

S.O.S.

**Save Our Shoulders**

**A Guide for Polio Survivors**

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**Save Our Shoulders:  
A Guide for Polio Survivors**

by

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## Table of Contents

1. Introduction .....	5
2. General Information About the Shoulder .....	6
3. Facts About Shoulder Problems .....	8
4. Treatment Options .....	13
5. About Exercise .....	16
6. Stretching Exercises.....	19
7. Cane Stretches.....	22
8. Strengthening Exercises.....	25
9. Tips to Avoid Shoulder Problems .....	29
10. Conclusion.....	31
11. Resources .....	31

*The information contained within this manual is for reference only  
and is not a substitute for professional medical advice.  
Before beginning any exercise program consult your physician.*



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## Introduction

Many polio survivors report new symptoms as they age. Some of the more common symptoms include loss of strength, fatigue, muscle twitching, cramping, and muscle or joint pain. These symptoms, combined with the muscle weakness caused by the polio virus, often lead to problems with activities like climbing stairs or getting up from a chair or sofa.

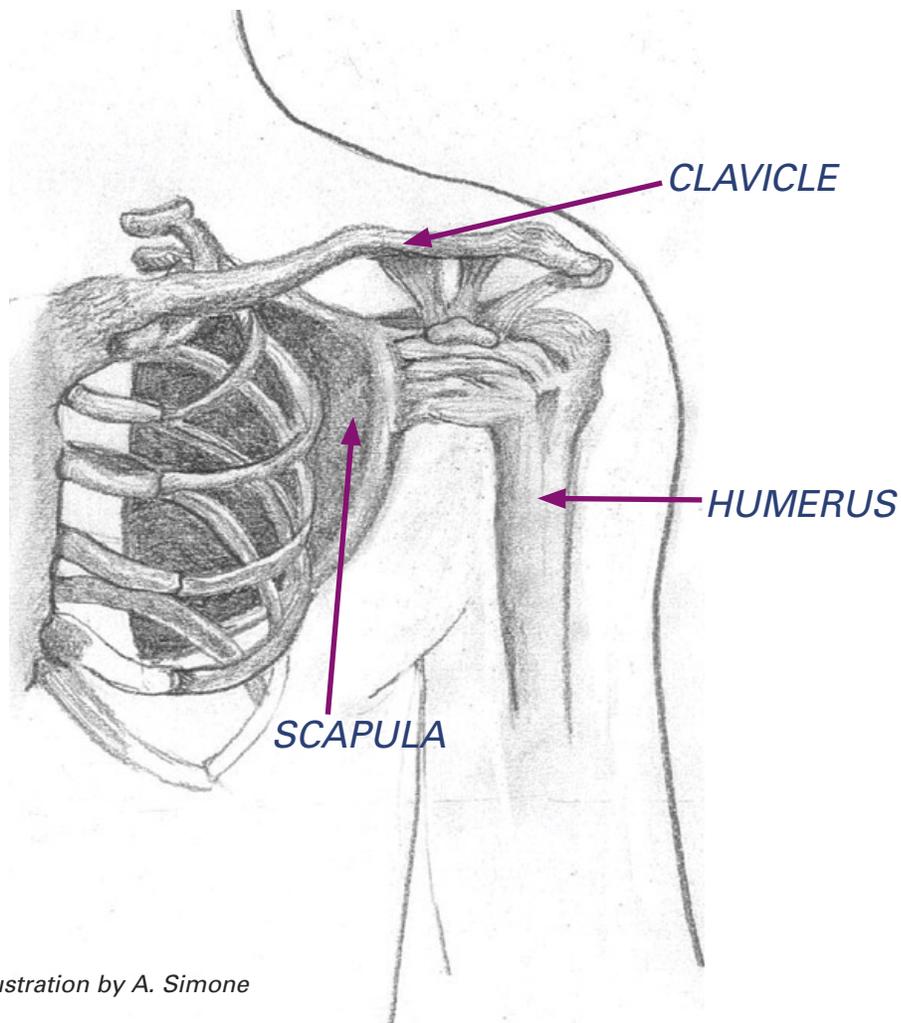
When muscle weakness and/or pain is present in one area of the body, people often compensate by putting more stress on another area of the body. For example, polio survivors who have weak leg muscles often rely on their arms to assist with mobility-related tasks, such as pushing off of the armrests of a chair when getting up or pulling up on the railing when going up a flight of stairs. This behavior can increase the risk for symptoms of shoulder overuse. These symptoms can include pain, swelling, weakness, and loss of motion or function in one or both the shoulders.

The purpose of this manual is to help polio survivors become more aware of the behaviors that can cause shoulder overuse and some of the treatment options that are available. While the information included in this manual is targeted to polio survivors, it will be useful to anyone with shoulder problems. Shoulder dysfunction is an orthopedic problem with similar symptoms in people with and without a history of polio. Treatment approaches are individualized and focus on minimizing or eliminating pain while maximizing function.

## General Information About The Shoulder

The shoulder is made up of many muscles, bones, tendons, ligaments, and nerves that work together to help with movement of the arms. The shoulder joint is the only joint in the body that allows movement in a complete circle.

The bones that are part of the shoulder include the scapula, the clavicle, and the humerus.

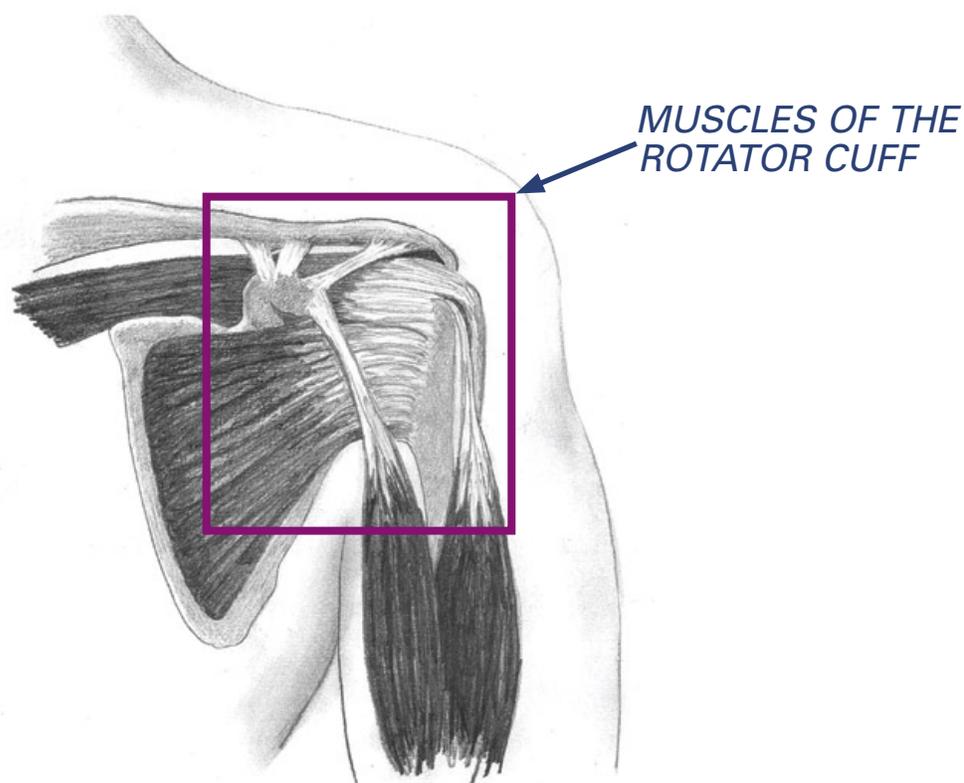


*Illustration by A. Simone*

The scapula is the bone that makes up the back of the shoulder. The clavicle is located in the front of the shoulder, and the humerus is the long bone in the upper arm that inserts into the shoulder socket. These bones all work together to make the shoulder a functional unit.

Many muscles support the shoulder by helping to keep the bones in proper position and aiding in moving the arms. The major muscles that help to keep proper bone position are known as the rotator cuff. These muscles are called a cuff because they give support to the shoulder joint.

A rotator cuff tear is the most common shoulder problem and is found in almost half of the people who seek help for a shoulder injury.



*Illustration by A. Simone*

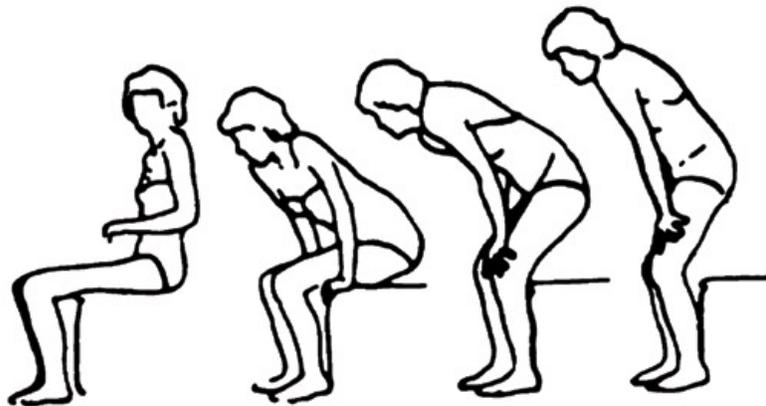
## Facts About Shoulder Problems

- Shoulder problems are one of the most frequent complaints in the post-polio population.
- Shoulder issues are also common among older adults without a history of polio, occurring in about 30% of people who are 60 years and older.
- Shoulder problems can increase with age and changing levels of physical activity.
- People who are involved in sports are not the only ones to suffer from shoulder problems.



- Shoulder problems are common in those with long standing medical conditions, such as post-polio syndrome, arthritis, spinal cord injury, stroke (CVA), or multiple sclerosis.

Our research has shown that polio survivors who have weakness in their legs or who are overweight are at high risk for developing shoulder problems.

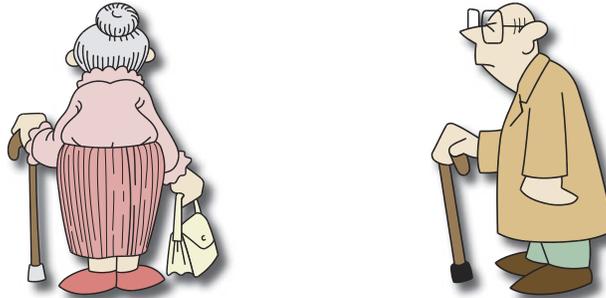


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## Risks For Developing Shoulder Problems

You may be at risk for developing shoulder problems if you:

- Have had polio
- Are over 60 years old
- Use your arms to compensate for weakness in other areas
- Use an assistive device such as a cane or walker



- Are overweight
- Had previous injury or trauma to your shoulder(s)
- Perform tasks that involve repetitive shoulder motion
- Perform activities that require frequent reaching overhead
- Feel pain, discomfort, or muscle fatigue in your arms when doing your normal activities
- Use improper lifting techniques or poor body mechanics when performing tasks at home or at work
- Do not do proper warm-up or stretching before physical activity



**Improper Lifting**



**Proper Lifting**

---

## Common Shoulder Problems And Possible Causes

### 1. Pain may result from:

- Fractures (broken bones) caused by a fall, bone disease such as osteoporosis, or medications



- Impingement Syndrome (pain in the shoulder due to incorrect shoulder movement) caused by overuse, trauma, poor posture, weakness in some muscles of the shoulder, or bony changes



**Poor Posture**



**Poor Positioning**

- Tendonitis (swelling of the structure that joins muscle to bone) caused by overuse, trauma, or a disease process such as a stroke or polio

### 2. Weakness may result from:

- Disease processes such as polio, stroke, or nerve damage
- Inactivity

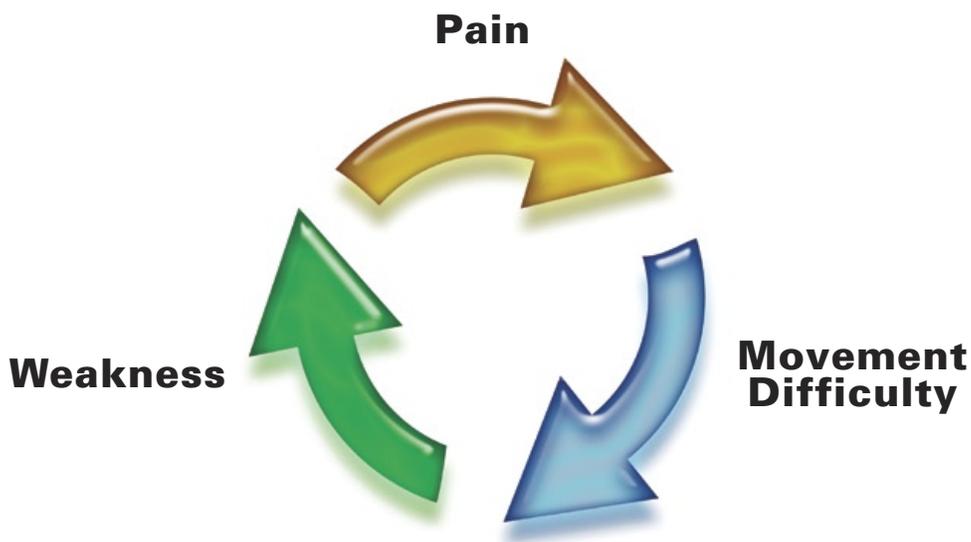
### **3. Movement Difficulty may result from:**

- Frozen Shoulder (unable to move arm because of severe pain which leads to stiffness in the joint) caused by an infection, injury, lack of movement in arm, or severe pain in shoulder
- Bony changes caused by arthritis, fractures, calcium deposits, or birth defects



- Swelling caused by surgery, trauma, lack of motion, or a disease process such as a stroke

Pain, weakness and movement difficulty frequently develop due to a cycle of symptoms. Individuals limit their use of a painful shoulder, which results in stiffness and loss of strength. This leads to increased pain and continues the cycle of pain, weakness, and loss of motion. An effective treatment program will focus on breaking this cycle.



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## **What To Do If You Have A Shoulder Problem**

It is important that you seek the care and advice of a medical professional qualified to diagnose and treat shoulder problems. Depending on the problem that you are having, you may be referred to a specialist.

Regardless of who evaluates your shoulder, information will be collected about your specific shoulder problem. If you are a polio survivor, it is important to seek the help of a healthcare provider who is informed about polio and its effects on your treatment and recovery.

In order to get the most helpful information, you may be asked questions such as:

<b>1. Tell me your medical and polio history, and medicine you are taking.</b>
<b>2. Tell me about your shoulder problem.</b>
<b>3. Have you ever had this problem before? -what did you do for it then? ...Did you have any tests done?</b>
<b>4. Have you had therapy, surgery, or other treatments for the same problem?</b>
<b>5. Does anything make your shoulder feel better? ...Worse?</b>
<b>6. Does your shoulder bother you more at a particular time of the day? ...When?</b>
<b>7. Does your shoulder problem wake you from sleep?</b>
<b>8. Does the problem affect different areas of your body?...Where?</b>
<b>9. Do you need help with getting washed, dressed, or household chores?</b>
<b>10. Do you use assistive devices such as a reacher or a long handled sponge because of shoulder problems?</b>
<b>11. If you need to take medication for your shoulder problem, how often are you taking it?...Does it help?</b>

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## Shoulder Problem Treatment Options

Many approaches can be used to treat shoulder problems. Some examples of treatment options are:

- 1 Rest
  - 2 Cold Pack or Hot Pack
  - 3 Massage
  - 4 Ultrasound
  - 5 Aquatic Therapy
  - 6 Electric Stimulation
  - 7 Anti-inflammatory medicines or cortisone injections
  - 8 Pain Management at a pain clinic
  - 9 Modifications (home/work; adaptive devices or equipment; lifestyle changes)
  - 10 Surgery
- The most common treatment for a shoulder problem begins with rest, ice, and heat, and the use of anti-inflammatory medicines. If these conservative treatment options do not help, the doctor usually recommends cortisone injections to the painful area. After injections, the physician will often refer you to physical therapy for evaluation and treatment.
  - In physical therapy there are several treatment techniques that can be combined to relieve the pain, and increase the strength and use of the arm. Physical therapists may use exercise, stretching, ice, heat, ultrasound (a deep heat), massage, electric stimulation (electrical current used to decrease pain or increase movement), water therapy, or hands on techniques to help your shoulder problem.
  - The final option recommended by the doctor is usually surgery. Most doctors will try non-invasive options before recommending surgery.
  - The success of treatment lies with the patient and the health-care provider working together so that the greatest benefit of the treatment goals can be reached.

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## The Importance Of Education And Exercise

Most treatment plans will include education and exercise.

### *Why Education?*

- Learning about the problem you are having with your shoulder and how it is affecting you will make you more aware of things that can aggravate the problem.
- Understanding why a treatment plan has been chosen, and how to follow it will improve your ability to get the most benefit from the plan.
- Involving you in the treatment process is important so that further injury can be minimized and proper treatment of the current problem can be set up based on your needs.

### *Why Exercise?*

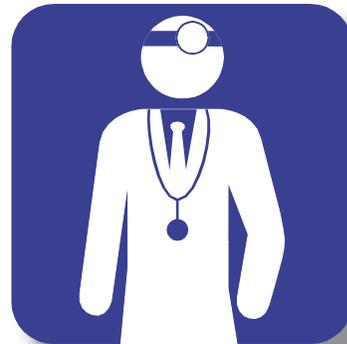
- It is inexpensive.
- It is easy.
- It doesn't take much time.
- It helps to maintain or increase your flexibility, balance, coordination, and stability.
- It helps to maintain or increase your strength and endurance.
- It helps keep you independent with daily activities.
- It helps you control weight and body fat.
- It helps to reduce stress.
- It helps increase energy levels.



**It is important to work with a health care provider who is educated in the effects of polio and exercise.**

*Before beginning your exercise program it is important to remember:*

- Exercise is not always appropriate for every shoulder problem or every individual.
- In some cases, some exercises can actually do more harm than good.



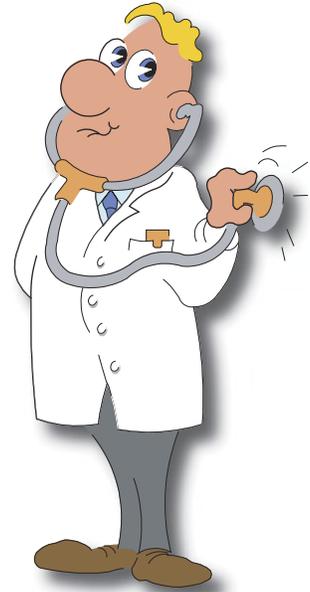
- ***Some medical problems can influence which exercises are appropriate for you to perform.***
- ***It is important to get clearance from your doctor BEFORE you begin any exercise program.***

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## General Information On Exercise Programs

- The benefits of exercise can be achieved by doing as little as 30 minutes of moderate physical activity three to five times a week.
- An exercise program can help you feel better physically, and emotionally.
- Exercise can be a source of enjoyment for many individuals. Exercise can be performed in a group or alone.

***Before you begin an exercise program you should always get approval from your doctor to participate. This is especially important if you have any medical problems.***



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### About Exercise Programs In General

- ① ***An exercise program consists of three key phases.***
  - Warm up
  - Exercise
  - Cool Down
- ② ***The warm-up and cool down involve stretching, getting your blood flowing, and your heart pumping.***
  - a. The warm-up gets your body ready for exercise because it increases the blood flow, preparing the heart and body for exercise.
  - b. Stretching prepares your muscles for exercise.
  - c. Stretching involves moving your body part to the point of feeling a pull in the muscles. It is important not to stretch your muscle beyond the point of pain. If you feel pain, stop the stretching motion.

- d. Most stretches are held for 30 seconds for 3 repetitions.
- e. The cool down slows your body down from the exercise and prepares your body for rest. It slows your heart down gradually, instead of rapidly ending the session after strenuous activity.

**3** *There are many different ways of exercising. There are aerobic, strengthening, range of motion, and flexibility exercises.*

**4** *For the best results, follow recommended precautions.*

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### **Polio survivors need to pace themselves**



Stop exercising if you are tired  
or have increased pain



Exercise slowly

- One of the most important tips for polio survivors is to respect their body signals, and adapt their lifestyle to minimize their limitations.
- It is important for polio survivors to respect their fatigue and take frequent rest breaks when performing an exercise program.

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## Exercise Tips:

- Exercise slowly and take breaks between each exercise.
- Do not hold your breath while exercising (count out loud to encourage breathing).
- Do not continue to exercise if you get sharp or new pain in the area you are exercising.
- If the exercise increases your pain, stop the exercise, or perform the exercise in a pain free range of motion.
- Do not push to perform the extreme of the motion or exercise.
- Stop exercising if you have muscle twitching, muscle cramping, or muscle fatigue that does not go away after 2 minutes rest.
- Polio survivors should not exercise to the point of fatigue.
- It is important to recognize that your fatigue may not appear immediately. It may show up at the end of the day or the following day. You should look at your recent activities and modify them if your fatigue increases or occurs at the end of the day or the next day.

It is very important to **listen to your body** for signs of tiredness, pain, unusual muscle twitching, inability to perform a task that you can normally do, or the need for help with a task that you can usually do without help. **These are signs suggesting muscle fatigue or overuse, and continuing activities that cause these signs could be harmful.**

- Most individuals who have a history of polio will have a system that works for them; some prefer to exercise in the morning because they have the most energy, others exercise at the end of their day because they can rest after the program, and still others may 'split' their exercise program into two sessions a day.
- Everyone will have his or her own way to do things, and when it comes to exercising, each person needs to find a system that works best for them.
- *However, it is crucial to prevent fatigue because it may do irreversible harm to your muscles*

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## Sample Stretching Exercises

These stretches should be performed on each arm. While stretching do not continue if you feel sharp pain in your arms. You should only stretch until a pull is felt.

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### Corner Stretch

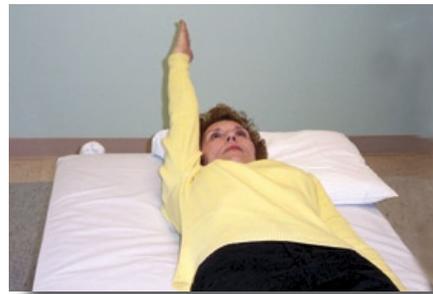
- Stand facing a corner or open door, with your arms at shoulder level and elbows bent.
- Lean forward from your ankles, with your knees slightly bent.
- Hold for 30 seconds and slowly return to the starting position.
- ***Repeat 3 times for each arm.***
- ***Take a 1 minute rest break.***



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## Shoulder Flexion

- Lie on your back.
- Put your arm at your side and turn your palm toward your body.
- Keeping your elbow straight, bring your arm up toward your head and ear.
- Hold for 30 seconds, and slowly return to the starting position.
- ***Repeat 3 times for each arm.***
- ***Take a 1 minute rest break.***



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## Shoulder Abduction

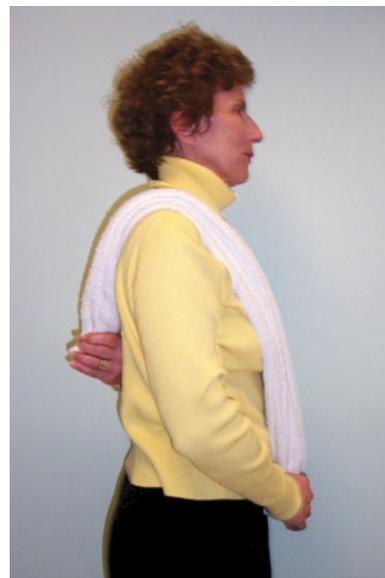
- Lie on your back with your arm at your side and your palm up.
- Keep your elbow straight and your arm down flat.
- Slide your arm out to the side and up toward your ear.
- Hold for 30 seconds, and slowly return to the starting position.
- ***Repeat 3 times for each arm.***
- ***Take a 1 minute rest break.***



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## Shoulder Internal Rotation

- You need a bath towel before you begin this exercise.
- Stand straight with the towel resting on your right shoulder.
- Put your left hand on your low back with your palm facing out. Grab the towel with your left hand. With your right hand grab the towel in front of your right shoulder.
- Gently pull down on the towel with your right arm until a stretch is felt in your left shoulder. Hold for 30 seconds and slowly return to the starting position.
- ***Repeat 3 times with each arm.***



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## Cane Stretches

The following exercises require the use of a cane, dowel, yardstick, or broom handle to stretch your shoulders. They can be performed sitting, lying down, or standing. You should perform each exercise for your right and left arms.

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### Shoulder Flexion

- Lift the cane above your shoulders until you feel a stretch.
- Hold for 5 seconds.
- Slowly return to the starting position.
- Repeat 10 times.



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Standing



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Sitting

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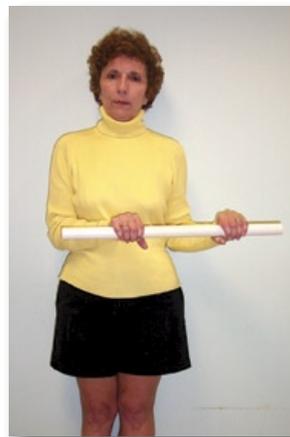
## Shoulder Rotation

- Sit, stand, or lie on your back with the cane in your hands and your elbows against your side, with the cane above your chest.
- Rotate the cane out to the right side, while keeping your elbows against your side. Hold the stretch for 30 seconds.
- Rotate the cane out to the left side, while keeping your elbows against your side.
- Hold for 30 seconds.
- Repeat 3 times to each side.



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Moving to the Right



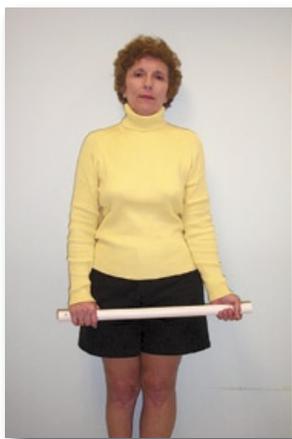
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Moving to the Left

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## Shoulder Abduction

- Lie on your back with the cane in your hands, with your right palm facing the ceiling and the left palm facing down. Put your right palm over the end of the cane, and the left hand at the opposite end of the cane.
- Push the end of the cane out to the right side until you feel a stretch.
- Hold for 30 seconds.
- Repeat 3 times to each side.



Standing



Lying Down

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## Sample Strengthening Exercises

The following exercises involve the use of a resistive elastic band to increase strength. These bands can be obtained from a healthcare provider. The purpose of this type of exercise is to increase strength by moving the bands through a range of motion with resistance. The bands come in various colors that relate to different levels of resistance. Exercising with these bands is a safe and effective method to work specific muscle groups in individuals with, or without, a history of polio.

You should always perform exercises to a count of five (1-2-3-4-5) in a pain free range. Polio survivors should perform gentle non-fatiguing exercises to strengthen the shoulder muscles. If you have any concerns or questions about the exercises you should consult your healthcare provider.

### **Some of the benefits of using a resistive elastic band are:**

- It is inexpensive.
- It is easily portable.
- It does not require heavy equipment.
- It is easy to use.
- You can use different levels of resistance for each exercise if necessary.
- It does not involve a lot of setup.

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## Shoulder External Rotation

- Anchor elastic band to doorknob at waist level.
- Stand with elbow bent as shown holding band taut in your hand.
- Place a towel between your upper arm and body.
- Rotate arm outward, keeping elbow bent.
- Slowly bring arm back to original position.



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## Shoulder Internal Rotation

- Anchor elastic band to doorknob at waist level.
- Stand with elbow bent as shown holding band taut in your hand.
- Place a towel between your upper arm and body.
- Rotate arm inward toward body keeping elbow bent.
- Slowly bring arm back to original position.



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## Shoulder Wide Rows

- Sit forward in a chair without arms, facing a desk or bed, with your feet on the floor.
- Loop the elastic band around the leg of a desk or bed and hold the band with both hands so there are no wrinkles.
- Start with your arms outstretched in front of you, shoulder width apart, elbows slightly bent, palms facing each other.
- Keeping your hands in the same position, slowly bring your hands toward your chest and return to the starting position.



## Tips To Avoid Making Your Shoulder Problem Worse

There are many changes that you can make in your normal activities that may help decrease problems you may be having with your shoulder(s). Below are examples of simple things that can be done to reduce the stress placed on your shoulders.

***REMEMBER: you are the one who knows your body best. Respect and learn to listen to your body's signals or limits.***

- Rest or take a break from any sporting or leisure activity that aggravates your arm or causes shoulder pain.
- Limit prolonged activities by taking frequent rest breaks.
- Avoid excessive overhead activities with your painful arm.
- Avoid activities or movements that increase your pain.
- Take pain and anti-inflammatory medicine as prescribed by your doctor to control the pain and allow you to function.

- When you enter a room take a minute to look at the chairs and choose the highest one with armrests so that you do not have to put so much pressure on your shoulders when rising.
- Avoid regular stalls in public bathrooms, as most of the toilets are very low; handicap stalls have higher toilets and grab bars.

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## **Tips (cont'd):**

- **Modify or seek help with work or home settings to avoid improper positioning and poor body mechanics.**

- **Keep items used most frequently in cabinets below your shoulder level.**

- **When possible sit in a chair with armrests to keep your arms supported and to lessen the amount of stress on your shoulders when you 'push up' to stand.**

- **When doing tasks at a table sit on a cushion to raise your body.**

- **When doing a sitting job, try to have every thing you need at hand to avoid pushing yourself out of the chair more than necessary.**

- **Do not push a vacuum or lawn mower if you can get someone else to do it.**

- **Ask for help with heavy lifting tasks to prevent injuries.**

- **Use adaptive equipment to perform your activities of daily living, such as a reacher for getting items from a high shelf, or a long handled sponge to wash hard to reach body areas.**

- **Put your shirt, blouse, or jacket on your painful arm first.**

- **Do not sleep on your painful shoulder.**

- **Put a pillow between your arm and body while lying on your non-painful side.**

- **While lying on your back, put a pillow under your painful shoulder to support your arm.**

---

## Conclusion

Most people can easily identify what tasks are difficult for them to do or what activities cause a problem with their shoulders. For instance, many people have trouble climbing stairs or getting up from a chair. However, many do not realize just how much stress and strain is placed on the shoulders when doing these activities.

It is our hope that the information in this manual has helped you learn about your shoulders and has improved your awareness of some of the things that can increase the stress and strain placed on them. We think knowing this information is important because keeping your shoulders as healthy as possible can help you maintain your independence.

The information provided is a basic guide for shoulder problems. If you have a shoulder problem, you should be evaluated by a healthcare professional that can work with you to develop a plan that best meets your needs.

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## Resources for Polio Information and Education

### Helpful Websites for Post-Polio Information:

- **The Lincolnshire Post Polio Network**  
*<http://www.ott.zynet.co.uk/polio/lincolnshire>*
- **PICO: Introduction and Contents  
(The Polio Information Center Online)**  
*<http://cumicro2.cpmc.columbia.edu/PICO/PICO.html>*
- **Post Polio Syndrome Resources**  
*<http://www.ppsr.com>*
- **International Polio Network**  
*<http://www.post-polio.org>*
- **Englewood Hospital and Medical Center**  
*<http://www.postpolioinfo.com>*

## **Addresses of Post-Polio Clinics:**

### **Post-Polio Walking Program**

**Dr. Alberto Esquenazi**  
MOSSREHAB HOSPITAL  
1200 West Tabor Road  
Philadelphia, PA 19141  
*Phone: 215-456-9900*

### **Penn Post-Polio Program**

**Mary Ann Keenan, MD**  
Department of Orthopedic Surgery  
UNIVERSITY OF PENNSYLVANIA  
3400 Spruce Street  
2 Silverstein  
Philadelphia, PA 19104  
*Phone: 215-662-3340*

### **Healthsouth Rehabilitation Hospital of Reading**

**Dr. Patti Brown**  
1623 Morgantown Rd.  
Reading, PA 19607-9455  
*Phone: 610-796-6354*

### **The Post-Polio Institute**

**Dr. Richard Bruno**  
*Phone: 201-894-3724*

**Dr. Jerald Zimmerman**  
*Phone: 201-894-3707*

Physical Medicine and Rehabilitation  
ENGLEWOOD HOSPITAL AND  
MEDICAL CENTER  
350 Engle St.  
Englewood, NJ 07631  
*Phone: 877-Post-Polio*

### **The New Jersey Polio Network**

PO Box 537  
Martinsville, NJ 00836  
*Phone: 201-845-6860*

### **Bacharach Institute for Rehabilitation**

**Dr. Jacinth Reid-Artist**  
61 W. Jimmie Leeds Rd.  
Pomona, NJ 08240-0723  
*Phone: 609-748-5470*

### **Saint Vincent's Hospital & Medical Center**

**Dr. Howard Sander**  
153 W. 11th St. Cronin 462  
New York, NY 10011  
*Phone: 212-604-7453*

### **SUNY Upstate Post-Polio Clinic**

**Dr. Burk Jubelt**  
Department of Neurology  
SUNY HEALTH SCIENCE CENTER  
750 E. Adams St.  
Syracuse, NY 13210-2399  
*Phone: 315-464-4627*  
*315-464-5356*  
Email: JubeltB@upstate.edu

### **National Rehab Hospital**

**Dr. Lauro Halstead**  
**Dr. Michael Kvo**  
102 Irving St. NW  
Washington, DC 20010-2949  
*Phone: 202-877-1711*  
Email: lsh1@mhg.edu

**For more information on post-polio research  
please contact:**

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