

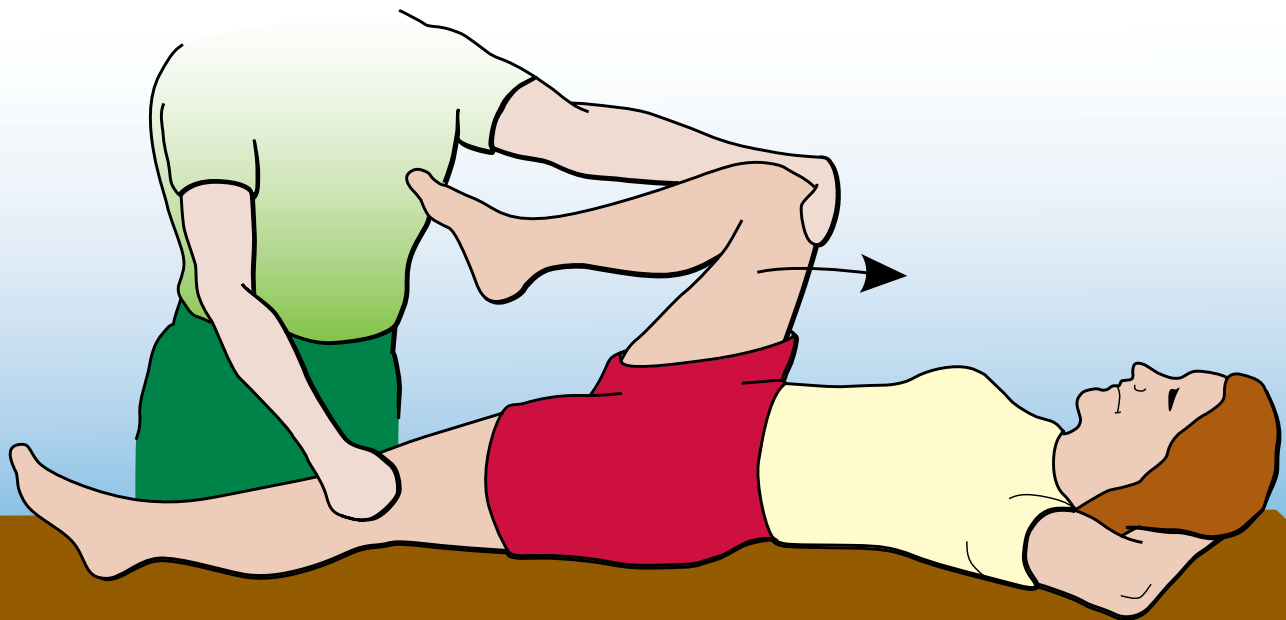


NATIONAL  
MULTIPLE SCLEROSIS  
SOCIETY

Staying Well

# Stretching with a Helper for People with MS

*An Illustrated Manual*



*Beth E. Gibson, PT, has a certificate in physical therapy from the Mayo School of Health Related Science in Rochester, Minnesota. She has been working with people with MS for 11 years.*

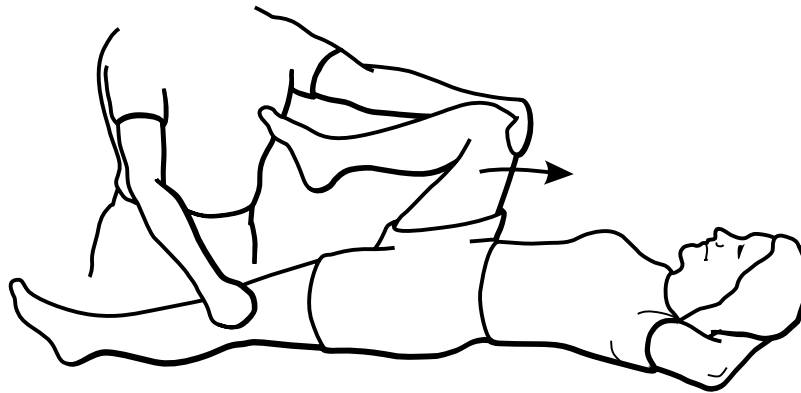
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*Drawings by iMageWorx. Some of these drawings originally appeared in **Multiple Sclerosis: A Self-Care Guide to Wellness**, published in 1998 by Paralyzed Veterans of America, Inc. They are reproduced here with the kind permission of PVA, Inc.*

*Reviewed by members of the Client Education Committee of the National Multiple Sclerosis Society's Medical Advisory Board.*

# **Stretching with a Helper for People with MS**

**An Illustrated Manual**



*by Beth E. Gibson, PT*



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# GENERAL INTRODUCTION

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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 constipation to increasing the risk of pressure sores (or decubitus ulcers). Just as important as prevention, good exercise programs 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 your muscles and tendons. For the purposes of this book, the familiar term “stretching” is used although most of these exercises are, technically, range of motion activities. Exercise can be broken down into five categories, one of which is **relaxation**.

**Flexibility**—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. Unaddressed, such loss can lead to joint contractures that painfully “freeze” joints into a single position.

**Strengthening**—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 walls, weights, or rubber tubing. Your arms may benefit from strengthening exercises even if your ability to move your legs is reduced.

**Endurance**—improving heart and lung function. Aerobic exercise makes the heart and lungs work harder and builds endurance. 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.

**Balance and coordination**—improving quality and safety of movement. Rhythmic exercises and specific activities, usually with directions from a physical therapist, can improve balance and coordination.

## GENERAL INTRODUCTION (CONTINUED)

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**Relaxation**—reducing physical and mental tension. Relaxation can just mean stopping and taking a deep breath or sitting while listening to soft music. 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.

## SOME PRECAUTIONS, BOTH OBVIOUS AND NOT SO OBVIOUS

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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 10-minute soak in a cool tub before exercising. (Start with lukewarm water, slowly adding cooler water until the tub feels like a cool swimming pool.)
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, ask to go back to a motion that’s easier.
4. It’s important to distinguish between pain and the feeling of stretch. Talk to your helper. 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.

## **SOME ADDED SAFETY INSTRUCTIONS FOR THE HELPER**

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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.
5. Offer more challenge. The idea is to increase the range of pain-free motion. Try to hold each stretch for 60 seconds. Then gently return to the starting position. Remember to keep communication open and to listen to the person you are helping.



# SHOULDER EXERCISES

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## Exercise 1

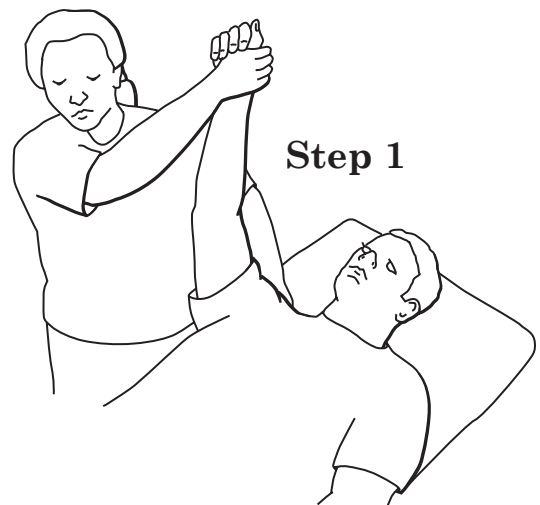
### Instructions to Helper

**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 for 60 seconds.

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



# SHOULDER EXERCISES

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## Exercise 2



**Start position**

### **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**

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



**Step 2**

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



**Step 3**

**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.

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

# SHOULDER EXERCISES

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## Exercise 3

### Instructions to Helper

**Starting position:** Person lying on back. 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.

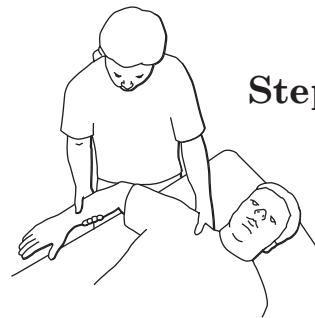
**Step 2:** Return to the starting position.

**Step 3:** With your hand still on the wrist, slowly move the forearm back, palm up, until it rests on the bed, or you meet resistance.

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



**Start position**



**Step 1**



**Step 2**



**Step 3**

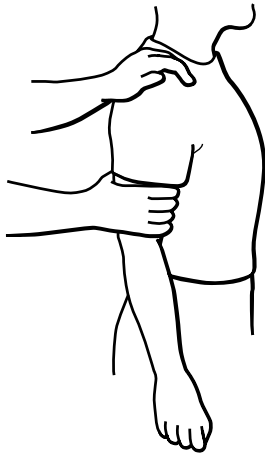
# SHOULDER EXERCISES

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## Exercise 4

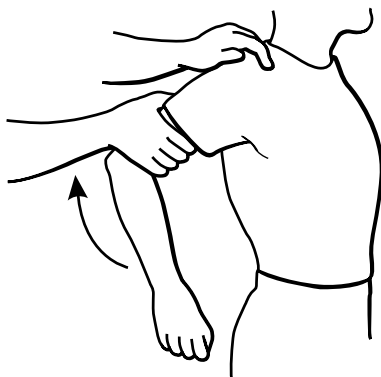
### Instructions to Helper

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



Step 1

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



Step 2

**Step 2:** Move arm straight back, allowing forearm to dangle. Hold for a deep breath and move arm back to starting position. Repeat 2–3 times.

Repeat exercise with other arm.

## CAUTION

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 AND FOREARM EXERCISES

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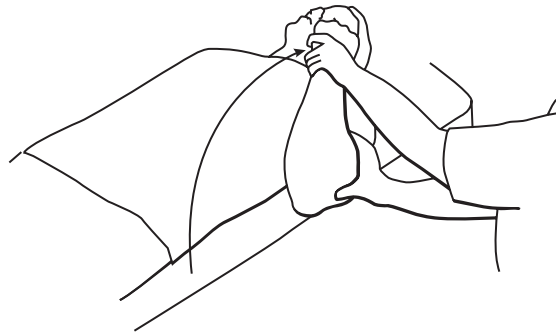
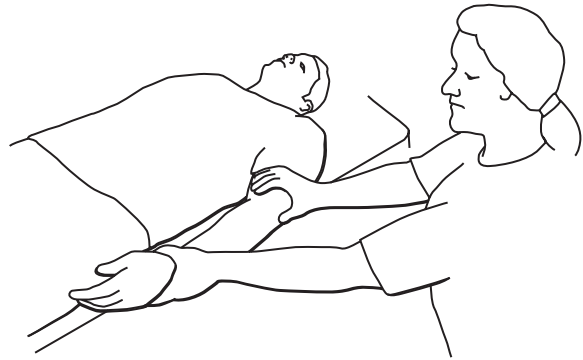
## Exercise 1

### 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.

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 AND FOREARM EXERCISES

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## Exercise 2

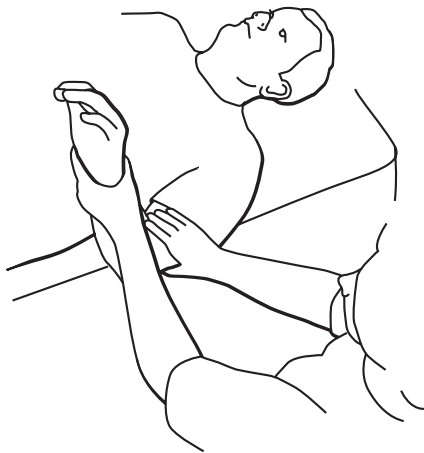
### Instructions to Helper

**Starting position:** Person lies on back, arms at sides, palms turned toward body.

**Step 1:** Raise forearm, holding wrist and hand with one hand. Stabilize the elbow with your other hand.

**Step 2:** Gently rotate hand, palm toward person's face, palm away from person's face. Repeat 2–3 times.

Repeat exercise with other arm.



**Step 1**



**Step 2**

# HAND AND WRIST EXERCISES

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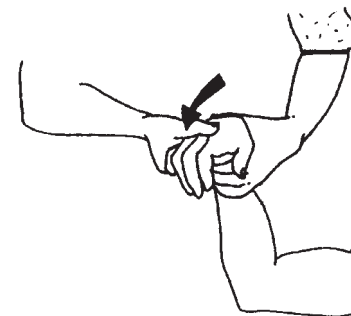
## Exercise 1

### 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.



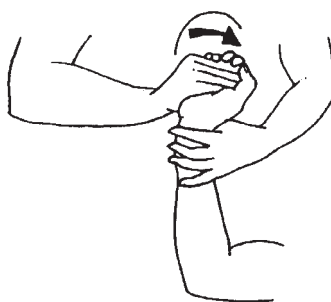
**Start position**



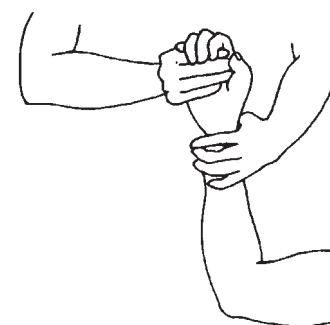
**Step 1**

**Step 1:** Bend wrist forward as far as possible.

**Step 2:** Bend wrist back as far as possible.



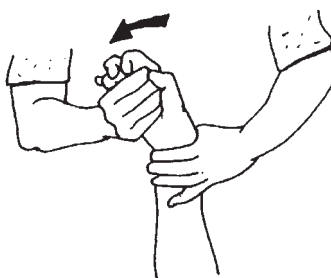
**Step 2**



**Step 3**

**Step 3:** Return to starting position.

**Step 4:** Bend wrist sideways as far as possible in the direction of the little finger.



**Step 4**



**Step 5**

**Step 5:** Bend wrist sideways as far as possible in the direction of the thumb.

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

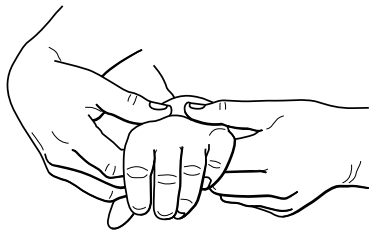
# HAND AND WRIST EXERCISES

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## Exercise 2

### Instructions to Helper

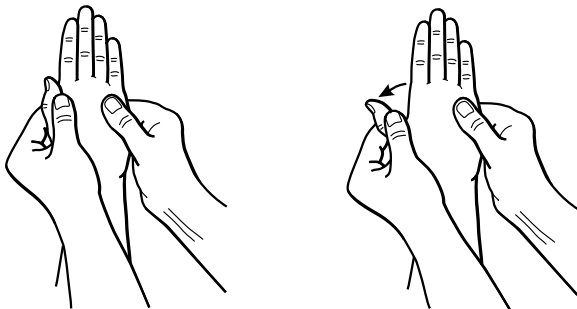
Hold the hand by the knuckles and gently push up with one hand and down with the other. This will glide the hand bones past each other to stretch the palm.



## Exercise 3

### Instructions to Helper

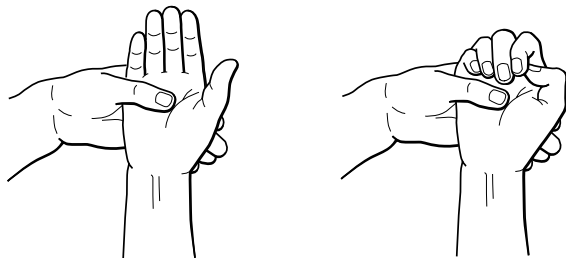
Holding the hand and thumb, move thumb in and out to side.



## Exercise 4

### 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.





# TRUNK AND HIP EXERCISES

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## Exercise 1

### **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.

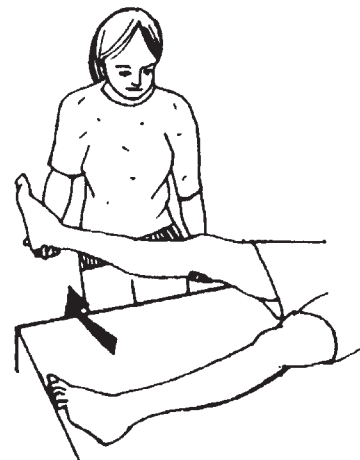
Return to the starting position, rest, then repeat the exercise (2–3 times).



Start position



Step 1

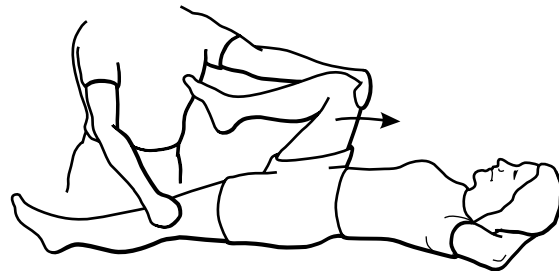


Step 2

## Exercise 2

### **Instructions to Helper**

Person lying on back. Helper bends hip and knee toward chest. Helper should stabilize straight leg to get hip extension stretch by placing one hand on knee.



# TRUNK AND HIP EXERCISES

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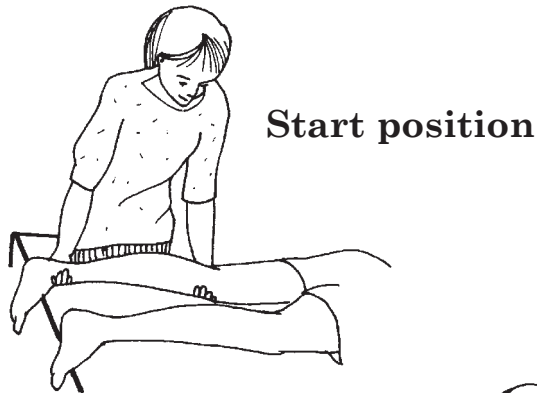
## Exercise 3

### 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.

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



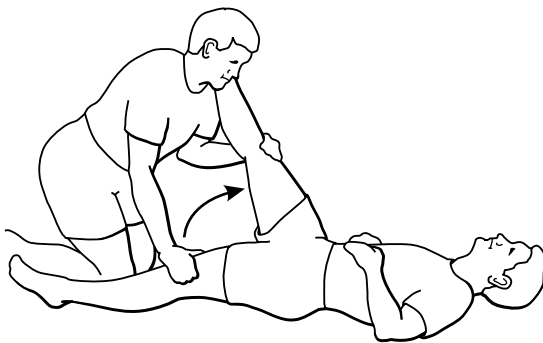
Step 1



## Exercise 4

### Instructions to Helper

Person on back. Helper slowly raises one leg—keeping both knees straight. (This may be a very small stretch if person's thigh/hamstrings are tight.)



## SUGGESTION

Working together on a floor mat is another way to maintain safety for both people.

# TRUNK AND HIP EXERCISES

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## Exercise 5

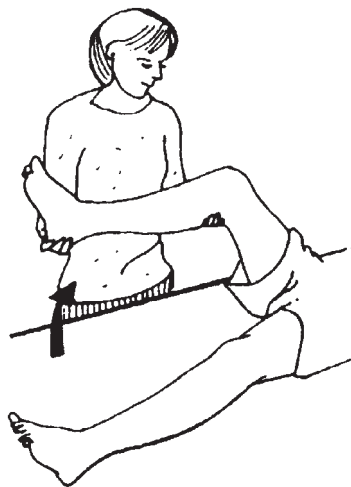
### Instructions to Helper

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

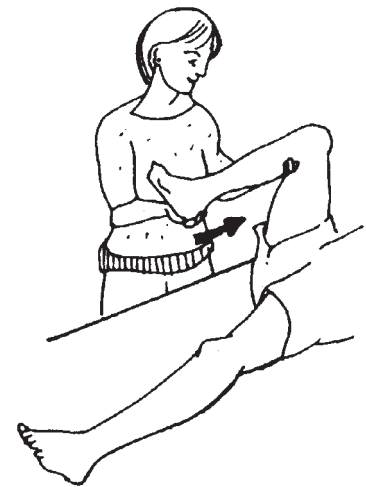


**Start position**

**Step 1:** Lift the leg, bending it at the knee and the hip.



**Step 1**

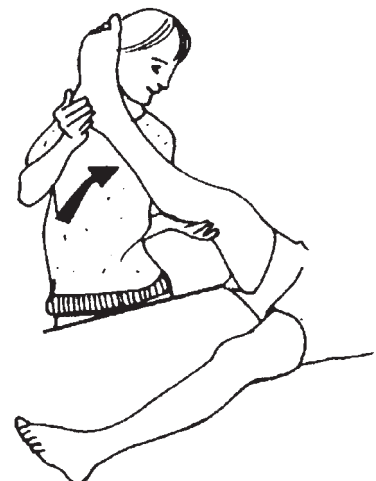


**Step 2**

**Step 2:** Continue to move the leg, bringing the knee toward the chest so that the knee and the hip are bent as far as they will go without pain. Other leg should remain flat on bed.



**Step 3**



**Step 4**

**Steps 3 and 4:** Lower the leg, then straighten the knee by lifting the foot upward.

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

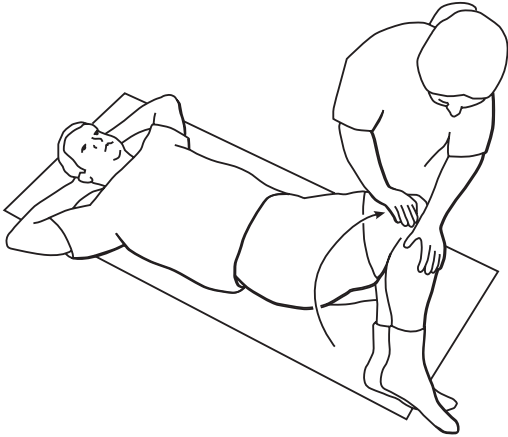
# TRUNK AND HIP EXERCISES

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## Exercise 6

### **Instructions to Helper**

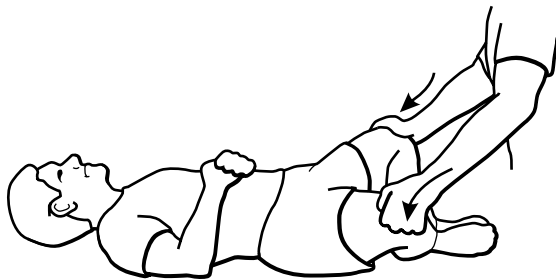
Person on back, looking up.  
Arms may be as shown or lying at the sides. Helper bends knees up, one at a time, and places feet flat on bed. Helper slowly rolls knees to one side, back up to starting position, then to the other side. The goal is to stretch the trunk and hips, not to touch the knees to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



## Exercise 7

### **Instructions to Helper**

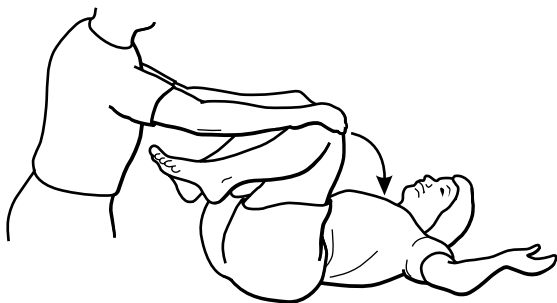
Person on back with knees bent and feet flat. Helper slowly spreads knees apart. Let gravity do the work if possible; otherwise, gently apply pressure to inside of knees. Move hands to outside of knees and slowly return to the starting position.



## Exercise 8

### **Instructions to Helper**

Person lying on back with knees bent. Helper brings one knee up and then the other, and presses both knees to chest. After stretch, Helper sets one foot down and then the other—to prevent back strain in either person.



# ANKLE AND FOOT EXERCISES

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## Exercise 1

### 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.

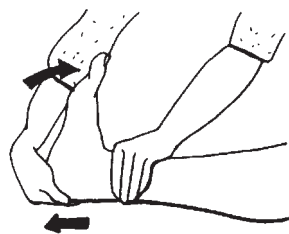
**Step 1:** Press your arm against the ball of the foot (not the toes), bringing the foot up. At the same time, pull the heel of the foot forward.

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

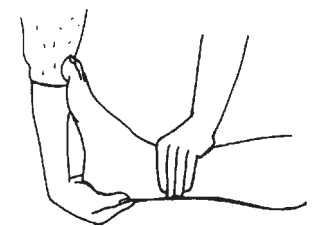
**Steps 3 and 4:** Slide your hand up to the top of the foot (just below the toes), pressing the forefoot down. At the same time, push against the heel with the cupping hand. Return to the starting position, rest, then repeat the exercise (2–3 times).



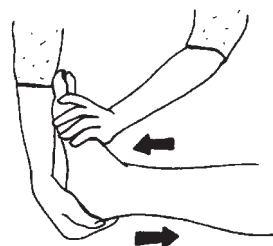
Start position



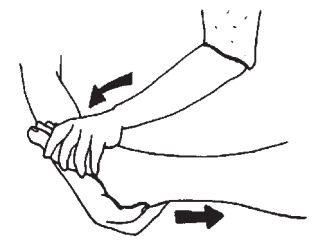
Step 1



Step 2



Step 3



Step 4

## CAUTION

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 AND FOOT EXERCISES

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## Exercise 2

### 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.



**Start position**



**Step 1**

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



**Step 2**

**Step 2:** Return to the starting position.



**Step 3**

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

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

# ANKLE AND FOOT EXERCISES

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## Exercise 3

### Instructions to Helper

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

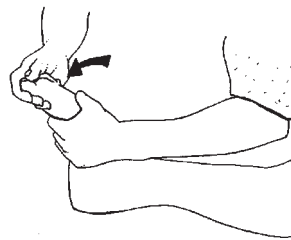
**Step 1:** Curl the toes down.

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

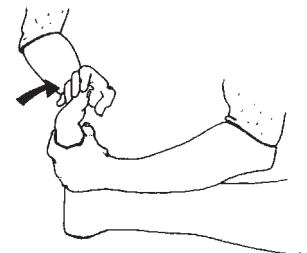
Return to the starting position, rest, then repeat the exercise 2–3 times.



**Start position**



**Step 1**



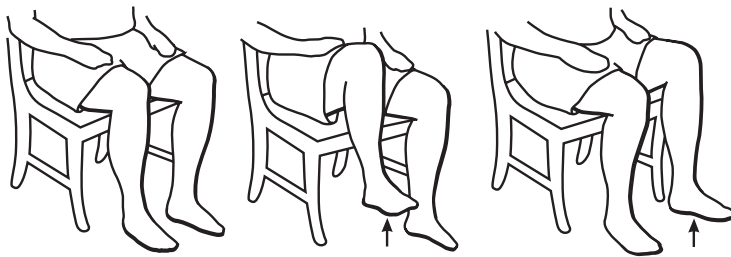
**Step 2**

# SITTING COORDINATION AND BALANCE

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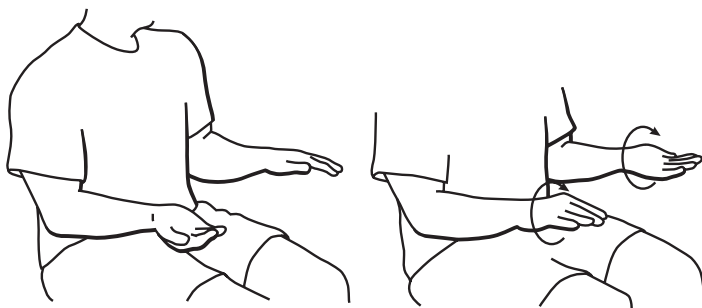
These exercises are appropriate for people who can sit safely without support on the edge of a bed or chair.

## Exercise 1



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

## 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.

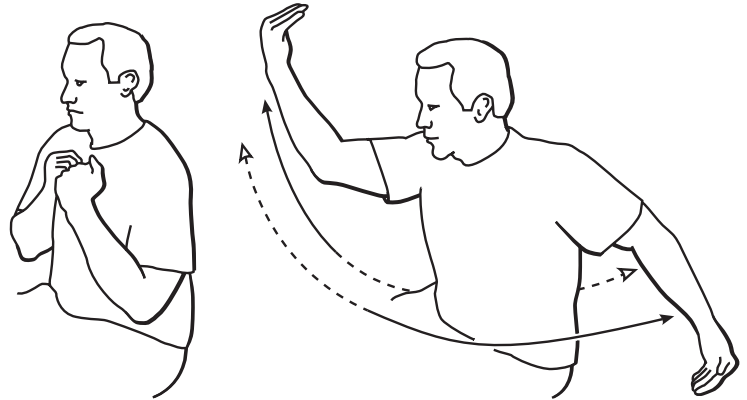


# SITTING COORDINATION AND BALANCE

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## 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. Try repeating sequence 5 times.



## CAUTION

If you have any balance problems or “unsteadiness”, DO NOT do these exercises without first consulting your physician/physical therapist.

# POSITIONING FOR SPASTICITY

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## 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. However, exercise, properly done, is vital in managing spasticity.

### **The following tips may prove helpful:**

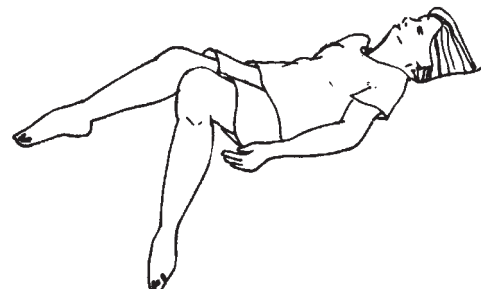
1. Avoid positions that make your spasticity worse.
2. Exercises that slowly stretch the muscles to their full lengths may help.
3. Keep in mind that moving a spastic muscle to a new position may result in an increase in spasticity. If this happens, allow a few minutes for the muscles to relax.
4. When exercising, try to keep your head straight (not tilted to one side).
5. If you are using an antispastic drug, time exercise to begin approximately one hour after taking the medication.
6. Your antispastic drug dose should be checked frequently, as spasticity changes.
7. Sudden changes in spasticity may occur in the presence of infections, skin sores, or even tight shoes or clothing.

# POSITIONING FOR SPASTICITY

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## 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

Less common. 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.



## KEEP IN MIND

Keep in mind that you want to refrain from exercises that accentuate a position associated with any spasticity you experience. For example, if you have extensor spasticity, tell your helper to refrain from doing the exercises that straighten the hip and knee.

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.

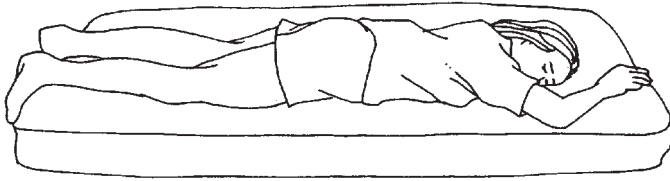
# POSITIONING FOR SPASTICITY

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## Positioning your body to reduce spasticity

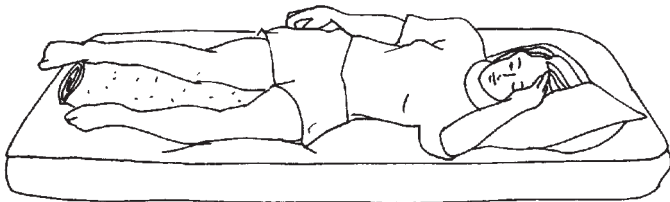
### 1. Lying on your stomach (prone position)

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.



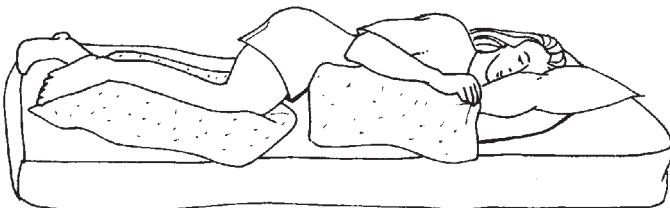
### 2. Lying face up (supine position)

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.



### 3. Lying on your side (side-lying)

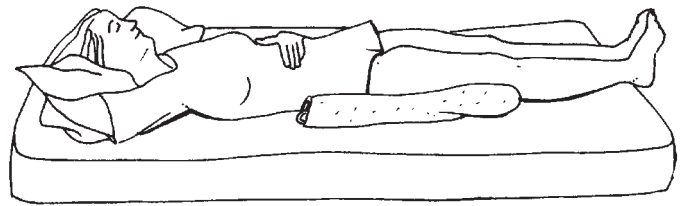
This is an excellent position if your hips and knees are prone to extensor spasticity. On your side, bend the knee of your top leg and let the knee of your bottom leg be straight. You can also put a rolled pillow or towel between your legs.



# POSITIONING FOR SPASTICITY

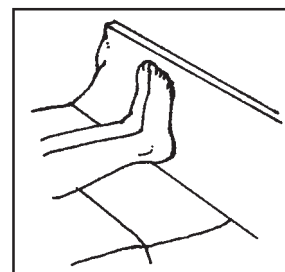
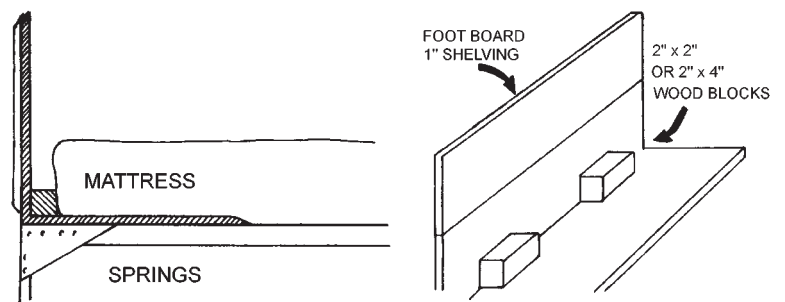
## 4. Correcting hip turn out

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.



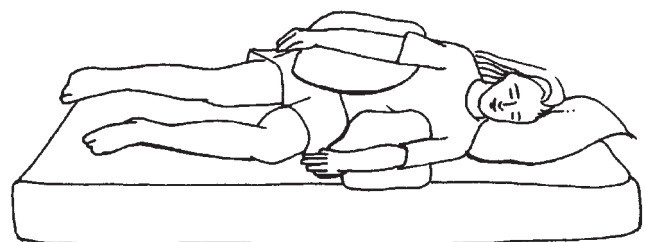
## 5. Correcting foot turn down

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 footrest. One can easily be constructed if your bed does not have one. Or you could ask your therapist or physician about resting ankle splints.



## 6. 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.



# INDEX OF SPECIAL TERMS

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## YOUR PHYSICIAN OR PHYSICAL THERAPIST MAY USE THE FOLLOWING TECHNICAL TERMS:

**Range of Motion:** extent of movement that is possible within a joint.

**Passive Range of Motion:** extent of motion possible in a joint when moved with assistance (i.e., by a therapist, helper, or a piece of machinery).

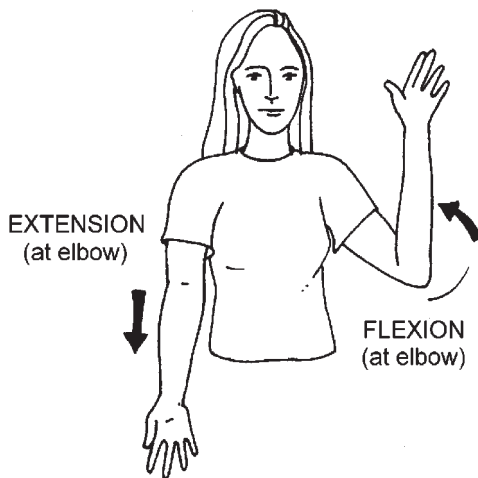
**Active Range of Motion:** extent of movement that is possible in a joint when the person moves without assistance.

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

**Joint Contractures:** a fixed limitation in the range of motion that impairs the function of a joint.

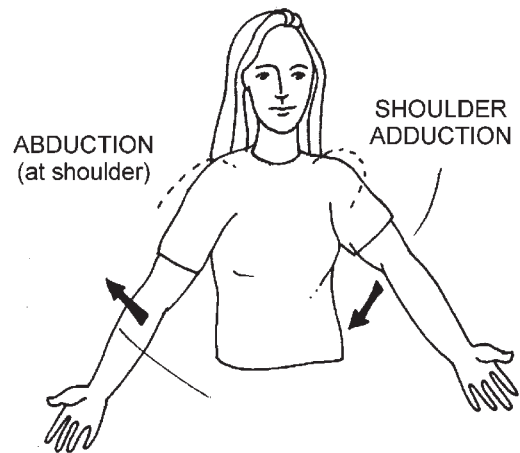
**Disuse Muscle Atrophy:** the decrease in size—and eventually in strength—of muscle fibers that have not been contracted for a period of time.

### Basic Exercise Movements:



**A. Flexion** is the act of moving a joint so that your limb is bending.

**B. Extension** is the act of moving a joint so that your limb is straightening out.



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

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

*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 prescription. For specific information and advice, consult your personal physician.*

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- **The National Multiple Sclerosis Society is dedicated to ending the devastating effects of multiple sclerosis.**
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