TLC Home Care
• OF THE TWIN CITIES •

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A Client Care Module:

PASSIVE & ACTIVE RANGE OF MOTION

Inside This Inservice:

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Passive & Active Range of Motion

EATING WITHOUT BENDING YOUR ELBOWS...

Can you imagine what life would be like if you had to:

- Eat without bending your arm at the elbow?
- Walk without bending your knees?
- Look behind you without turning your head?

There are hundreds of activities that we perform every day that would be difficult (or impossible) without range of motion.

Range of motion is defined as *the normal movements that a joint should be able to perform*. So, for example, the range of motion for the neck includes:

- Bending the head forward and backward.
- Tilting the head down toward each shoulder.
- Turning the head from side to side.

People who have full range of motion have the freedom to move in many different ways. Their joints are *flexible*—allowing them to reach the top shelf in the closet, bend down to tie their shoes or even do the splits!

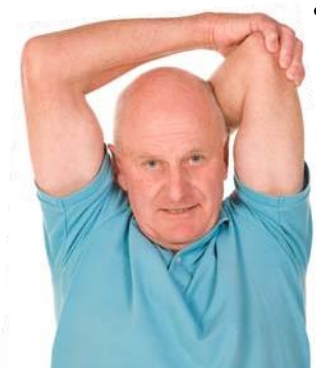
You probably work with clients who aren't so flexible. Maybe they've had a stroke or they have severe arthritis. Their joints may be stiff or even deformed.

These clients need your help to keep their joints and muscles as healthy as possible.

One way that you may be asked to help is by assisting with **R**ange **O**f **M**otion (ROM) exercises. These exercises involve moving the joints into a variety of positions and then gently stretching them.

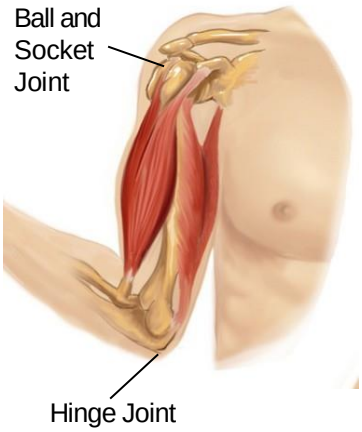
Performing ROM exercises will not only improve your client's physical condition— but can also:

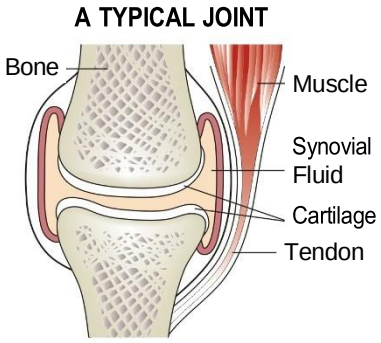
- Elevate mood.
- Increase appetite.
- Decrease pain.
- Promote healthier sleep.
- Improve circulation.
- Prevent pressure sores.



Keep reading to learn more about joints, muscles and range of motion!

OVERVIEW OF THE MUSCULOSKELETAL SYSTEM





The *musculoskeletal* system is made up of many different parts, including:

- **Muscles** provide the force and strength necessary to move the body. (It takes over 200 muscles just to take one step!) There are about 650 different muscles in the body. The largest muscle is the "gluteus maximus" (or buttock). The smallest muscle is a tiny one inside the ear.
- **Bones** are made up of minerals such as calcium. They are the hardest living tissues in the body. In fact, the human thigh bone is as strong as concrete!
- **Ligaments.** These strong elastic bands of tissue attach one bone to another and provide support to the joint.
- **Tendons.** Like ligaments, tendons are bands of tissue. However, instead of connecting bones to each other, they connect *muscles* to nearby bones. And, they are *not* elastic.
- A **Synovial Membrane** creates a thin lining around a joint and produces synovial fluid.
- **Synovial Fluid** is a clear, sticky fluid that is secreted around each joint to keep it lubricated and protected.
- **Bursa** are little sacs filled with fluid that create a *cushion* between bones and ligaments. (You've probably heard of bursitis. It is caused by an inflamed bursa, often in an *overused* joint.)
- **Cartilage.** This strong, smooth substance (sometimes called "gristle") covers the ends of bones to help reduce the friction between them. Over time, cartilage tends to wear off—*especially in big joints like the knee and the hip*—causing the bones to rub together painfully.

TYPES OF JOINTS

A ***joint*** is a place in the body where two or more bones come together to provide a flexible connection and allow movement in many different ways. Some types of joints include:

- **Hinge.** A hinge joint works like the hinge on a door. Hinge joints allow body parts to bend and straighten. The elbow, knee, ankle and fingers are all examples of hinge joints.
- **Ball & Socket.** In a ball and socket joint, one bone has a big rounded head (the ball) and the other bone has a cupped area (the socket). These joints allow body parts to twist and turn. Examples of a ball and socket joint are the shoulder, the hip and the base of the thumb.
- **Pivot.** A pivot joint allows body parts to swivel around each other—like when you turn your head to the side.

WHAT'S NEW?

Grab your favorite highlighter! As you read through this inservice, **highlight five things** you learn that you didn't know before. Share this new information with your supervisor and co-workers!

GOALS & BENEFITS OF ROM EXERCISES

GOALS OF A ROM EXERCISE PROGRAM

The goals of a range of motion exercise program may be different for each client but will fall under one of these two categories:

- **Rehabilitative:** This is when the client's goal is to improve function, increase strength and endurance, and work toward regaining or maintaining physical independence. Examples of this type of client include those who are recovering from surgery, a stroke, a fall or an accident.
- **Preventative:** A "total care" client with limited or no mobility needs a range of motion exercise program in order to prevent complications due to immobility. This includes clients who are bedbound, partially or completely paralyzed, or in a coma.
    - **Complications from immobility that can be addressed with ROM exercises include:** *Pressure sores, contractures, muscle wasting, pain, stiffness, blood clots (from lack of circulation), respiratory problems and psychological problems such as depression.*

BENEFITS OF PERFORMING ROUTINE ROM EXERCISES

One obvious benefit of range of motion exercises is that the joints remain flexible. However, there are other benefits to these gentle stretching exercises, including:

- Increases physical fitness
- Relaxation
- Body awareness
- Lubrication of tendons and ligaments
- Decreases risk of injury to joints, muscles and tendons
- Decreases muscle soreness and tension
- Reduces pain
- Improves posture and balance
- Improves circulation
- Decreases chance of developing blood clots
- Decreases risk of developing pressure sores
- Improves mood
- Promotes movement of respiratory secretions
- Decreases costs associated with treating complications related to lack of mobility (pressure sores, blood clots, pneumonia, etc.)

DEBUNK THE MYTHS!

- **If your clients says:** *"There's no point to exercising. I'm too old."*
- **Reply:** *"Exercise and strength training help you look and feel younger. They lower your risk for developing Alzheimer's, dementia, heart disease, diabetes, colon cancer, high blood pressure, and obesity!"*
- **If your client says:** *"I need to save my strength and rest."*
- **Reply:** ***"****A sedentary lifestyle is unhealthy for everyone. It can cause you to lose your independence and can lead to more illness, pain and the need for medications."*
- **If your client says:** *"I can't exercise . . . I'm afraid of falling."*
- **Reply:** *"Regular exercise builds strength, prevents loss of bone mass, improves balance, and actually reduces your risk of falling!"*
- **If your client says:** *"I'm disabled. I can't exercise sitting down."*
- **Reply:** *"Most people can lift light weights, stretch, and even get their heart rates up by doing exercises in the bed or chair to increase range of motion and improve muscle tone!"*

TYPES OF RANGE OF MOTION EXERCISES

Some clients are able to perform range of motion exercises by themselves while others need various degrees of help.

- **Passive Range of Motion (PROM):** Clients who need PROM need someone else—like a therapist, family member or you—to guide their muscles and joints through the exercises. These exercises are called ***passive*** range of motion because the client is not doing the work. Instead, he or she concentrates on being completely relaxed.
- **Active Range of Motion (AROM):** If your clients are able to perform range of motion exercises by themselves, the exercises are considered ***active***. In this case you will help by demonstrating the movement and observing the client for proper technique.

- **Active Assisted Range of Motion (AAROM):** Some clients may need your assistance or encouragement, but, basically, they are doing the work themselves. Your role is to encourage the client to do as much of the motion as possible while you are available to assist or support as needed.
- **Continuous Passive Range of Motion Machines:** These are special machines that perform passive range of motion exercises by gently moving a joint through as normal a motion as possible.

TYPES OF EXERCISE

There are four basic types of exercises that are important for people who want to age in good health.

- **Flexibility:** This includes range of motion exercises and gentle stretches.
- **Endurance:** These are activities that increase breathing and heart rate—such as walking or jogging. They improve the health of the heart, lungs, and circulatory system.
- **Strength:** Activities such as weight lifting—build muscles and strength. Studies suggest that strength exercises may also help prevent osteoporosis.
- **Balance:** Activities such as yoga improve balance and help prevent falls—a common problem in older adults.

CONNECT it now!

Apply what you know

JOINT ROTATION EXERCISES

You may be asked to oversee or assist your clients with joint rotation exercises.

- These are slow circular movements, performed in both clockwise and counterclockwise directions.
- Joint rotations are performed to help warm and loosen up the joints. The circular movement of each rotation helps lubricate a joint with synovial fluid.
- This rotating motion is usually the best way to prepare for other forms of exercise—including range of motion and walking.

TRY IT YOURSELF!

Perform joint rotation exercises on one of your co-workers. Just do one arm. Remember to exercise each joint . . . shoulder, elbow, wrist and fingers! Rotate each joint both clockwise and counter clockwise.

- ***Then let your co-worker perform the exercises on you.***
- ***How did it feel to perform the exercises. Were you afraid you were going to hurt the person? Did you feel any pain when the exercise was performed on you?***

RANGE OF MOTION (MOVEMENT) TERMS

There are a number of terms that you might hear when range of motion exercises are being discussed. They include:

- **Abduction** moves a body part *away* from the body.
- **Adduction** moves a body part *toward* the body.

Think of it like this: *The first part of a leg lift is abduction because you take the leg away from the body. The second part of a leg lift is adduction because you "add" the leg back to the rest of the body.*

- **Extension** is the *straightening* of a body part.
- **Flexion** is the *bending* of a limb or body part.

Think of it like this: *It's considered extension when you straighten (or extend) your arm to reach for a glass of water. But, it's flexion when you bend your arm to take a sip from your glass.*

- **Pronation** is turning the joint down.
- **Supination** is turning the joint up.

Think of it like this: *Turning your hand so that the palm is face down is pronation. Turning your hand so the palm is face up is supination. (The word "up" is in "supination".)*

- **Rotation** is turning the joint in a *circular* motion.
- **Internal rotation** turns the joint *inward*—toward the center of the body.
- **External rotation** turns the joint *outward*—away from the center of the body

Think of it like this: *When you swim and you turn your head to take a breath, you are externally rotating your neck. When you turn your head back into the water, you are internally rotating it.*

- **Hyperextension** is when a joint is straightened *past the normal position*. This is done to give an extra stretch to the muscles and connective tissue. Hyperextension exercises must be done very carefully and are probably best handled by a therapist.

TALK about it!

Open the Discussion

GET TO KNOW YOUR PT AND OT!

Both physical therapists (PT's) and occupational therapists (OT's) may develop exercise programs (including range of motion) for your clients.

Physical Therapists tend to work with the large muscle groups, helping their clients *move* safely through their environment.

Occupational Therapists usually focus on helping clients function in everyday life. This means helping them learn new or better ways to perform the activities necessary for home and/or work.

If you have access to a PT or OT, start up a conversation so you can learn more. Ask:

- ***What types of clients do you usually work with?***
- ***How do you decide which exercises are right for each client?***
- ***Can you show me a few basic exercises I can do with most clients?***
- ***What do you do if your client refuses to do the exercises you ordered?***
- ***What can I do to help you and the clients reach their goals safely and in a timely manner?***

PROCEDURE: ASSISTING WITH RANGE OF MOTION

Here are some general guidelines for performing ROM exercises with your client. Be sure you know YOUR workplace guidelines as they may be slightly different from this general outline:

1. Review the client's care plan so that you know which joints should be exercised and how much the client is able to help.
2. Identify the client and explain what you are about to do.
3. Wash your hands before and after performing the exercises. (And, if necessary, wear gloves.)
4. Protect your client's privacy. Keep your client as covered as possible by only exposing the body part being exercised.
5. Protect yourself from injury by paying attention to body mechanics. If possible, raise the bed to a comfortable working height. If the bed has wheels, make sure they are locked.
6. Ask the client to lie on his or her back, head on a pillow.
7. Follow the correct procedure for exercising each joint—as you have been shown by a therapist or your supervisor.
8. Leave the client in a safe, warm comfortable position and document your work.

SOME BASIC SAFETY GUIDELINES:

- Always use both hands to support a joint as you exercise it. In general, one hand should be *above* the joint and one hand *below* it. (But, don't grab the "meat" of your client's arm or leg.)
- Perform each exercise slowly and steadily—without bouncing. The goal is to make the exercises pleasant and relaxing.
- Be sure to stop if you feel resistance or tightness in the joint or if the client tells you it hurts.
- Ask clients if they are having any pain before starting exercises. Do not do any exercises if the client is in pain. Inform the nurse.
- Ask the client to tell you if any exercises cause pain while doing them. If pain occurs, STOP the exercise and tell the nurse!
- Each client has an individual level of fitness and tolerance. For some, you may be asked to repeat each exercise 10 times. For others, 2 or 3 times may be all they can handle.
- If you find joints that are red, hot and swollen, tell your supervisor. Do not exercise these joints.
- Your workplace may not allow you to perform range of motion exercises on a client's neck. If this is true at your workplace, let the therapist handle those exercises!

THE NEXT step!

Apply what you've learned!

DOCUMENTING ROM EXERCISES

After helping a client with range of motion exercises, you might need to document the following:

- Vital signs (taken before and/or after the exercises).
- Any changes you noticed in the client's skin.
- The range of motion exercises that you performed, including which joints, how many times you did each exercise and how much the client was able to help.
- If the client seemed to experience any pain.

Be sure to follow your workplace policy for documenting client care.

"I don't exercise. If God had wanted me to bend over, he would have put diamonds on the floor."

~Joan Rivers

FOCUS ON BEDBOUND CLIENTS

Clients may become bed bound from *short term immobility* related to stroke, injury, (fracture of the spine or hip) or surgery. ***Rehabilitation is usually the goal for these clients.***

Others become bed bound after *long term immobility* due to paralysis, severe stroke, certain disease processes, end stages of Alzheimer's or Parkinson's disease, multiple sclerosis, severe obesity, or they may be nearing the end of their life. ***The goal for these clients is prevention!***

DANGERS OF IMMOBILITY

Lack of activity and exercise can cause serious and permanent damage to the bed bound client. Some problems that can occur are:

- **Atrophy:** Atrophy is a decrease, or wasting of muscle mass.
- **Contractures:** Contractures occur when there is a lack of joint mobility. The muscle shortens and becomes stuck in a permanently flexed position.

It is important to note that once a contracture occurs, it usually ***cannot be reversed***. The result is a permanent deformity.

Unless there is an underlying medical reason, such as cerebral palsy or muscular dystrophy, contractures can occur only if the client is rarely or never moved.

Contractures that result from neglect are considered abuse!

ACTIVE RANGE OF MOTION

Clients who are able, can be instructed to do range of motion activities on their own. Some bed bound clients may be able to exercise their shoulders, elbows and wrists on their own but may need help with hips, knees and ankles.

PASSIVE RANGE OF MOTION

Clients who can not move very well without help need passive ROM exercises. That means you do the work! You will gently and smoothly exercise the joints and muscles as directed by the care plan.

If you don't know how to perform range of motion exercises on a bed bound client, ask your supervisor to arrange a demonstration for you.

THINK about it!

HOW IMMOBILITY EFFECTS THE BODY

Imagine this: John is a healthy, athletic young man, aged 22. An injury forces him to stay in bed for three weeks. When he's allowed to get out of bed after three weeks, John:

- Gets dizzy every time he stands up and has trouble keeping his balance.
- Has lost half of his overall muscle strength.

- Has lost bone strength at a rate *50 times* faster than normal.
- Seems confused and mentally slow at times.

It will take John about 4 to 6 weeks of working out to reverse the effects of just three weeks of bed rest!

Now, imagine what happens when frail, elderly people have to stay in bed. They'll have all the problems that John experienced—and probably more. And, the problems will develop faster *and* take longer to go away!

FOCUS ON REHAB AFTER JOINT SURGERY

RANGE OF MOTION AFTER HIP REPLACEMENT

The two main complications associated with hip replacement surgery are blood clots (from lack of mobility) and dislocations (from incorrect movements). In other words, these clients have to move—and they must know how to move correctly!

- ***Prevent Blood Clots:*** Promote *mobility and physical activity* by encouraging your client to walk and perform exercises outlined by the physical therapist.
  - ***NOTE:*** *Calf pain, chest pain or shortness of breath are all possible signs of a blood clot. Notify the nurse immediately if you notice any of these symptoms.*
  - ***TIP:*** *If you don't know what exercises the physical therapist recommends—ask for guidance or try to attend your client's next physical therapy session.*
- ***Prevent dislocation:*** Teach your client to avoid crossing the legs or bending at the hip to touch or pick things up from the floor. Keep the leg facing forward (instruct client to avoid turning knees or feet inward or outward). And, never bring the knee up higher than the hip.

RANGE OF MOTION AFTER KNEE REPLACEMENT

- Encourage your clients' ***active participation***. Most people who have this surgery do so in order to increase independence and mobility. If you do everything for your clients, you deprive them of the opportunity to practice with this new independence and mobility!
- Follow the physical therapist's (PT) guidelines for exercising the knee. Exercises may include ankle rotations, calf stretches, dangling legs over the side of bed and leg raises.
- Just like the hip replacement, ***clients should not cross legs***, this could cause a dislocation.
  - **NOTE:** *Never perform exercises with your client that you have not been shown by the physical therapist. Ask for a demonstration, a video or a handout if you are unsure how to help your client with exercises.*

GET OUT!

Thinking outside the box!

Working with clients in the home often requires coming up with creative solutions to uncommon problems.

- **THE PROBLEM:** You are caring for a 68 year old woman who is recovering from a broken hip. She also suffers from diabetes and is overweight.
- During a visit from the physical therapist, you learn that your client is supposed to walk everyday and do chair exercises to build strength.
- After the PT leaves, your client turns to you and says, “Yeah, right.” She tells you there is no way she can do those exercises.
- **WHAT YOU KNOW:** You know the exercises are important for recovery and for regaining strength. You also know it would improve her overall health.
- **GET CREATIVE**: Think of **3 creative solutions** you might suggest to get your client to do the exercises as ordered.
- **TALK ABOUT IT:** Share your ideas with your co-workers and supervisor and find out how they would solve the problem.

WHEN YOUR CLIENT REFUSES TO EXERCISE

Exercise builds strength, coordination and endurance. It can lift a depressed mood and actually give clients more energy. So why would a client refuse to exercise? Here are a few possibilities:

- **Physically unable to perform exercises:** Certain exercises may simply be physically impossible for your client. Making matters worse, some clients may not be willing to admit they can't perform a certain task.
- **Depression or hopelessness:** There is a grieving process that occurs when a client is given a serious diagnosis. Sometimes this grief can cause the client to become depressed which can interfere with their ability to make rational decisions.
- **Lack of control:** Needing to rely on others to complete life's basic tasks can leave your client feeling vulnerable and helpless. Combine that helpless feeling with doctors and nurses who don't always ask for the client's input on treatment. When clients feel they are not in control of their environment or treatment plan - they may not willingly participate.

Motivation is the key factor here! Instead of preaching, harping, nagging and threatening, try these tactics:

- **Establish a relaxed and easy relationship:** Let your clients know you are on their side and only want what's best. Say, "It's not easy making these big changes." Then, follow up with, "But, you did say you felt better when you exercised in the past."
- **Support independence and control:** Let your clients know that no one can force any treatment on them. Reassure them that they are in control. Follow up by encouraging them to explore all the options and talk to the doctor about a plan that better fits their goals and lifestyle.
- **Praise even the smallest efforts:** Having support and encouragement can have a huge impact on a client's willingness to participate in and continue treatment. Let your client know you are proud of every accomplishment.

5 KEY points

Key Points to Remember

1. Range of motion is defined as the normal movements that a joint should be able to perform.
2. Movement that occurs during daily activities helps keep joints flexible. When people become immobile or have limited mobility . . . range of motion decreases as the muscles and bones weaken and stiffen.
3. Regular exercise builds strength, prevents loss of bone mass, improves balance, and can reduce the risk of falling.
4. Some clients will be able to perform ROM exercises on their own after a quick demonstration from you. Others will need various degrees of help.
5. It's important to always encourage your clients to do as much as possible for themselves. If you do everything for them, you deprive them of the opportunity to improve, grow stronger and work toward a more independent life.

TIPS FOR HELPING YOUR CLIENTS STAY FLEXIBLE

- Movement that occurs during daily activities helps keep joints flexible. For example, Mrs. Taylor uses her shoulder, elbow, wrist and finger joints to brush her hair every day. If your clients are independent and/or active in their personal care, they'll have a better chance of staying flexible.
- A fun way to exercise the wrist and finger joints is to have your clients make shadow puppets. (Remember how to do that? Make your hands into shapes that show up as shadows on the wall.)
- Another way to exercise hand and finger joints is to have your clients squeeze a washcloth or sponge while soaking their hands in a basin of warm water. This is especially good for people who have arthritis in their hands.
- Do your clients need more motivation to complete their range of motion exercises? Try strapping a small bell to an arm or leg so that it jingles every time they complete an exercise!
- Make sure your clients' feet are supported whenever they are seated. Dangling feet are more likely to develop contractures.
- If you notice your clients exercising their joints, encourage them to exercise both sides of their body. For example, it's best to exercise *both* knees or *both* shoulders rather than just one.
- Encourage your clients to use good body mechanics every day. For example, teach them to bend at the knees rather than at the waist and to stand and sit with good posture.
- Remember that it's normal to be stiffer some days than others. Don't let your clients get discouraged if they're not able to move as freely from one day to the next.
- Remind your clients to move their joints frequently. For example, if they are watching television, tell them to get up and move around every 30 minutes.
- Help your clients balance periods of exercise with periods of rest.
- Encourage your clients to exercise with friends or family members (or to join an exercise group at your facility). It's always more fun to exercise with other people than to go it alone. You might even want to join in—to keep <u>your</u> joints flexible!

WHAT I KNOW NOW!

Now that you've read this inservice on <u>range of motion,</u> take a moment to jot down a couple of things you learned that you didn't know before.