

Stretching with a Helper for People with MS

AN ILLUSTRATED MANUAL

STAYING WELL



National
Multiple Sclerosis
Society

Stretching with a Helper for People with MS

AN ILLUSTRATED MANUAL

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Special thanks to Susan Kushner, MS, PT; Cindy Hugos, MS, PT; Cindy Gackle, OTR/L, MSCS; and Brian Hutchinson, PT, MSCS; for their valuable assistance.

Drawings by iMageWorx. Some of these drawings originally appeared in *Multiple Sclerosis: A Self-Care Guide to Wellness*, published in 1998 by Paralyzed Veterans of America, Inc. They are reproduced here with the kind permission of PVA, Inc. Additional images produced by Nicola Fester, 2011.

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General Introduction

Everyone with MS, regardless of his or her degree of ability or disability, needs regular physical activity. Lack of exercise has serious health consequences, ranging from joint contractures, to heart disease to constipation. Just as important, good exercise programs not only prevent problems, they promote a sense of achievement and well-being. Even if you cannot move parts of your body without some help, you can and should enjoy the benefits of exercise.

This booklet focuses on showing your helper how to move and gently stretch muscles and other soft tissues, such as tendons. For the purposes of this book, the familiar term “stretching” is used, though most of these exercises are, technically, range of motion activities for flexibility. In addition to the four categories of exercise defined below, everyone also needs relaxation. Exercise can be broken down into five categories, one of which is relaxation. All are important to people with MS.

Flexibility

Flexibility is stretching the muscle and tendon to its full length and moving the joint through its full range. These activities decrease muscle tightness and prevent loss of full range of motion which may occur with decreased activity, weakness, or spasticity. Hold stretches for 30–40 seconds, as tolerated.

With decreased flexibility, contractures may occur that can be painful and significantly limit range of motion to a joint.

Strengthening

Strengthening is increasing the force or power of the muscle. Strength can be increased by lifting a limb up against gravity, lifting weights, or by working against resistance such as weights, machines, rubber tubing, or even water. Your arms may benefit from strengthening exercises even if your ability to move your legs is reduced.

Cardiovascular Fitness

Endurance is improving heart, lung and overall muscle function. Aerobic exercise makes all muscles work harder, building endurance and reducing the risk of heart disease. Improving cardiovascular fitness helps to increase the amount of exercise and activity one can do, thereby helping to manage weight and blood lipid (i.e., cholesterol and triglyceride) levels. While brisk walking may be out of the question, swimming, cycling and adaptive sports may be possible. You may want to discuss your aerobic options with a knowledgeable physical therapist.

General guidelines for aerobic activity are for 15–20 minutes a day, 4–5 times a week. If that is not possible, any amount of activity is better than none. It can also be broken up into several shorter bouts throughout the day.

Balance & Coordination

Balance and coordination is improving quality, safety and efficiency of movement. Specific arm, leg and trunk exercises can be incorporated to improve the quality of movement and allow for less energy expenditure to occur. Activities for balance and coordination can be done on land or in the water. Yoga and tai chi are beneficial when done properly.

Relaxation

Relaxation is taking action to reduce physical and mental stress and tension. Relaxation can simply mean stopping and taking a deep breath or sitting while listening to soft music or doing yoga. Structured relaxation techniques can reduce fatigue from an exercise session or help manage a stressful day. The National MS Society's booklet "Taming Stress in MS" contains directions for several kinds of structured relaxation exercises.

Summary of Special Terms

Your physician or physical therapist may use the following technical terms:

Range of Motion

Range of motion is the extent of movement that is possible within a joint.

Passive Range of Motion

Passive range of motion is the extent of motion possible in a joint when moved with assistance (i.e., by a therapist, helper, or a piece of machinery).

Active Range of Motion

Active range of motion is the extent of movement that is possible in a joint when the person moves without assistance.

Active Assisted Range of Motion

The patient is doing part of the work and is being assisted by the helper.

Spasticity

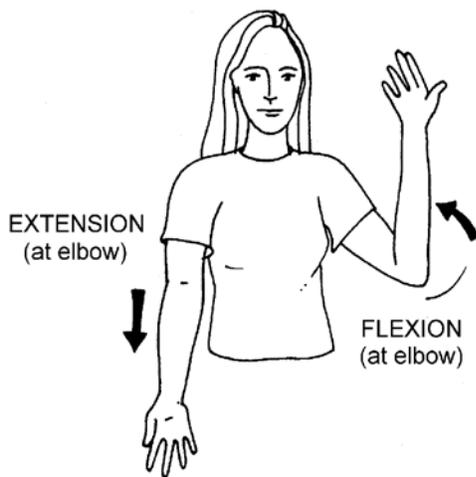
Spasticity is tightening or stiffness of the muscle due to increased muscle tone and exaggerated response to muscle stretch.

Joint Contractures

Joint contractures are a fixed limitation in the range of motion that impairs the function of a joint.

Disuse Muscle Atrophy

Disuse muscle atrophy is the decrease in size — and eventually in strength — of muscle fibers that have not been contracted for a period of time.



Basic Exercise Movements

See descriptions below.

Flexion

Flexion is the act of moving a joint so that your limb or trunk is bending.

Extension

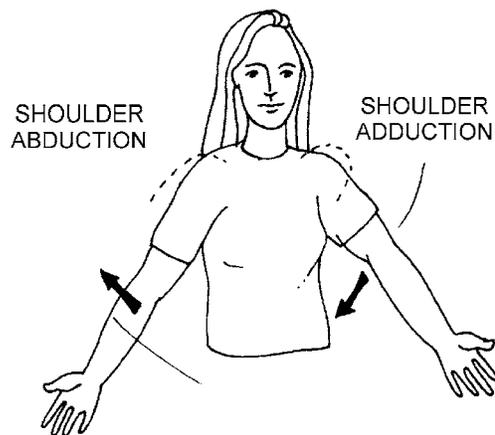
Extension is the act of moving a joint so that your limb or trunk is straightening out.

Abduction

Abduction is the act of moving a joint so that your limb is moving away from the middle of the body.

Adduction

Adduction is the act of moving a joint so that your limb is moving toward the body.



Positioning For Managing Spasticity

Spasticity

Spasticity can be defined as a tightening or stiffness of the muscle due to increased muscle tone, and is often made worse when muscles are quickly stretched or moved. It can be one of the most common and frustrating symptoms of MS and can interfere with normal functioning. It can also greatly increase fatigue. However, exercise, properly done, is vital in managing spasticity.

The following tips may prove helpful:

- Avoid positions that make your spasticity worse.
 - Daily stretching of muscles to their full length will help to manage the tightness of spasticity, and allow for optimal movement.
 - Keep in mind that moving a spastic muscle to a new position may result in an increase in spasticity. If this happens, allow a few minutes for the muscles to relax.
- When exercising, try to keep your head straight (not tilted to one side).
 - If you are using a spasticity-reducing drug, time exercise to begin approximately one hour after taking the medication.
 - Your antispastic drug dose should be checked frequently, as spasticity changes.
 - Sudden changes in spasticity may occur in the presence of infections, skin sores, or even tight shoes or clothing.

Positions Seen with Spasticity & Ways to Decrease Spasticity

Keep in mind that you want to refrain from active exercises that accentuate a position associated with any spasticity you experience. For example, if you have extensor spasticity, refrain from doing the active exercises that straighten the hip and knee to the extent that it sets off the spasticity.

It is important to remember that the positions in this section are designed to decrease your spasticity. If they do not, consult your physician or physical therapist.

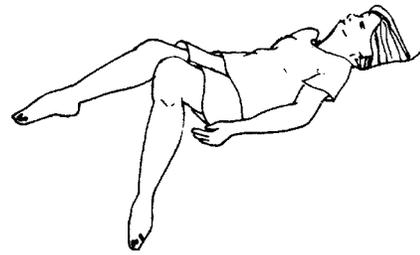
Spasticity Positions

These are positions that the body tends to move towards when spasticity is dominant.

Flexor spasticity

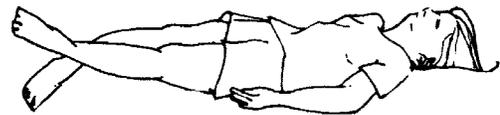
Common in people with multiple sclerosis. The hips and knees are maintained in a bent position with hips turned inward.

Less frequently, hips and knees are turned outward. Knees are bent in a flexed position and feet tend to point in a downward direction.



Extensor spasticity

The hips and knees are maintained in a straightened position, and the legs are very close together or crossed over, with the feet in a downward position.

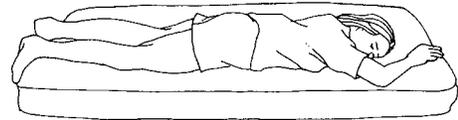


Positions for Managing Spasticity

Positioning your body to reduce spasticity

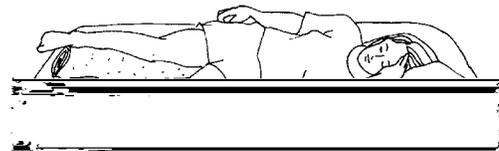
Lying on your stomach (prone position)

This is an excellent position to try if you have spastic hip and knee flexors. Remember, give yourself a few minutes to allow your hip muscles to relax in this new position. If able, let toes and foot hang over edge of bed to allow a neutral ankle position. As your hips relax, so will your calf muscles.



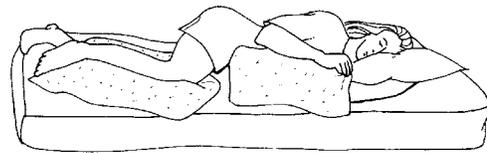
Lying face up or in 3/4 position

If your knees tend to roll inward, try placing a rolled pillow or towel between your knees. Again, allow time for your legs to accommodate and relax in the new position for a few minutes. Pillows under the knees only reinforce the knee flexion and should be avoided.



Lying on your side (side-lying)

This is an excellent position if your hips and knees are prone to extensor spasticity. On your side, bend the knee of your top leg and let the knee of your bottom leg be straight. You can also put a rolled pillow or towel between your legs.

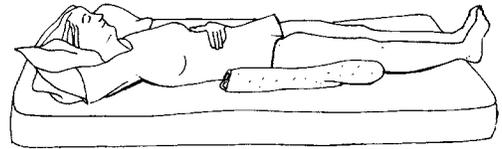


Positions for Managing Spasticity

Positioning your body to reduce spasticity

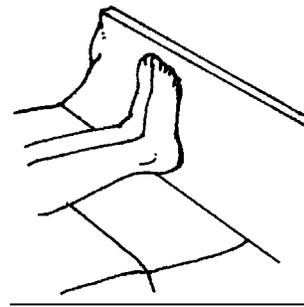
Correcting hip turn out

If your hips and knees assume a “frog like” position due to spasticity, try lying on your back. Place the end of a pillow, or a large beach towel, under your upper thigh (hip to knee). Roll the towel or pillow so that your hips and knees align themselves. Knees should be pointed toward the ceiling.



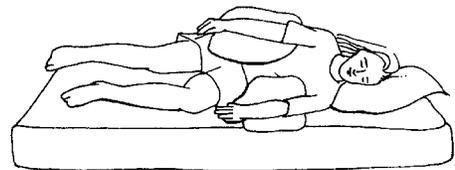
Correcting foot turn down

If your ankles and feet turn in a downward position, you want to try to position your ankles and feet in a neutral position — that is, with your toes pointed up toward the ceiling. The easiest way to achieve this is to place your feet against a padded footboard. If your bed does not have a footboard, bracing or other orthotic measures may be needed. There are good resting ankle splints on the market. Talk to your physician or physical therapist.



Correcting bent elbows

If your elbows tend to bend, and your arms remain close to your body, try lying down with your arms out alongside your body, on pillows, and your hands positioned palms down.



Some Precautions, Both Obvious & Not So Obvious

1. Wear clothing that doesn't restrict movement.
2. Be sure the room temperature is comfortably cool. Consider a fan, air conditioner, or open window. If you are especially heat-sensitive, consider a cool shower or a 10-minute soak in a cool tub before exercising. (Start with lukewarm water, slowly adding cooler water until the water feels like a cool swimming pool.) Or experiment with cooling headbands, vests, or neck wraps.
3. Don't let your helper force any part of the body. If pain occurs, stop. Check with your health care professional before trying that move again. If discomfort occurs, cut back to a motion that's easier.
4. Progress as tolerated while always listening to your body. And remember, your body will vary from day to day. The idea is to increase the range of pain-free motion. Therefore, it's important to distinguish between pain and the feeling of stretch. Stretch is okay; pain is not.
5. Remember to breathe evenly and relax the face throughout each movement. There's a tendency to grimace or hold the breath during an unusual movement.
6. Avoid overexertion. Include rest periods, and sip cool water to prevent overheating or dehydration.
7. Experiment with times of day. Some people find early morning best; some find it helpful to break exercise sessions into two parts: one in the morning, and the other in the afternoon or evening.
8. If you experience spasticity, incorporate the tips on page 4 for increased success with your stretching program.

Some Added Safety Instructions for the Helper

1. If the person you are helping is in an electric or hospital bed, raise the bed to a comfortable level so that you are not putting strain on your back.
2. If the person is in a regular bed, sit or kneel on the bed so that you are not putting strain on your back.
3. Don't try to "fight" a spasm or tight muscle. This could result in injury to both of you. Move in slow, easy motions to allow the tight muscles to relax and spasms to reduce.
4. Go slowly. All movements should be done evenly, allowing the muscles time to respond to the stretch by relaxing. Moving quickly can increase spasticity or stiffness. Hold each stretch for 30–40 seconds at the comfortable far end of range for the person you are helping. It may help to count out loud or use a timer. Then gently return to the starting position.
5. Look for range of motion to increase over time. The idea is to increase the range of pain-free motion. Try to hold each stretch for 30–40 seconds. Then gently return to the starting position.
6. Remember to keep communication open and to listen to the person you are helping.

Shoulder Exercises

The following shoulder exercises may also be done sitting in a chair, scooter or wheelchair with back support.

Shoulder Flexion — this is similar to raising your hand in class

Instructions to Helper

Starting position: Person lying on back, arm at side, palm down. Place one hand under shoulder to stabilize it. Position the thumb of that hand on top of shoulder, to monitor the joint movement. With other hand, hold the wrist.



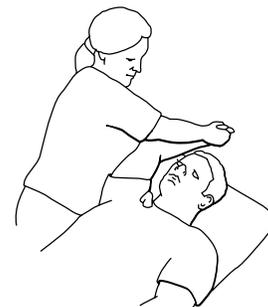
Step 1: Keep the elbow straight and lift arm until hand points to the ceiling, with palm toward the center of the body.



Step 2: Continue to move the arm back until it rests on the bed next to the person's head, or until you meet resistance. The arm may be bent at the elbow if the headboard of the bed will not permit the arm to be carried all the way back.

Hold 30–40 seconds.

Return to the starting position, rest, then repeat 2–3 times.



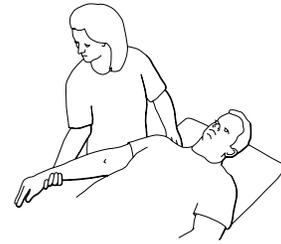
Shoulder Exercises

The following shoulder exercises may also be done sitting in a chair, scooter or wheelchair with back support.

Shoulder Abduction — this is similar to a one-armed jumping jack

Instructions to Helper

Starting position: Person lying on back, arm at side. Place one hand under shoulder to stabilize it. Position thumb of that hand on top of shoulder, to monitor the joint movement. With other hand, hold the wrist.



Step 1: Keep the elbow straight and move arm out, away from the body.



Step 2: Rotate the arm so that the person's palm faces up.



Step 3: Continue moving the arm back until it rests on the bed next to the person's head, or until you meet resistance. The arm may be bent at the elbow if the headboard of the bed will not permit the arm to be carried all the way back.

Hold for 30-40 seconds.

Return to the starting position, rest, then repeat the exercise 2–3 times.



Shoulder Exercises

The following shoulder exercises may also be done sitting in a chair, scooter or wheelchair with back support.

Shoulder Rotation

Instructions to Helper

Starting position: Person lying on back. Arm is positioned out to the side even with shoulder. Place one hand under shoulder with thumb of that hand on top of shoulder. With other hand, hold wrist, making sure the elbow rests on the bed and forearm points up.



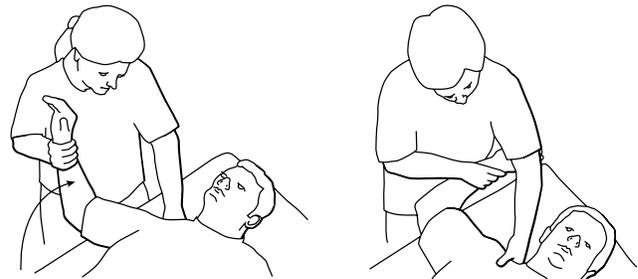
Step 1: With your hand on the wrist, keep person's elbow bent and slowly move forearm down, palm down, until it rests on the bed, or you meet resistance. (Note: The hand may not touch the bed in one or both directions.)

Hold for 30–40 seconds, then return to the starting position.



Step 2: With your hand still on the wrist, slowly move the forearm back, palm up, until it rests on the bed, or you meet resistance.

Hold for 30–40 seconds. Return to the starting position, rest, then repeat the exercise 2–3 times.



Shoulder Exercises

The following shoulder exercises may also be done sitting in a chair, scooter or wheelchair with back support.

Be sure to read the caution below before doing this exercise.

Shoulder Extension

Instructions to Helper

Starting position: Person lies on one side or sits in a chair.

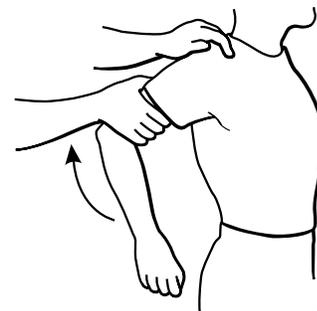
Step 1: Stabilize shoulder with one hand and cup arm just above the elbow with the other.



Step 2: Move arm straight back, allowing forearm to dangle.

Hold for 30-40 seconds, then move arm back to starting position. Repeat 2–3 times.

Repeat exercise with other arm.



CAUTION: SHOULDER EXTENSION

Please go very gently with this stretch and ask the person you are helping to tell you if she or he feels any discomfort. Stop if this happens.

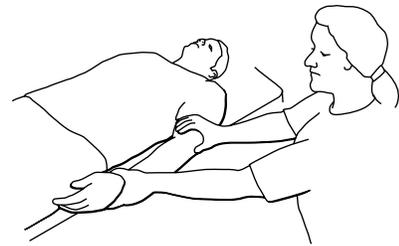
Elbow & Forearm Exercises

The following elbow and forearm exercises may also be done sitting in a chair, scooter or wheelchair with back support.

Elbow Flexion and Extension

Instructions to Helper

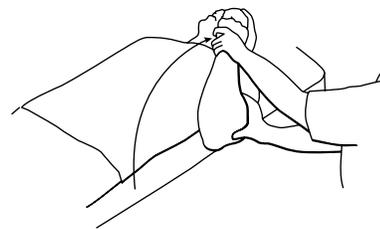
Starting position: Person lies on back, arms at sides, palms turned toward body. Hold wrist and hand with one hand and stabilize the elbow with your other hand.



Step 1: Gently raise hand as close to the shoulder as possible, keeping elbow and upper arm on the bed. Return to starting position.

Repeat 2–3 times.

Repeat exercise with other arm.



Elbow & Forearm Exercises

The following elbow and forearm exercises may also be done sitting in a chair, scooter or wheelchair with back support.

Forearm Rotation

Instructions to Helper

Starting position: Person lies on back, arms at sides, palms turned toward body. Hold wrist and hand with one hand and stabilize the elbow with your other hand.



Step 1: Gently raise hand as close to the shoulder as possible, keeping elbow and upper arm on the bed. Return to starting position.

Repeat 2–3 times.

Repeat exercise with other arm.



Hand & Wrist Exercises

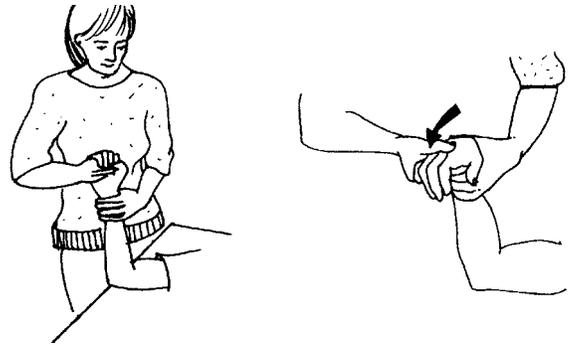
The following hand and wrist exercises may also be done sitting in a chair, scooter or wheelchair with back support.

Wrist Range of Motion

Instructions to Helper

Starting position: Person lying on back, arm out from shoulder, elbow bent, hand pointing toward the ceiling. Hold person's hand with one hand and hold wrist with your other hand.

Step 1: Bend wrist forward as far as possible or comfortable without pain.



Step 2: Bend wrist back as far as possible or comfortable without pain.

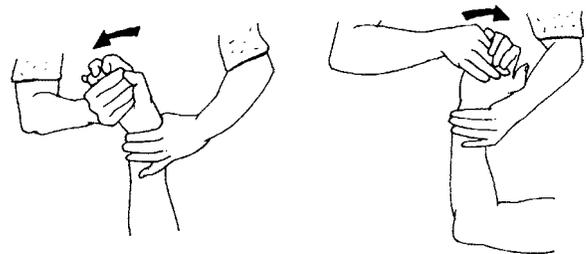


Step 3: Return to starting position.

Step 4: Bend wrist sideways as far as possible or comfortable without pain in the direction of the little finger.

Step 5: Bend wrist sideways as far as possible or comfortable without pain in the direction of the thumb.

Return to starting position, rest, then repeat the exercise 2–3 times.



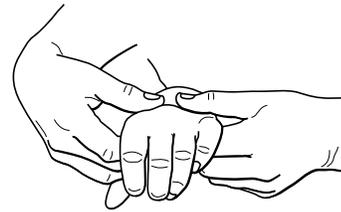
Hand & Wrist Exercises

The following hand and wrist exercises may also be done sitting in a chair, scooter or wheelchair with back support.

Hand Mobilizations

Instructions to Helper

Hold the hand by the knuckles and gently push up with one hand and down with the other. This will glide the hand bones past each other to stretch the palm.



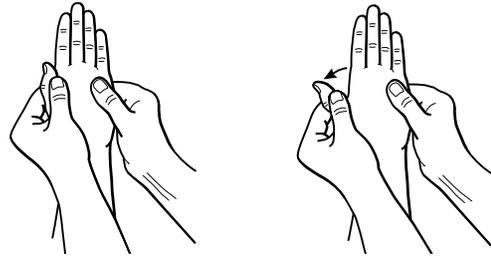
Repeat 2–3 times.

Thumb Range of Motion

Instructions to Helper

Holding the hand and thumb, move thumb in and out to side.

Repeat 2–3 times.

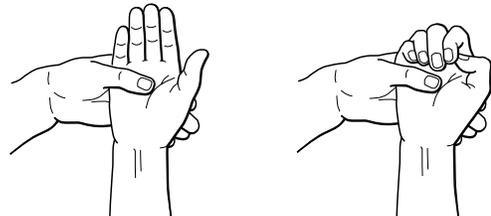


Finger Flexion and Extension

Instructions to Helper

Hold the hand to stabilize the wrist. Fold fingers forward; try to get all the joints to bend. Then return to the straight position.

Repeat 2–3 times.



Trunk & Hip Exercises

Hip Abduction

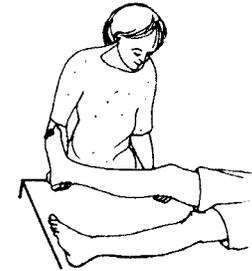
Safety tip for Helper

Be careful not to bend too far over the person. Adjust the bed height if able, or place your knee on the bed to lend yourself more support.

Starting position: Person lying on back. Place one hand under the knee, and cup the heel with your other hand.



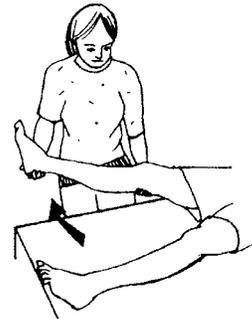
Step 1: Keep the knee straight and lift the leg so that the heel is about 4 inches above the bed.



Step 2: Bring the leg outward toward you. Take a small step back; don't try to lean back.

Hold 30–40 seconds.

Return to the starting position, rest, then repeat the exercise 2–3 times.

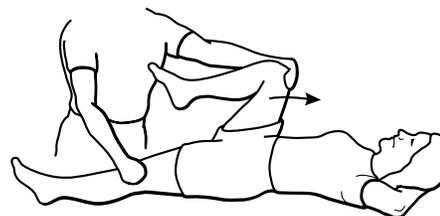


Trunk & Hip Exercises

Single Knee to Chest

Instructions to Helper

Starting position: Person lying on back. Helper bends hip and knee toward chest. If uncomfortable, the straight leg may be bent at knee with foot on floor. Helper should stabilize straight leg to get hip extension stretch by placing one hand on knee.



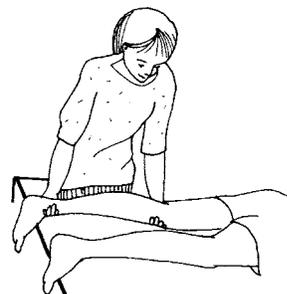
Hold for 30–40 seconds.

Repeat 2–3 times per leg.

Hip Extension

Instructions to Helper

Starting position: Person lying on stomach, leg straight. Slide your hand under the leg just above the knee, and place your other hand under the lower leg just above the ankle.



Step 1: Keep the knee straight and lift the leg straight up so that the knee is about 4–6 inches above the mattress.

Hold for 30–40 seconds.

Return to the starting position, rest, then repeat the exercise 2–3 times per leg.



Trunk & Hip Exercises

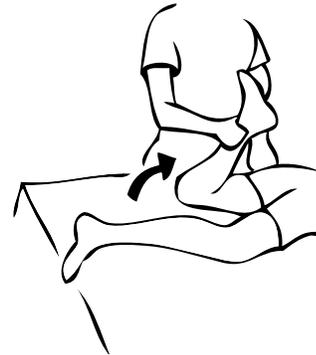
Knee Flexion

Instructions to Helper

Starting position: Person lying on stomach, legs straight. Helper slowly lifts at ankle to bend knee and stretch the front of the thigh. Move slowly and hold when gentle resistance is felt. Don't roll the leg in or out as this may strain the knee joint.

Hold for 30–40 seconds.

Repeat 2–3 times per leg.



Hamstring Stretch

Instructions to Helper

Starting position: Person on back. Helper slowly raises one leg — keeping both knees straight. If uncomfortable, the straight leg may be bent at knee with foot on floor. (This may be a very small stretch if person's thigh/hamstrings are tight.)

Hold 30–40 seconds.

Repeat 2–3 times per leg.



SUGGESTION

If you are able to be transferred safely up and down from the floor, working on a mat is another alternative to the bed.

Trunk & Hip Exercises

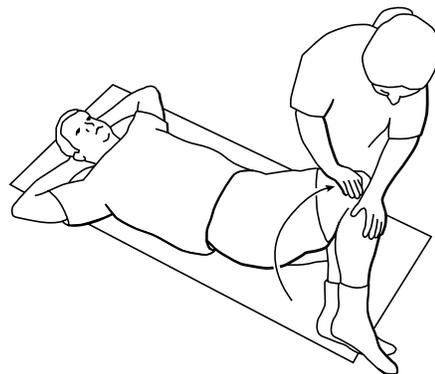
Low Trunk Rotation

Instructions to Helper

Starting position: Person on back, looking up. Arms may be as shown or lying at the sides with knees up and feet flat on bed. Helper slowly rolls knees to one side, back up to starting position, then to the other side. The goal is to stretch the trunk and hips, not to touch the knees to the bed.

Hold for 30–40 seconds.

Repeat 2–3 times per leg.



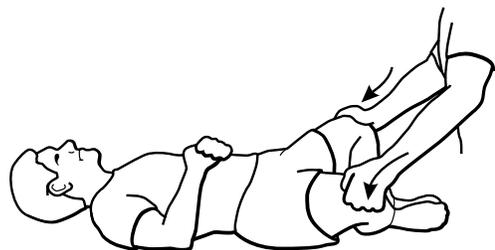
Hip Adductor Stretch

Instructions to Helper

Starting position: Person on back with knees bent up and feet flat. Helper slowly spreads knees apart. Let gravity do the work if possible; otherwise, gently apply pressure to inside of knees. Move hands to outside of knees and slowly return to the starting position.

Hold for 30–40 seconds.

Repeat 2–3 times.



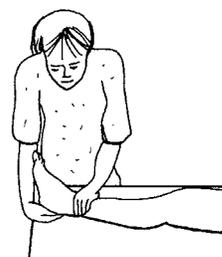
Ankle & Foot Exercises

Be sure to read the caution below before doing this exercise.

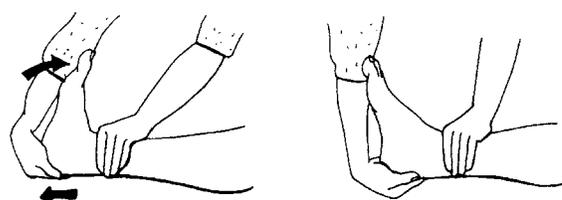
Ankle Dorsi Flexion and Plantar Flexion

Instructions to Helper

Starting position: Person lying on back. Cup the heel with one hand, your forearm resting against the ball of the foot. Steady the ankle by placing your other hand on the leg just above the ankle.

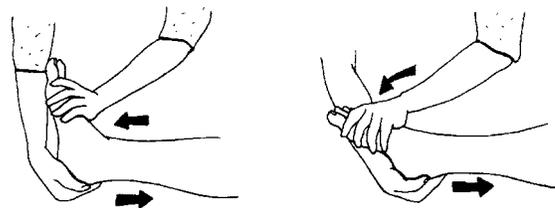


Step 1: Press your arm against the ball of the foot (not the toes), bringing the foot up. At the same time, pull the heel of the foot forward.



Step 2: Relax your arm and hand and return to the starting position.

Steps 3 and 4: Slide your hand up to the top of the foot (just below the toes), pressing the forefoot down. At the same time, push against the heel with the cupping hand. Hold 5–10 seconds being careful not to cause a spasm.



Return to the starting position, rest, then repeat the exercise 2–3 times.

CAUTION: ANKLE DORSI FLEXION AND PLANTAR FLEXION

While you are doing ankle stretches, it is important to keep the knee slightly flexed to prevent hyperextension. This can be done by placing a rolled towel or a small pillow under the knee of the leg you're stretching. Stretch slowly to prevent muscle spasm, and if you feel one starting, stop the exercise.

Ankle & Foot Exercises

Ankle Eversion and Inversion

Instructions to Helper

Starting position: Person lying on back. Grasp person's forefoot with one hand, palm of your hand against ball of foot. Hold the ankle firmly with your other hand.



Step 1: Turn the foot in so that the sole faces toward the other foot.



Step 2: Return to the starting position.



Step 3: Turn the foot out so that the sole faces away from the other foot.

Hold 5–10 seconds being careful not to cause a spasm.

Return to the starting position, rest, then repeat the exercise 2–3 times.



Ankle & Foot Exercises

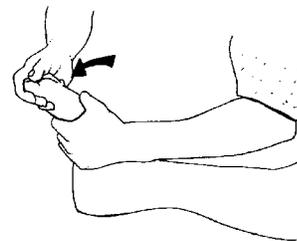
Toe Flexion and Extension

Instructions to Helper

Starting position: Person lying on back. Grasp the toes with one hand. Grasp the foot firmly with your other hand.



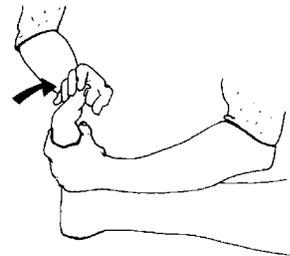
Step 1: Curl the toes down.



Step 2: Straighten the toes and gently stretch them back.

Hold 5–10 seconds being careful not to cause a spasm.

Return to the starting position, rest, then repeat the exercise 2–3 times.



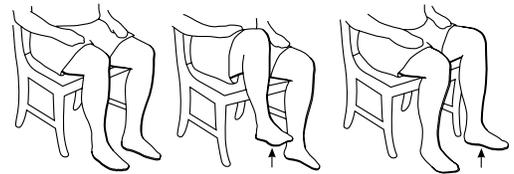
Sitting Coordination & Balance Exercises

Be sure to read the caution below before doing coordination and balance exercises.

Exercise 1

Maintain your balance keeping your arms on your lap. If sible, lift up one leg, then the other, as shown. If not, slide one heel forward and back on the floor.

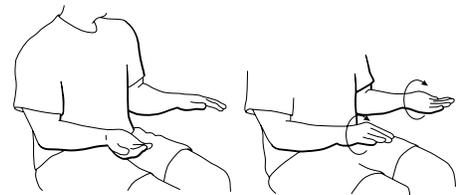
Repeat sequence 5 times.



Exercise 2

With your arms at your side and elbows bent to 90 degrees, turn right hand so that your palm faces up. Turn your left hand so that your palm faces down. Then simultaneously switch so that right-hand palm is now down and left-hand palm is up.

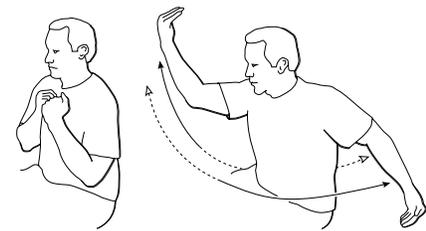
Repeat in rapid succession. Repeat sequence 5 times.



Exercise 3

Start with both hands in the middle of your chest. Bring one arm up and forward while simultaneously stretching your other arm back. Then return to original position and repeat in opposite direction.

Repeat sequence 5 times.



CAUTION: SITTING COORDINATION & BALANCE EXERCISES

These exercises are appropriate for people who can sit safely without support on the edge of a bed or chair. If you have any balance problems or "unsteadiness", DO NOT do these exercises without first consulting your physician/physical therapist.

The National Multiple Sclerosis Society is proud to be a source of information about multiple sclerosis. Our comments are based on professional advice, published experience and expert opinion, but do not represent individual therapeutic recommendations or prescriptions. For specific information and advice, consult your physician.

Early and ongoing treatment with an FDA-approved therapy can make a difference for people with multiple sclerosis. Learn about your options by talking to your health care professional and contacting the National MS Society at nationalMSSociety.org or 1-800-344-4867 (1-800-FIGHT-MS).

The Society publishes many other pamphlets and articles about various aspects of MS. Visit nationalMSSociety.org/brochures to download them, or call an MS Navigator® at 1-800-344-4867 to have copies mailed to you.

Some of our popular pamphlets include:

- Exercise as Part of Everyday Life
- Taming Stress in Multiple Sclerosis
- Managing MS Through Rehabilitation
- Living with MS

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