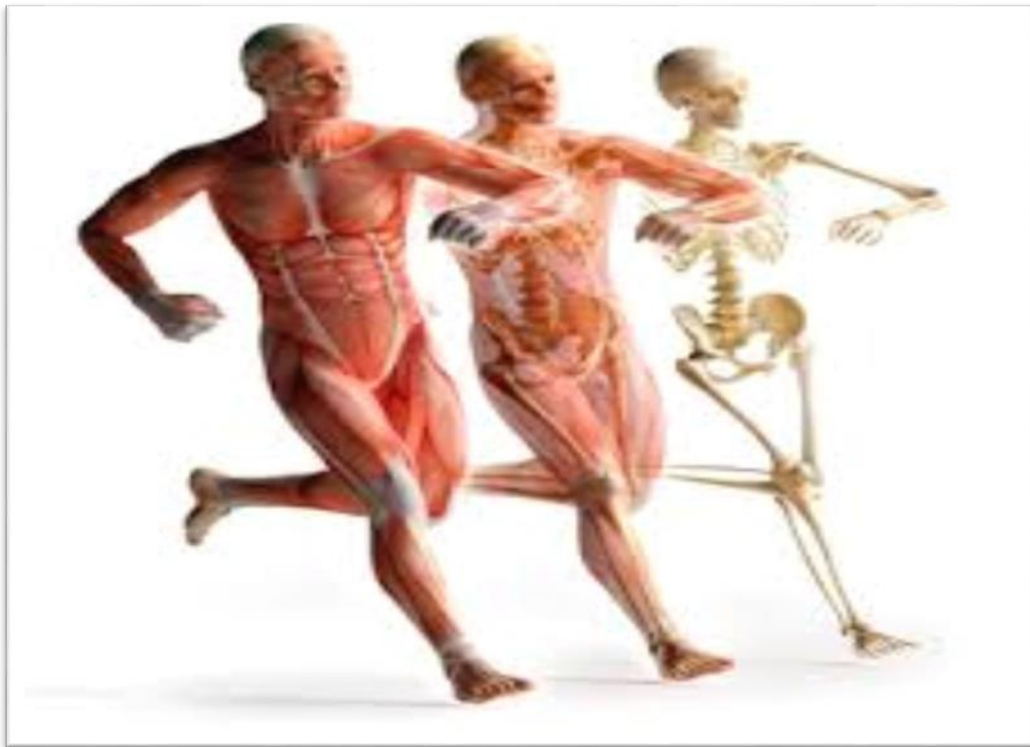




NUR 221 Health Assessment (practical)
Procedure guide and Performance checklist

Module Eight
Physical examination of Musculoskeletal system



Examination technique

- The techniques of inspection and palpation are used when performing a physical assessment of the musculoskeletal system. Beginning with inspection, note the size and contour of each joint. Inspect the skin over each joint for color, swelling, and any masses or deformities.

EQUIPMENT:

- Examination Gown
- Clean, Nonsterile Examination Gloves
- Examination Light
- Skin Marking Pen
- Tape Measure

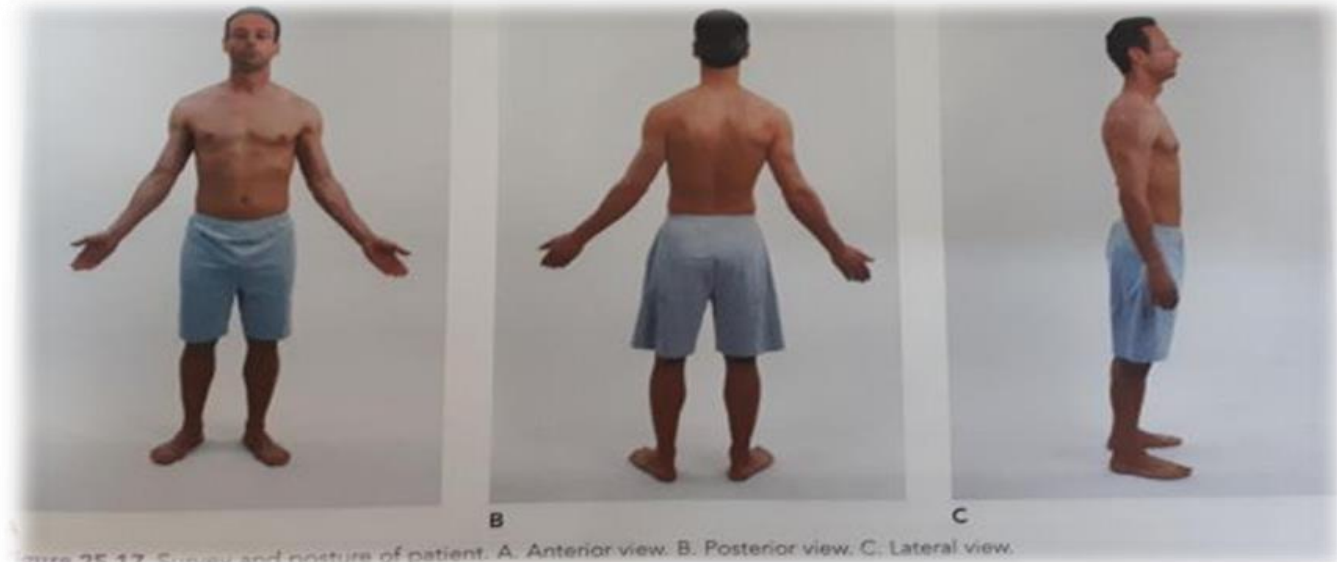
Helpful Hints:

- Age and agility influence the patient's ability to participate in the assessment.
- It is helpful to demonstrate the movements you expect of the patient during this assessment than to use easily misunderstood verbal instructions.
- Give specific instructions to the patient relevant to the body structure assessed.
- Position the client appropriately.
- When assessing range of motion, do not push the joint beyond its normal range.
- Stop when the patient expresses discomfort.
- Use an orderly approach: head to toe, proximal to distal, compare the sides of the body for symmetry.
- Provide rest periods or schedule two sessions.
- Use Standard Precautions.

PROCEDURE GUIDE

A quick survey of the patient enables the nurse to identify any immediate problems and to determine the patient's ability to participate in the assessment.

Inspect the overall appearance, posture and position of the patient. Observe for deformities, inflammation and immobility.



Anterior view

Posterior view

Lateral view

PROCEDURE	NORMAL FINDINGS
ASSESSMENT OF THE JOINTS	
<ol style="list-style-type: none"> INSPECT the temporomandibular joint (TMI) on both sides. 	<ul style="list-style-type: none"> The joints should be symmetric and not swollen or painful.
<ol style="list-style-type: none"> PALPATE the temporomandibular joints. <ul style="list-style-type: none"> ✓ Place the finger pads of your index and middle fingers in front of the tragus of each ear. ✓ Ask the patient to open and close the mouth while you palpate the temporomandibular joints. ✓ As the patient's mouth opens, your fingers should glide into a shallow depression of the joints. Confirm the smooth motion of the mandible. 	<ul style="list-style-type: none"> No discomfort, swelling, crackling sounds and limitation of movements of the jaw. The joint may be audibly and palpably click as the mouth opens.



PROCEDURE

NORMAL FINDINGS

Assessment of the Shoulders

1. Inspect shoulders both shoulders.

- ✓ Compare the shape and size of the shoulders, clavicles and scapula.

- Symmetric and similar in size both anteriorly and posteriorly.

2. Palpate the shoulders and surrounding structures.

- ✓ Begin palpating at the sternoclavicular joint; then move laterally along the clavicle to the acromioclavicular joint.
- ✓ Palpate downward into the subacromial area and the greater tubercle of the humerus.

- Firm and nontender, the shoulders are symmetric, and the scapulae are level and symmetric.

3. Test the range of motion of the shoulders.

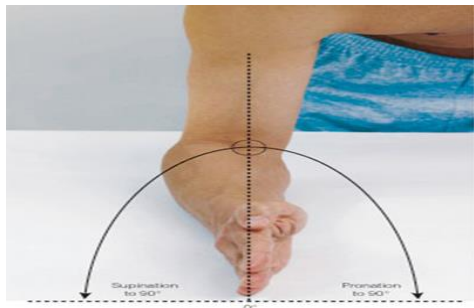
- ✓ Instruct the patient to use both arms for the following maneuvers:
 - ✚ Shrug the shoulders by flexing them forward and upward.
 - ✚ With the elbows extended, raise the arms forward and upward in an arc.
 - ✚ Return the arms to the sides. Keeping the elbows extended, move the arms backward as far as possible.
 - ✚ Ask the patient to clasp his or her hands on the back as high above the waist as possible (internal rotation).
 - ✚ Ask the patient to clasp his or her hands behind the head (external rotation)
 - ✚ With elbow extended, ask the patient to swing the arms out to the sides in arcs, touching the palms together above the head.
 - ✚ With the elbows extended, ask the patient to swing arm toward the midline of the body.

- The patient able to demonstrate ROM as his ability.

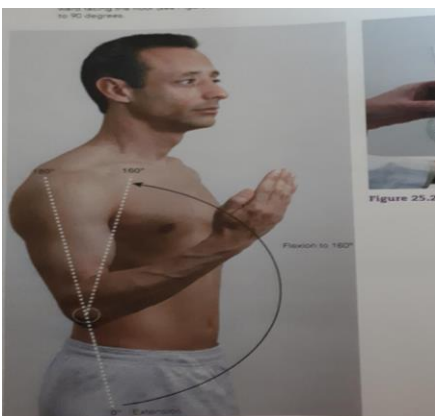


Test for range of motion of the shoulders: from left to right: A. Flexion and extension of the shoulders. B. Internal rotation of the shoulders. C. External rotation of the shoulders. D. Abduction and adduction of the shoulder.

PROCEDURE	NORMAL FINDINGS
ELBOWS	
<ol style="list-style-type: none"> 1. Support the patient's arms and inspect the lateral and medial aspects of the elbow. 	Elbow should be symmetric.
<ol style="list-style-type: none"> 2. Palpate the lateral and medial aspects of the olecranon process. <ul style="list-style-type: none"> ✓ Use your thumb and middle fingers to palpate the grooves on either side of the olecranon process. 	Joint should be free of pain, thickening, swelling or tenderness.
<ol style="list-style-type: none"> 3. Test the ROM of each elbow. <ul style="list-style-type: none"> ✓ Instruct the patient to perform the following movements: ✓ Bend the elbow by bringing the forearm forward and touching the fingers to the shoulder. ✓ Straighten the elbow. ✓ Holding the arm straight out, turn the palm upward facing the ceiling, then downward facing the floor. 	Elbow should be move without pain or discomfort



Supination and pronation of the elbow



Flexion and Extension of the elbow.

4. Test for muscle strength.

- ✓ Stabilize the patient's elbow with your nondominant hand while holding the wrist with your dominant hand.
- ✓ Instruct the patient to flex the elbow while you apply opposing resistance.
- ✓ Instruct the patient to extend the elbow against resistance.

The patient should be able to perform these maneuvers. Strength of muscles associated with flexion and extension of each elbow should be equal.

PROCEDURE

NORMAL FINDINGS

Wrists and Hands

1. Inspect the wrists and of the hands for size, shape, symmetry and color.

- Wrists and hands should be symmetric and free from swelling and deformity.
- Color should be similar to that of the rest of the body.

2. Palpate the wrists and hands for temperature, joint and texture.

- ✓ To palpate the interphalangeal joints, pinch them gently between your thumb and index finger.

- The temperature of the wrists and hands should be warm and similar to the rest of the body.
- Skin should be smooth and free of cuts.
- The skin around the interphalangeal joints may have a

rougher texture.

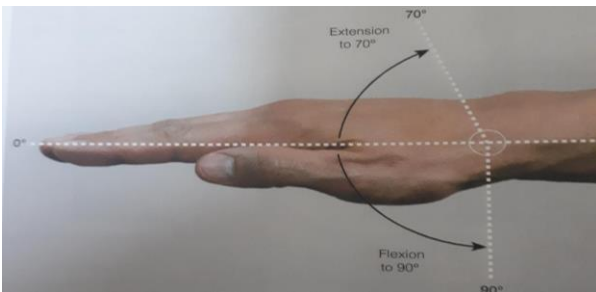
- All joints should be firm and nontender with no swelling.

3. Test the ROM of the wrist.

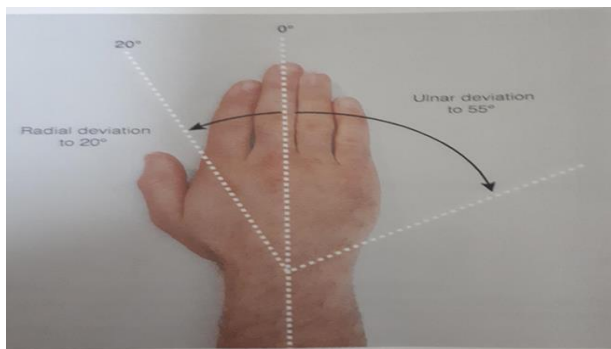
- ✓ **Instruct the patient to perform the following movements:**

- ✚ Straighten the hand (extension).
- ✚ Using the wrist as a pivot point, bring the fingers backward as far as possible, and then bend the wrist downward.
- ✚ Turn the palms down: move the hand laterally toward the 5th finger, then medially toward the thumb. Be sure the movement is from the wrist and not the elbow.
- ✚ Bend the wrists downward and press the backs of both hands together (Phalen's test). This causes flexion of the wrists to 90 degrees.
- ✚ If carpal tunnel syndrome is suspected, check for Tinel's sign.

Normally, patients experience no symptoms with this maneuver.



Hyperextension and flexion of the wrist.



Ulnar and radial deviation of the wrist.

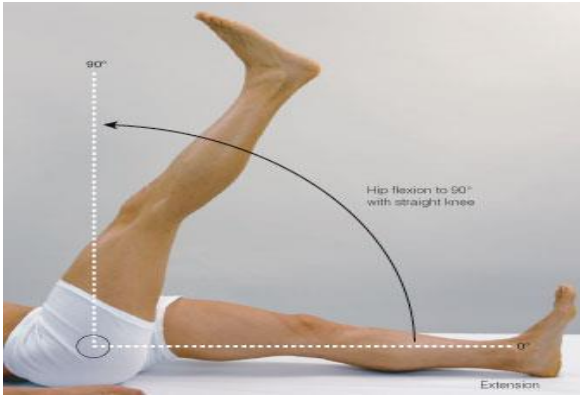
4. Test the ROM of the hands and fingers.

- ✓ **Instruct the patient to perform the following movements:**

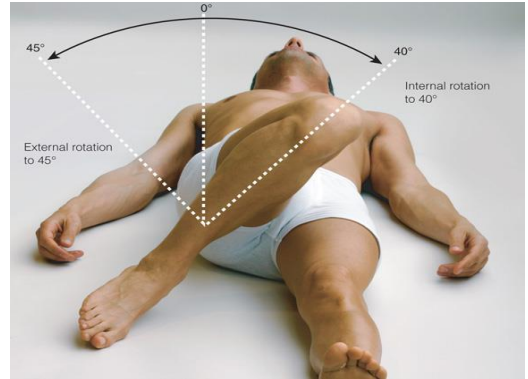
- ✚ Make a tight fist with each hand with the fingers folded into the palm and the thumb across the knuckles (thumb flexion).
- ✚ Open the fist and stretch the fingers (extension).

Normally, patients experience no symptoms with this maneuver.

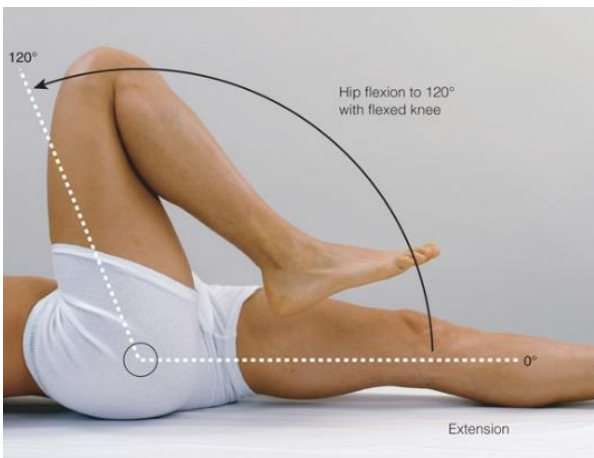
<ul style="list-style-type: none"> ✦ Point the fingers downward toward the forearm, and then back as far as possible ✦ Spread the fingers far apart, then back together. ✦ Move the thumb toward the ulnar side of the hand and then away from the hand as far as possible. ✦ Touch the thumb to the tip of each fingers and to the base of the little finger. 	
<p>5. Test muscle strength of the fingers.</p> <ul style="list-style-type: none"> ✓ Ask the patient to spread his or her fingers, and then try to force the fingers together. ✓ Ask the patient to touch his or her little finger with the thumb while you place resistance on the thumb in order to prevent the movement. 	
PROCEDURE	NORMAL FINDINGS
HIPS	
<p>1. With the patient in a supine position, inspect the position of each hip and leg.</p>	<p>The leg should be slightly apart and the toes should point toward the ceiling. The legs should be of equal length</p>
<p>2. Palpate each hip joint and the upper thighs.</p>	<p>The hip joints are firm, stable and nontender.</p>
<p>3. Test the Rom of the hips.</p> <ul style="list-style-type: none"> ✓ Instruct the patient to perform the straight leg raise (SLR) test. <ul style="list-style-type: none"> ✦ Raise one leg straight off the bed or table. The other leg should remain flat on the bed. ✦ Return the leg to its original position and repeat this maneuver with the other leg. ✦ Raise the leg with the knee flexed toward the chest as far as it will go. ✦ Return the leg to its original position. ✦ Move the foot away from the midline as the knee moves toward the midline. ✦ Move the foot ward the midline as the knee moves away from the midline. ✦ Move the leg away from the midline, then as far as possible toward the midline. ✦ Assist the patient to turn onto his or her abdomen. An alternative position could be side lying. With the patient’s knee extended, ask the patient to raise each leg backward and up as far as possible. 	<p>Normally, patients can move full ROM and experience no symptoms with this maneuver.</p>



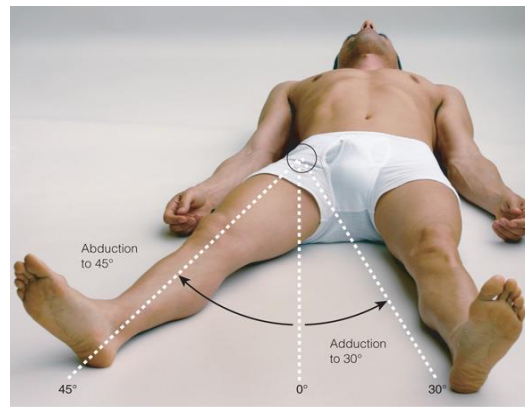
Flexion of the hip with straight knee.



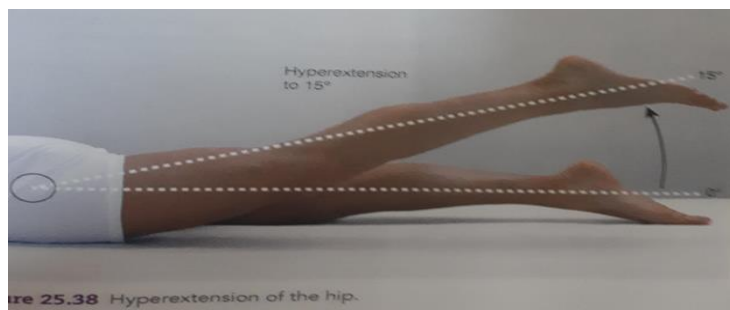
Internal and external hip rotation



Flexion of the hip with flexed knee.



Abduction and adduction of the hip.



Hyperextension of the hip

<p>4. Test for muscle strength of the hips.</p> <ul style="list-style-type: none"> ✓ Assist the patient in returning to the supine position. ✓ Press your hands on the patient's thighs and ask the patient to raise his or her hip. ✓ Place your hands outside the patient's knees and ask the patient to spread both legs against your resistance. ✓ Place your hands between the patient's knees and ask the patient to bring the legs together against your resistance. 	
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PROCEDURE	NORMAL FINDINGS
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KNEES

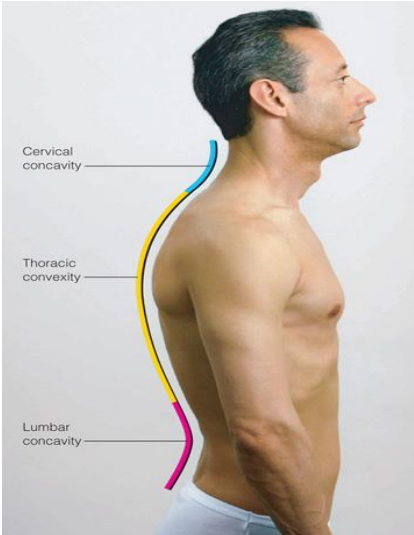
<p>1. Inspect the knees.</p> <ul style="list-style-type: none"> ✓ With the patient in the sitting position, inspect the knees. 	<p>The patella should be centrally located in each knee. The normal depressions along each side of the patella should be sharp and distinct.</p> <p>The skin color should be similar to that of the surrounding areas.</p>
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<p>2. Palpate the knee.</p> <ul style="list-style-type: none"> ✓ Using your thumb, index finger and middle finger, begin palpating approximately 10cm (3.9 in) above the patella. Palpate downward, evaluating each area. <div data-bbox="225 1083 742 1373" data-label="Image"> </div>	<p>The quadriceps muscle and surrounding soft tissue should be firm and nontender.</p>
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<p>3. Test the ROM of each knee.</p> <ul style="list-style-type: none"> ✓ Instruct the patient to bend each knee against the chest as far as possible (flexion) and then return the knee to its extended position. 	
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<p>4. Test for muscle strength.</p> <ul style="list-style-type: none"> ✓ Instruct the patient to flex each knee while you apply opposing force. ✓ Now instruct the patient to extend the knee again. 	<p>The patient should be able to perform the movement against resistance.</p> <p>The strength of the muscles in both knee should be equal.</p>
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PROCEDURE	NORMAL FINDINGS
ANKLES AND FEET	
<p>1. Inspect the ankles and feet with the patient sitting, standing and walking.</p>	<ul style="list-style-type: none"> ▪ The color of the ankles and feet should be similar to that of the rest of the body. ▪ They should be symmetric and the skin should be unbroken. ▪ The feet and toes should be in alignment with the long axis of the lower leg. ▪ No swelling should be present, and the patient's weight should fall on the middle of the foot.
<p>2. Palpate the ankles.</p> <ul style="list-style-type: none"> ✓ Grasp the heel of the foot with the fingers of both hands while palpating the anterior and lateral aspects of the ankle with your thumbs. Note the temperature of the extremity. 	<ul style="list-style-type: none"> ▪ The ankle should be firm, stable and nontender. ▪ Temperature should be similar to the rest of the patient's body.
<p>3. Palpate the length of the calcaneal (Achilles) tendon and the posterior ankle.</p>	<ul style="list-style-type: none"> ▪ Should be free of pain, tenderness and nodules.
<p>4. Test the ROM of the ankles and feet.</p> <ul style="list-style-type: none"> ✓ Instruct the patient to perform the following movements: <ul style="list-style-type: none"> ✚ Point the foot toward the nose. ✚ Point the foot toward the floor. ✚ Point the sole of the foot outward and then inward. ✚ Curl the toes downward (flexion). ✚ Spread the toes as far as possible (abduction) and then bring the toes together (adduction). 	<p>The patient able to do: Dorsiflexion. Plantar flexion. The ankle should evert and invert.</p>
<p>5. Test for muscle strength of the ankle.</p> <ul style="list-style-type: none"> ✓ Ask the patient to perform dorsiflexion and plantar flexion against your resistance. 	

PROCEDURE	NORMAL FINDINGS
<p>SPINE</p>	
<p>1. Inspect the spine.</p> <ul style="list-style-type: none"> ✓ With the patient in a standing position, move around the patient's body to check the position and alignment of the spine from all sides. ✓ Imagine a vertical line falling from the level of T1 to the gluteal cleft. 	<p>Cervical and lumbar curves are concave, and the thoracic curve is convex. Spine is straight.</p>
<ul style="list-style-type: none"> ✓ Imagine a horizontal line across the top of the scapulae. ✓ Ask patient to bend forward and assess the alignment of the vertebrae. 	<p>Scapulae are level and symmetric. Heights of the iliac crests and the gluteal folds are level.</p>
<p>2. Palpate each vertebral process with your thumb.</p>	<p>The vertebral processes should be aligned, uniform in size, firm, stable and nontender.</p>
<p>3. Palpate the muscles on both sides of the neck and back.</p>	<p>Fully developed and symmetric, firm, smooth, and nontender.</p>
<p>4. Test the ROM of the cervical spine.</p> <ul style="list-style-type: none"> ✓ Instruct the patient to perform the following movements: <ul style="list-style-type: none"> ✚ Touch the chest with the chin (flexion). ✚ Look up toward the ceiling (hyperextension). ✚ Attempt to touch each shoulder with the ear on that side, keeping the shoulder level (lateral bending or flexion). ✚ Turn the head to face each shoulder as far as possible (rotation). 	

5. Test the ROM of the thoracic and lumbar spine.

- ✓ Sit or stand behind the standing patient. Stabilize the pelvis with your hands and ask the patient to bend sideways to the right and to the left.
- ✓ Ask the patient to bend forward and touch the toes (flexion).

- ✓ Ask the patient to bend backward as far as is comfortable.
- ✓ Ask the patient to twist the shoulders to the left and to the right.

Right and left lateral flexion should reach 35 degrees.

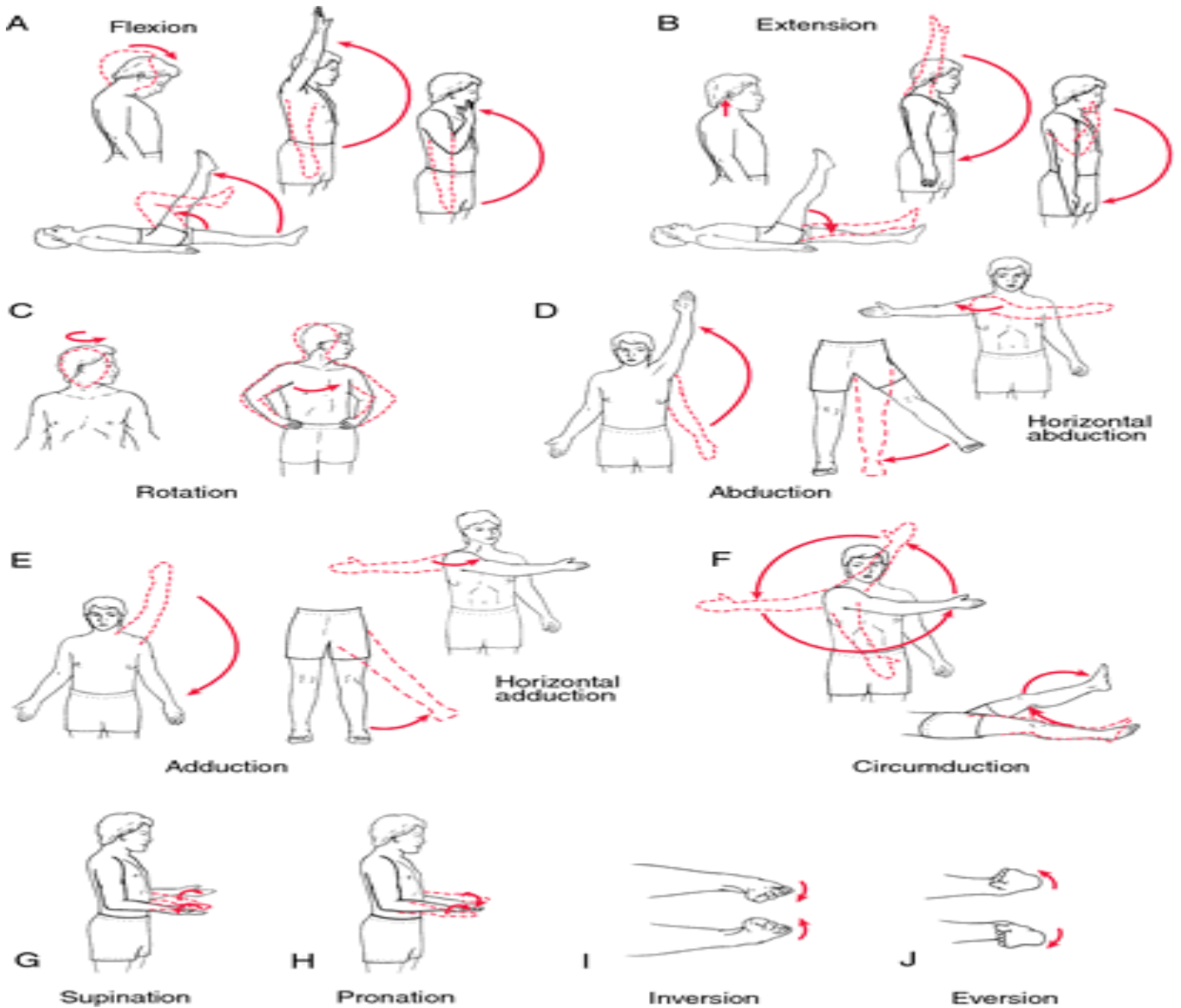
Lumbar concavity disappears with this movement and that the back assumes a single C-shaped convexity.

Hyperextension should reach 30 degrees.

Rotation should reach 30 degrees.

ATTACHMENTS:

Range of Motion Exercises



NURS 221 HEALTH ASSESSMENT (Practical)
Performance Checklist
Musculoskeletal Assessment

Name: _____ Student's Number _____

The student nurse should be able to:

Performance Criteria	Competency Level			
	Done Correctly	Done with Assistance	Not Done	Comments
Preparation				
Prepare the necessary equipment.				
Explain the procedure to the patient.				
Prepare the patient. Position the client appropriately.				
THE JOINTS				
1. Inspect the temporomandibular joint (TMJ) on both sides.				
2. Palpate the temporomandibular joint.				
THE SHOULDERS.				
1. Inspect both shoulders.				
2. Palpate the shoulders and surrounding structures.				
3. Test the range of motion of the shoulders. <ul style="list-style-type: none"> ✓ Shrug shoulders by flexing forward and upward. ✓ With elbows extended, raise the arms forward and upward in an arc. ✓ Return the arms to the sides. Keeping the elbows extended, move the arms backward as far as possible. ✓ Ask patient to clasp his or her hands on the back as high above the waist as possible (internal rotation). ✓ Ask the patient to clasp his or her hands behind the head (external rotation). 				

<ul style="list-style-type: none"> ✓ With elbows extended, ask the patient to swing the arms out to the sides in the arcs, touching the palms together above the head. ✓ With elbows extended, ask the patient to swing each arm toward the midline of the body. 				
THE ELBOWS				
1. Inspect the lateral and medial aspects of the elbow.				
2. Palpate the lateral and medial aspects of the olecranon process.				
3. Test the ROM of each elbow. Instruct the patient to perform the following movements: <ul style="list-style-type: none"> ✓ Bend the elbow by bringing the forearm forward and touching the fingers to the shoulder. ✓ Straighten the elbow. ✓ Holding the arm straight out, turn the palm upward facing the ceiling, then downward facing the floor. 				
4. Test for muscle strength.				
WRISTS AND HANDS				
1. Inspects wrists and hands for size, shape, symmetry and color.				
2. Palpate the wrists and hands for temperature, joint and texture.				
3. Test the ROM of the wrist. <ul style="list-style-type: none"> ✓ Straighten the hand (extension). ✓ Using the wrist as a pivot point, bring the fingers backward as far as possible, and then bend the wrist downward. ✓ Turn the palms down: move the hand laterally toward the 5th finger, then medially toward the thumb. Be sure the movement is from the wrist and not the elbow. ✓ Bend the wrists downward and press the backs of both hands together (Phalen's test). This 				

causes flexion of the wrists to 90 degrees.				
4. Test the ROM of the hands and fingers.				
5. Test for muscle strength of the fingers.				
HIPS				
1. Inspect the position of each hip and leg.				
2. Palpate each hip joint and the upper thighs.				
3. Test the ROM of the hips.				
4. Test for muscle strength of the hips.				
KNEES				
1. Inspect the knees.				
2. Palpate the knee.				
3. Test the ROM of each knee.				
4. Test for muscle strength.				
ANKLES AND FEET				
1. Inspect the ankles and feet with the patient sitting, standing, and walking.				
2. Palpate the ankles.				
3. Palpate the length of the calcaneal (Achilles) tendon at the posterior ankle.				
4. Test the ROM of the ankles and feet.				
5. Test muscle strength of the ankle.				
SPINE				
1. Inspect the spine.				
2. Palpate each vertebral process with your thumb.				
3. Palpate the muscles on both sides of the neck and back.				
4. Test the ROM of the cervical spine.				
5. Test the ROM of the thoracic and lumbar spine.				

Dated evaluated _____

Evaluated by _____

References Ed. (2016). rd D' Amico, D. Health & Physical Assessment in Nursing, 3 Pearson, Cloth. ISBN-10: 0133876403 • ISBN-13: 9780133876406