

NURSE LED PHYSICAL INTERVENTIONS FOR RHEUMATOID ARTHRITIS

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ABSTRACT- Rheumatoid arthritis (RA) is a systemic inflammatory disease characterised by the presence of a destructive polyarthritis with a predisposition for affecting the peripheral joints. It is a disease that is chronic and disabling, and is characterized by an unpredictable course, with periods of exacerbation and remission of disease activity. Treatment of RA is multi-disciplinary involving medications, regular follow-up, physiotherapy, joint protection, self-management and psychosocial support¹

Key words; Nurse led physical interventions, Rheumatoid Arthritis

i) INTRODUCTION

People with arthritis often have stiff joints -- largely because they avoid movements that can increase pain. By not moving arthritic joints, however, the stiffness and pain only get worse. Therefore, people with arthritis often benefit from physical interventions. Physical activity (PA) is defined as any bodily movement produced by skeletal muscles that result in energy expenditure above resting (basal) level.²Physical interventions in RA mainly include Physiotherapy and Therapeutic exercises. Exercise is planned, structured and repetitive and has, as a final or intermediate objective, the improvement or maintenance of one or more dimensions of physical fitness. Nurse led physical interventions for rheumatoid arthritis includes the use of various physical agents and exercises in patients with Rheumatoid Arthritis.³

ii) NURSE LED PHYSICAL INTERVENTIONS FOR RHEUMATOID ARTHRITIS

A) Nurse led physiotherapy

Physiotherapy modalities are commonly used in the treatment of RA. These include cold/hot applications, electrical stimulation, and hydrotherapy.

Cold/Hot Applications

Cold/hot modalities are the most commonly used physical agents in arthritis treatment. It is well known that cold application is mostly used in acute stages. Hot is used in chronic stages of RA.Heat has analgesic effect, it relieve muscle spasm, and increase the elasticity of periarticular structures. Heat can be used before exercise for maximum benefit. Thermotherapy may be applied as a superficial hot-pack, infrared radiation, paraffin, fluidotherapy, or hydrotherapy. Cold application is preferred in active joints where intra-articular heat increase is undesired. Cold-pack, ice, nitrogen spray, and cryotherapy are different methods of applying cold-

therapy. Applications are recommended for 10–20 minutes once or twice a day. Caution is necessary in patients with sensory deficits and impaired vascular circulation in hands and feet because of burn risk.⁴

Electrical Stimulation

Electric stimulation is used in patients with RA to relieve pain. Transcutaneous electrical nerve stimulation (TENS) therapy is the most commonly used method.

Hydrotherapy

There has been widespread use of hydrotherapy also known as balneotherapy by patients with rheumatic diseases. Objectives of balneotherapy are to increase Range of motion (ROM), to strengthen muscles, to relieve painful muscle spasms, and to improve the patient's well-being.⁵

B) Therapeutic exercises

Every person with rheumatoid arthritis (RA) should have a regular exercise program specifically tailored to their abilities and needs. The goal of regular exercise is to achieve and maintain optimal health and physical functioning.⁶ Regular exercise can help lift mood and spirits, improve outlook on life, improve sleep, and help to reduce the effects of depression and improve mental health.⁷

Benefits of regular exercise for patients with RA

- Improved muscle strength and function
- Improved joint stability
- Increased endurance
- Improved physical function and performance
- Improved pain control
- Increased quality of life
- Improved bone health.⁸

Types of exercises for Rheumatoid Arthritis patients

There are mainly three types of exercises for Rheumatoid Arthritis patients

- Exercises for strength,
- Exercises for Endurance (aerobic),
- Exercises for Range of motion (flexibility).⁹

1) Exercises for strength

Strengthening exercises work on strengthening muscles, which in turn help move, protect and support the joints more effectively. There are two forms of exercises for building strength, isotonic and isometric exercises.¹⁰ **Isotonic exercises** are those where the muscles are working against resistance, such as that supplied by gravity, water, weights, rubber bands, or clients own body

weight. There is no change in the muscle tone. In **isometric exercise**, muscles are contracted and relaxed without movement of the joints.¹¹

For the hands and wrists

- Keep hands flat on the table, hold a piece of paper tightly between the fingers. Try to remove it with the other hand.
- Keeping right palm up on thigh or on a table, try lifting up hand while resisting the movement by keeping opposite hand on the top. Repeat with the other hand and with palm
- Repeat the exercise above, by keeping the palm down instead of up.
- In order to improve grip, gently squeeze a soft ball and hold it for 5 or 10 seconds.

These exercises also increases range of motion

For the ankles

- Sitting on a chair with feet on the floor, put one foot on top of the other foot. Try lifting the foot that is underneath while resisting movement with the foot that is on top. Repeat with other foot.

Note

- Repeat each of these strengthening exercises up to 10 times.
- Gradually increase the number of repetitions.
- Tense and hold the muscles in each position for 5 to 10 seconds.

For the back

- Lying on the back with knees bent and feet flat, tighten the stomach by pushing the small of back downwards. Hold the position, and then relax.
- Lying on back with knees bent and feet flat, bring knee up to hip and bring it to chest. Hold for 10 seconds then let it go. Repeat with the other leg and then repeat with both legs together.
- Lying on stomach with arms in front, rise up on to elbows and keeping hands flat on the floor. Slowly lower down.

For the hips and knees

- Lying on the back on the floor or a firm bed, tighten the thigh muscles and push the back of the knees downwards. Hold for 10 seconds then relax.
- Lying on the side, with bottom leg bent and top leg straight, tighten the front thigh muscle then lifts the top leg about 10 inches (or 250 mm) away from the floor. Bring it back. Repeat on the other side.

For the knees

- Lying on the floor or a firm bed with a pillow or rolled-up towel under the knees, straighten one knee, raising the heel. Hold for 10 seconds and then relax.
- Lying flat on your back with legs straight, raise the toes towards the ceiling so that they point up to the ceiling and tighten the muscles above the knees. Hold and relax. This can also be done standing up.
- Lying down or standing, place a pillow or rolled up towel between the thighs and squeeze it, tightening the buttocks.
- Sitting on a chair, fully straighten the knees, hold for 10 seconds and then slowly lower.

2) Exercise for Endurance (aerobic)

Aerobic exercise is any exercise that increases the heart rate and breathing above normal resting levels. Aerobic exercise options include brisk walking, swimming, running, bicycling, and stair climbing. Some studies also shown that aerobic exercise may reduce inflammation in some joints.¹²

Walking

Walking is an excellent and easiest form of exercise. It is always good to start with walks of 5 to 10 minutes, and gradually increase the distance. Then go for a few brisker walks each week to get full aerobic exercise. If unsteady use a stick of right height.¹³

Swimming

Swimming is a good all-round aerobic exercise particularly suited to people with arthritis as water supports the weight of the body and there is minimal strain on joints.¹³

Cycling

Cycling is a good aerobic exercise that can improve balance and muscle strength.¹³

Aqua aerobics

The advantage of doing water aerobics is that, unlike on land, there is significantly less stress on joints.¹³

3) Exercises for Range of motion

Range of movement exercises (ROM) – also known as stretching exercises, these can help ease joint pain, improve joint movement and maintain maximum joint flexibility.

These exercises can be done in any order, but generally it is a good idea to start with the extremities and work inwards.

Try ranges of movement exercises twice a day or every day. Begin with 3 or 4 repetitions in each exercise session, gradually increasing to 10 repetitions over time.¹⁴

For the hands, wrists and forearms

- Curl fingers into a fist and stretch them back out.
- Spread fingers into a wide span and then bring them together.
- Circle thumbs back and forth.
- Stretch thumb away from the palm of the hand as far as possible. Pull the thumb back to touch each fingertip of the same hand in turn
- Resting the arms on a chair, rotate forearms so that palms face the ceiling and then turn them down to face the floor. Donot move the elbow.
- Resting the wrists on the arms of a chair, bend wrists up and down towards and away from the body (This is one of the most important exercises).

Tips

- Most of these exercises can be done at the desk while working or while watching television.
- These exercises help to relieve morning stiffness.
- If the fingers are stiff, try the exercise with hands in a bowl of warm water or after warming up.

For the ankles and feet

- When lying down or sitting with feet up, bend feet towards and away from the body.
- In the same position, move the feet in circles clockwise then anticlockwise.
- Move the toes up and down and try to spread them out.
- Sitting down and keeping the outside edge of the foot on the floor, raise the inner edge (so that the sole of the foot face each other). Repeat with other foot.
- Keeping the inside edge of the foot on the floor, raise the outer edge. Repeat with other foot. Return to a flat position. Keep the knees in a fixed position throughout this exercise.

For the shoulders

- Slowly shrug the shoulders up and down.
- Roll the shoulders in both directions, forwards and backwards.
- Stretch the arms above head.
- Putting both hands behind the head, bring the elbows together and pull apart again. Avoid pulling on the head.

- Flex the elbows and put hands on the shoulders (left on left and right on right) so that the elbows are out at the side, circle the elbows up and back.
- Putting arms out behind the back with the palms facing inwards, pull shoulder blades together.

Tips

- All of these exercises can be done while standing or sitting.
- Some of these exercises can be done in the car, while at a desk at work, or while watching television.
- If at any point these exercises cause dizziness, stop.¹⁴

For the hips

- Standing and holding onto something firm, such as a handrail or a table, slowly swing leg back and forth.
- Lying on the back, bend one knee up towards the chest and then lower it. Repeat with the other leg.
- Also on back and keeping the knee straight, slide one leg out to the side and back in again. Repeat with the other leg.
- Lying on back with knees bent and feet together, allow knees to fall apart out to the sides as far as possible.

For the knees

- Sitting on a chair, bend each leg back under the seat and then straighten the leg. This is a good exercise to do when travelling or in a theatre – it can help reduce the stiffness felt when standing up after a long period of sitting.
- Sitting over the edge of the bed, swing knees back and forth to help loosen morning stiffness.
- Sitting on the floor or flat surface with legs out straight, bend knee fully up to the hip then slowly lower out straight. Repeat with the other leg.

Many of this range of movement exercises can be adapted to be done in water.¹⁴

4) Other forms of exercises for range of motion

Yoga

Yoga is a popular holistic exercise that combines exercise, breathing and relaxation to promote flexibility and strength in mind, body and spirit.¹⁵

Pilates

Like yoga, it is a holistic exercise – treating the mind as well as the body.

Tai Chi

Chi means energy. It consists of slow, fluid, gentle and circular movements aiming to improve the flow of chi. It also improves circulation, flexibility and breathing.¹⁶

These exercises are to be learned from experts in the field.

5) Exercises that can be done at home or office environment

Chair exercises

There are a variety of chair exercises. These are done by sitting straight up in your chair with feet pointed straight ahead and planted firmly on the floor.

Chair marching; Lift entire foot off the floor, if possible, by engaging hip flexors.

Chair running; Just pick up the pace a bit. While running, try to touch the floor with toes or the ball of foot.

Chair dancing; Adding a little music and favorite dance step to chair running result in chair dancing

Chair fencing; Extend right leg forward as far as possible, keeping the left foot flat on the floor with toes pointed straight forward. Extend the right arm, while keeping left arm against the side of the body with fist drawn up next to left shoulder. Then switch sides. This activity will help to work knees, ankles, shoulders, elbows, possibly wrists, as well as the core muscles.¹⁷

Exercises at the table

A table is the perfect place to get exercise for hands and wrists, the joints of which are often affected by RA.

Finger curls. Start with the forearm resting on the surface of the table, palm facing up and fingers extended. Make fingers curl up into a gentle fist, then gradually uncurl. Repeat this movement slowly and gently 10 times for each hand. (Finger curls can be done for both hands at the same time or with each hand separately.)

Finger walking. Start with hands on the surface of the table, palms facing down with fingers stretched out. Keeping thumbs in place and in contact with the table, walk the fingers of each hand (horizontally) on the surface of the table toward the thumb, and then back again where they started. Repeat this 10 times. This activity will help to protect against ulnar shift.

Fingertip touches. Holding both hands out in front; palms up and fingers outstretched (keep elbows at the side of the body or lean them comfortably on the surface of the table). Bring the tip of the thumb in contact with each fingertip. Then reach with thumb to touch the base of each finger. Repeat this pattern 5 times.

Wrist circles and lifts. Start by holding both hands out in front; palms down with fingers formed in a loose fist (keep elbows at the side of the body or lean them comfortably on the surface of the table). Starting at the wrist, make a slow clockwise circle movement with hand. Repeat this movement 10 times. Then do the same circle movement, but this time counter-clockwise. Repeat this 10 times. Follow this by gently lifting wrist towards the body, then dropping it back away from the body. Repeat this 10 times. Repeat this exercise, starting with palms held upward.

Thumb and finger lifts. Start by laying the forearms and hands (fingers extended) on the surface of the table. Press fingers into the table. Then, lift the thumbs off the surface of the table, hold briefly, and relax. Then lift both index fingers, hold briefly, relax. Continue lifting with each finger while trying to keep the other fingers/thumb pressed into the table. Repeat this exercise 2 times.

Tug of war. Start by gripping an envelope or card between the thumb and index finger. With the other hand try to pull the envelope or card free for a count of 3 and resist the pull with the thumb and index finger. Repeat this tug of war using the thumb and each of the other fingers on the hand to resist the pull of the other hand. Repeat with the other hand.¹⁸

Elbow exercise

- Keep the fingertips of each hand on its corresponding shoulder. Slowly extend the arms in front of the body at about shoulder height with palms facing upward. Reverse the motion to return the fingertips to each shoulder.
- As with the exercise above, start with fingertips touching its corresponding shoulder, elbows to each side. Gently extend the arms above the head and reach to the ceiling. Reverse the motion to return the fingertips to each shoulder.

Shoulder stretches

- Let the arms hang loosely by the sides. Slowly raise each shoulder, one at a time or together, toward each corresponding ear. Allow shoulders to fall gently back to the starting position. Repeat this motion 5 times.
- Place the hands, palms facing out, at the base of the back near hips. Gently slide the hands up back as comfortably as one can go, either both hands together or each hand separately. Then, slide the hand(s) down the back again. Repeat this motion 5 times.
- Hold the hands above head, arms extended and palms pressed together. Lower both arms gradually until the elbows touch the torso and palms face upward. Reverse the motion until the palms are once again pressed together above the head.

Exercises for the bed

- Lying flat on the back in the center of the bed or flat surface with the arms down by the sides, palms facing down. Slowly extend and lift the arms up and over the torso to rest above the head while breathing in. Slowly reverse the motion as exhaling to starting position. Repeat this 5 times.
Substitute a different exercise for this one which doesn't put strain on the neck. Patients with RA in their cervical spine must be extra cautious not to injure themselves.
- Lying flat on the back in the bed. Gently lift the right leg and reach behind the thigh, or around the knee. Gently bring the thigh to chest and lift head towards the knee while exhaling. Lower the head back to the bed and straighten the leg to the beginning position. Repeat series with the left leg. Continue this set of motions for 3 rounds.¹⁸

6) Breathing Exercises

Rhythmic breathing. Inhale slowly, and then exhale slowly. Count slowly to five while inhaling, and then count slowly to five while exhaling. During exhalation, pay attention to how body naturally relaxes. Recognizing this change will help to relax better.

Deep breathing. Imagine a spot just below the navel. Breathe into that spot, filling the abdomen with air. Let the air fill from the abdomen up, then let it out, like deflating a balloon. With every long, slow exhalation, you feel more relaxed.

Visualized breathing. Find a comfortable place and close the eyes, and combine slowed breathing with imagination. Picture relaxation entering the body and tension leaving the body. Breathe deeply, but in a natural rhythm. Visualize breath coming into nostrils, going into lungs, and expanding the chest and abdomen. Then, visualize breath going out the same way. Continue breathing.¹⁹

Progressive muscle relaxation. Switch your thoughts to yourself and your breathing. Take a few deep breaths, exhaling slowly. Mentally scan your body. Notice areas that feel tense or cramped. Quickly loosen up these areas. Let go of as much tension as you can. Rotate your head in a smooth, circular motion once or twice. (Stop any movements that cause pain) Roll your shoulders forward and backward several times. Let all of your muscles completely relax. Recall a pleasant thought for a few seconds. Take another deep breath and exhale slowly.

7) Things to keep in mind while starting exercise program.

The best time to do exercise is

- When you have the least pain and stiffness.
- Your medication is having its greatest effect.
- You are not tired.

Start slowly, stay within your ability

- With any type of exercise or activity, it is important not to overdo it, especially at the start
- If you feel faint, dizzy, nauseous, or have tightness in your chest, stop and call your doctor immediately

Get some supervision

- You should start your exercise program under the supervision of a trained health professional, such as a physical therapist
- By working with an experienced professional, you'll be able to develop the right kind of program and get valuable advice about how to get the most out of exercise without causing damage to your joints
- Your nurse can help you set goals, such as targets for heart rate and breathing, and monitor you so you don't overdo it

Warm up before exercise

- You should warm up for at least 10 minutes before you start your endurance or strength exercise
- Be careful during your warm up not to over stretch: work carefully and gradually

Make sure to cool down after exercise

- Make sure to cool down gradually
- For instance, after running or cycling or brisk walking, you might walk slowly until your heart rate has returned to the normal range.¹⁴

III) Summary

The goal of nurse led physical interventions is to get a person back to the point where he or she can perform normal, everyday activities without difficulty. Preserving good range of motion is key to maintain the ability to perform daily activities. Therefore, increasing the range of motion of a joint is the primary focus of physical interventions. Building strength in the involved muscles surrounding the joint

also is extremely important, since stronger muscles can better stabilize a weakened joint. Along with these be aware of body position, control weight to avoid strain on joints, conserve energy by allowing rest periods, and avoid activity in a joint that is painful and stiff.

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