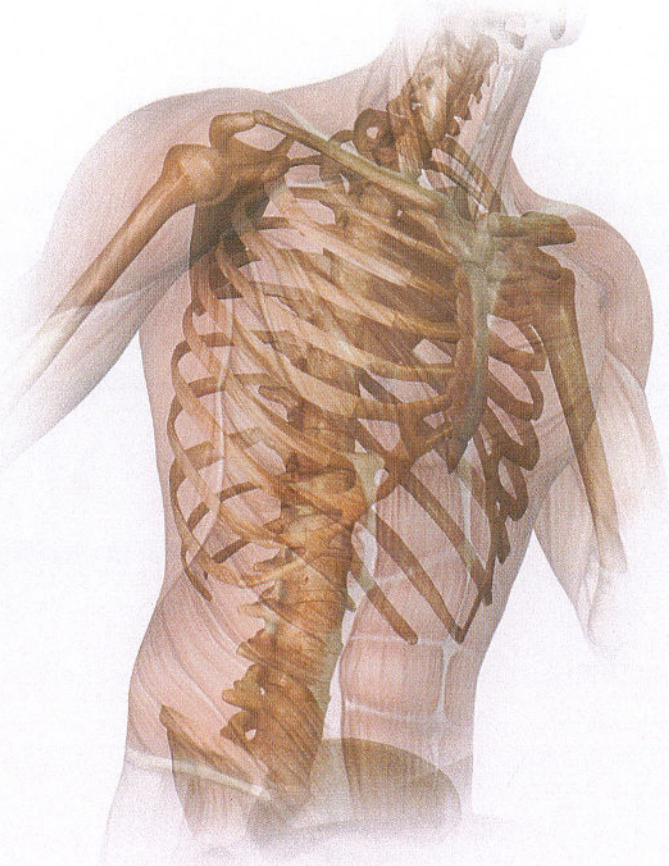
PART 5

The Chest and Abdomen



CHEST/ABDOMEN

ABDOMINAL MUSCLE STRAIN

What is an abdominal muscle strain?

A strain is a stretch or tear of a muscle or tendon. People commonly call such an injury a "pulled" muscle. Your abdominal muscles may be strained during a forceful activity.

How does it occur?

During a vigorous activity, such as lifting or even hard coughing or sneezing, these muscles may become strained.

What are the symptoms?

You have pain over the abdominal muscles.

At times these muscles may be torn. A tear all the way through the muscles and the covering of the abdomen (called the fascia) may result in an abdominal wall hernia. In a hernia, some of the contents of the belly (intestines and connective tissue) protrude through the tear and cause a bulge in the abdominal wall.

How is it diagnosed?

Your healthcare provider will examine your abdomen. He or she will ask you to do an exercise such as a sit-up or abdominal "crunch" to check your symptoms. If you have a hernia, your provider will be able to feel and see a bulge in your abdomen.

How is it treated?

Right after you injure a muscle, you should put ice on the area for 20 to 30 minutes every 3 to 4 hours for 2 to 3 days or until the pain goes away. Your healthcare provider may prescribe an anti-inflammatory medicine (adults aged 65 years and older should not take non-steroidal anti-inflammatory medicine for more than 7 days without their healthcare provider's approval). If you have an abdominal hernia you may need surgery to correct this problem.

When can I return to my sport or activity?

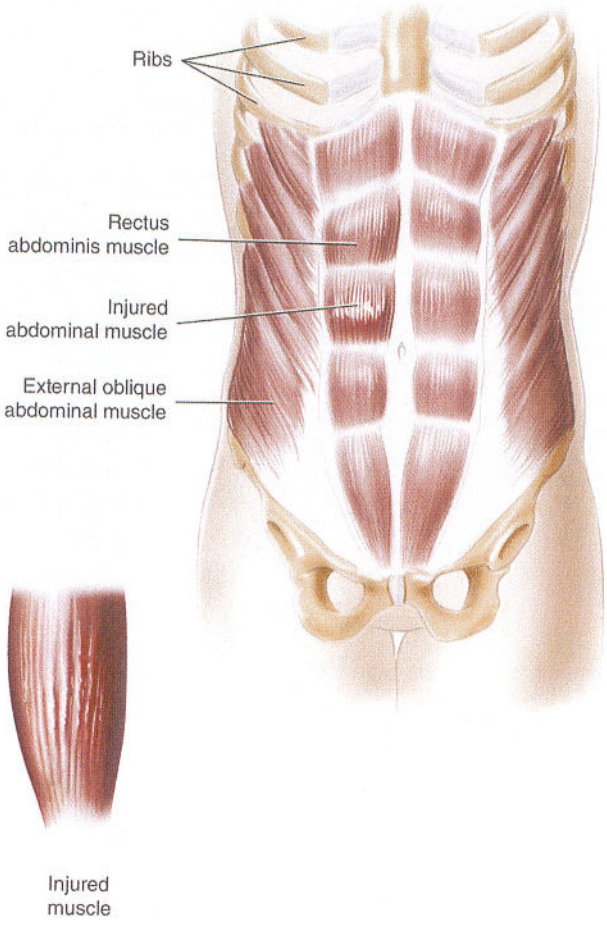
The goal of rehabilitation is to return you to your sport or activity as soon as is safely possible. If you return too soon you may worsen your injury, which could lead to permanent damage. Everyone recovers from injury at a different rate. Return to your activity will be determined by how soon your abdominal muscles recover, not by how many days or weeks it has been since your injury occurred. In general, the longer you have symptoms before you start treatment, the longer it will take to get better.

You may return to your activity when you can bend at the waist to touch your toes and straighten back up without pain. You should be able to do a sit-up or abdominal crunch without pain. If you have a hernia, be cautious about doing strenuous abdominal activities and talk to your healthcare provider about having it repaired.

How can I prevent abdominal muscle strains?

Abdominal muscle strains are best prevented by having well toned abdominal muscles prior to vigorous activities. You can tone these muscles by doing sit-ups or abdominal crunches. You can also use an abdominal exercise machine. It is important not to overdo it when beginning your exercise program. When lifting heavy objects it is important to lift correctly, with knees bent and your back and abdomen straight.

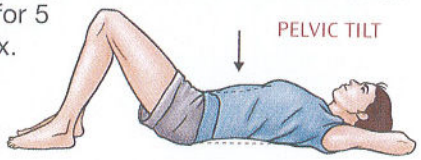
ABDOMINAL MUSCLE STRAIN



ABDOMINAL MUSCLE STRAIN REHABILITATION EXERCISES

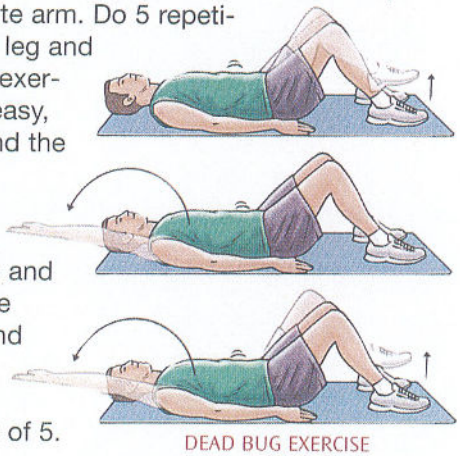
You may do the first 2 exercises right away. You may do the other exercises when the pain is gone.

1. PELVIC TILT: Lie on your back with your knees bent and your feet flat on the floor. Tighten your abdominal muscles and push your lower back into the floor. Hold this position for 5 seconds, then relax. Do 3 sets of 10.

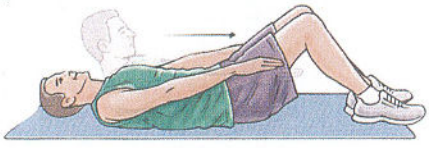

PELVIC TILT

As the pelvic tilt becomes easier, you can progress to an exercise called the dead bug.

2. DEAD BUG EXERCISE: Lie on your back with your knees bent, arms at your sides, and feet flat on the floor. Tighten your abdominal muscles and push your lower back into the floor. While keeping your abdominals tight, lift up one leg several inches off the floor, hold for 5 seconds, then lower it. Repeat this exercise with the opposite leg. Then lift your arm over your head, hold for 5 seconds, then lower it. Repeat with the opposite arm. Do 5 repetitions with each leg and arm. Once this exercise becomes easy, raise one leg and the opposite arm together. Hold for 5 seconds. Lower your arm and leg and raise the opposite arm and leg up and hold for 5 seconds. Do 3 sets of 5.

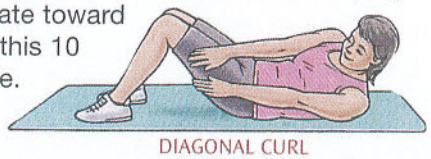

DEAD BUG EXERCISE

3. PARTIAL CURL: Lie on your back with your knees bent and your feet flat on the floor. Tighten your stomach muscles and flatten your back against the floor. Tuck your chin to your chest. With your hands stretched out in front of you, curl your upper body forward until your shoulders clear the floor. Hold this position for 3 seconds. Don't hold your breath. It helps to breathe out as you lift your shoulders up. Relax. Repeat 10 times. Build to 3 sets of 10. To challenge yourself, clasp your hands behind your head and keep your elbows out to the side.

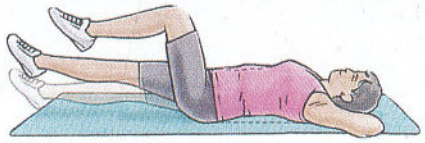

PARTIAL CURL

After you have become good at the partial curl you can do a diagonal curl to help strengthen your oblique abdominal muscles.

4. DIAGONAL CURL: Lie on your back with your knees bent and your feet flat on the floor. Stretch your arms out in front of you or clasp your hands behind your neck to support your head. Tighten your stomach muscles and lift your head and shoulders off of the floor while rotating your trunk toward the right. Make sure you don't use your arms to lift your body off the floor. Hold this for 3 seconds. Return to the starting position. Then rotate toward your left side. Do this 10 times on each side. Do 3 sets of 10.


DIAGONAL CURL

5. LOWER ABDOMINAL EXERCISE: Lie on your back with one knee bent at a 90 degree angle so your shin is horizontal. Your other foot should be just above the floor. Hold yourself in a pelvic tilt by tightening your abdominal muscles and pushing your lower back into the floor. Your knees should be pointed toward the ceiling. Slowly lower and straighten the top leg until the foot barely touches the floor and then bring it back up to the starting position. Do the same with your other leg. Remember to hold the pelvic tilt while you lower each leg. Do 3 sets of 10 on each side.


LOWER ABDOMINAL EXERCISE

BROKEN COLLARBONE (FRACTURED CLAVICLE)

What is a broken collarbone?

A broken collarbone is a break in the clavicle, the bone in your upper chest that connects your breastbone (sternum) to part of your shoulder blade (scapula). A broken collarbone is also known as a fractured clavicle.

How does it occur?

A broken collarbone can occur in several ways. You may fall on your outstretched arm and hand, you may fall on your shoulder, or you may be hit directly in the collarbone.

What are the symptoms?

You have pain and swelling at the area of the break. It is difficult to move your arm or shoulder. You may have heard a crack at the time of the injury.

How is it diagnosed?

Your healthcare provider will examine your collarbone and find tenderness and swelling. An X-ray will show a fracture.

How is it treated?

To ease your discomfort, your collarbone may be immobilized in a "figure of 8" splint or brace that holds your shoulders back (as if you were standing at attention). Your arm may be placed in a sling.

Your provider will prescribe a pain medicine. Broken collarbones are very painful in the first few days. You should place an ice pack over the fracture for 20 to 30 minutes every 3 to 4 hours for the first few days.

When can I return to my sport or activity?

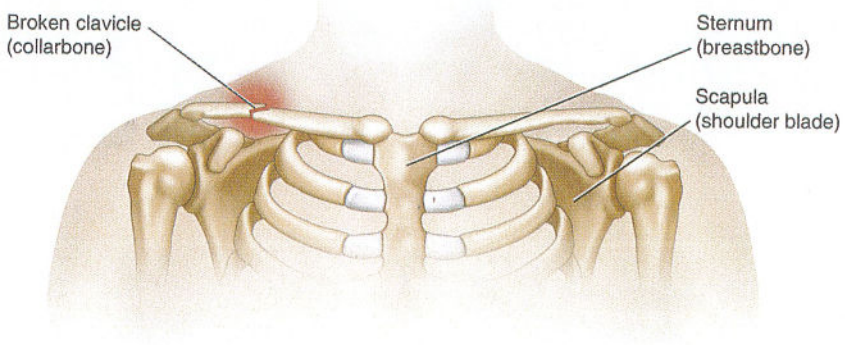
Most broken collarbones are healed within 6 to 8 weeks. It is important that the clavicle is fully healed before you return to your sport or activity so your collarbone doesn't break again. You must be able to move your clavicle, shoulder, and arm without pain. Your healthcare provider may take another X-ray to be sure that the bone has healed.

You can begin rehabilitation exercises after your broken collarbone has healed and after you've seen your provider.

How can I prevent a broken clavicle?

Clavicle fractures are usually the result of accidents that cannot be prevented.

BROKEN COLLARBONE (FRACTURED CLAVICLE)



BROKEN COLLARBONE REHABILITATION EXERCISES

Do these exercises as soon as your healthcare provider says you can.

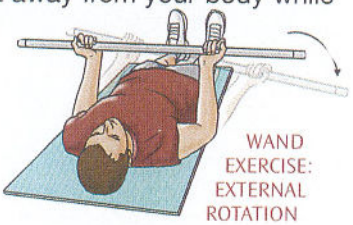
1. WAND EXERCISE: FLEXION: Stand upright and hold a stick in both hands, palms down. Stretch your arms by lifting them over your head, keeping your elbows straight. Hold for 5 seconds and return to the starting position. Repeat 10 times.

WAND EXERCISE: FLEXION

2. WAND EXERCISE: EXTENSION: Stand upright and hold a stick in both hands behind your back. Move the stick away from your back. Hold the end position for 5 seconds. Relax and return to the starting position. Repeat 10 times.

WAND EXERCISE: EXTENSION

3. WAND EXERCISE: EXTERNAL ROTATION: Lie on your back and hold a stick in both hands, palms up. Your upper arms should be resting on the floor, your elbows at your sides and bent 90°. Using one arm, push your other arm out away from your body while keeping the elbow of the arm being pushed at your side. Hold the stretch for 5 seconds. Repeat 10 times.

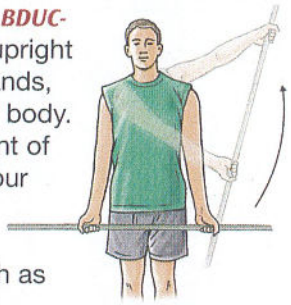


WAND EXERCISE: EXTERNAL ROTATION

4. WAND EXERCISE: INTERNAL ROTATION: Stand with one arm behind your head holding the end of a stick. Put your other arm behind your back at waist level and grab the stick. Move the stick up and down your back by bending your elbows. Hold the bent position for 5 seconds and then return to the starting position. Repeat 10 times.

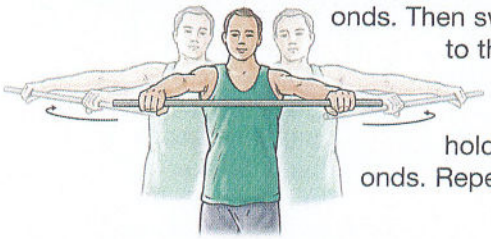
WAND EXERCISE: INTERNAL ROTATION

5. WAND EXERCISE: SHOULDER ABDUCTION AND ADDUCTION: Stand upright and hold a stick with both hands, palms facing away from your body. Rest the stick against the front of your thighs. While keeping your elbows straight, use one arm to push your other arm out to the side and up as high as possible. Hold for 5 seconds. Repeat 10 times.



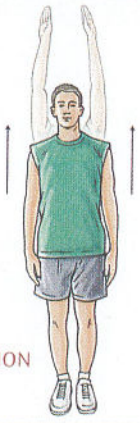
WAND EXERCISE: SHOULDER ABDUCTION AND ADDUCTION

6. WAND EXERCISE: HORIZONTAL ABDUCTION AND ADDUCTION: Stand upright and hold a stick in both hands. Place your arms straight out in front of you at shoulder level. Keep your arms straight and swing the stick to one side, feel the stretch, and hold for 5 seconds. Then swing the stick to the other side, feel the stretch, and hold for 5 seconds. Repeat 10 times.

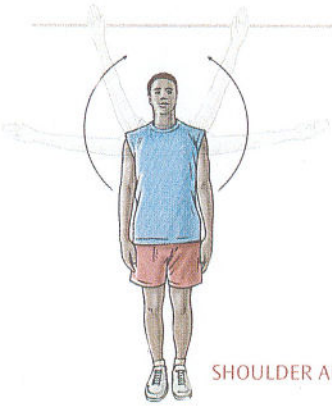


WAND EXERCISE: HORIZONTAL ABDUCTION AND ADDUCTION

7. SHOULDER FLEXION: Stand with your arms hanging down at your side. Keep your elbow straight and lift your arms up over your head as far as you can reach. Hold the end position for 5 seconds. Do 3 sets of 10.



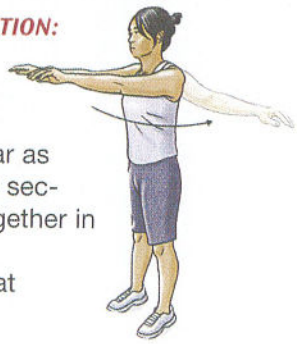
SHOULDER FLEXION



8. SHOULDER ABDUCTION: Stand with your arms at your sides. Bring your arms up, out to the side, and toward the ceiling. Hold for 5 seconds. Return to the starting position. Repeat 10 times.

SHOULDER ABDUCTION

9. HORIZONTAL SHOULDER ABDUCTION: Stand with your arms held straight out in front of you at shoulder level. Pull your arms apart and out to the sides as far as possible. Hold them back for 5 seconds, then bring them back together in front of you. Repeat 10 times. Remember to keep your arms at shoulder level throughout this exercise.

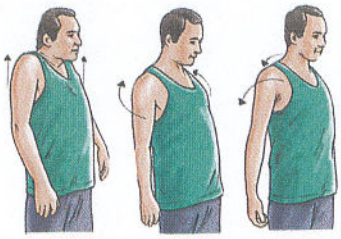


HORIZONTAL SHOULDER ABDUCTION

10. SHOULDER EXTENSION: Stand with your arms at your sides. Move the arm on one side back, keeping your elbow straight. Hold this position for 5 seconds. Return to the starting position and repeat 10 times.

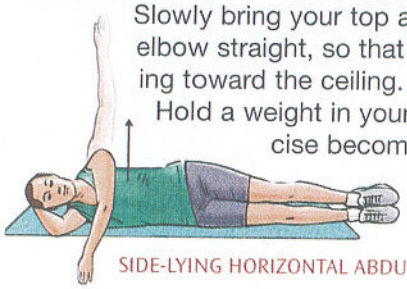
SHOULDER EXTENSION

11. SCAPULAR ACTIVE RANGE OF MOTION: Stand and shrug your shoulders up and hold for 5 seconds. Then squeeze your shoulder blades back and together and hold 5 seconds. Next, pull your shoulder blades downward as if putting them in your back pocket. Relax. Repeat this sequence 10 times.



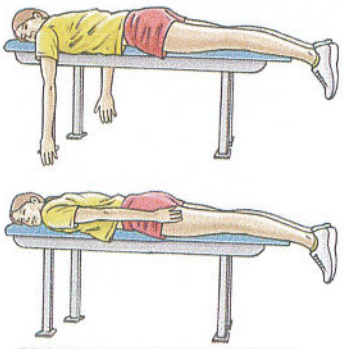
SCAPULAR ACTIVE RANGE OF MOTION

12. SIDE-LYING HORIZONTAL ABDUCTION: Lie on your side with your top arm relaxed across your chest. Slowly bring your top arm up off the floor, elbow straight, so that your hand is pointing toward the ceiling. Do 3 sets of 10. Hold a weight in your hand as the exercise becomes easier.



SIDE-LYING HORIZONTAL ABDUCTION

13. PRONE SHOULDER EXTENSION: Lie on your stomach on a table or a bed with one arm hanging down over the edge. With your elbow straight, slowly lift your arm straight back and toward the ceiling. Return to the starting position. Do 3 sets of 10. As this becomes easier, hold a weight in your hand.

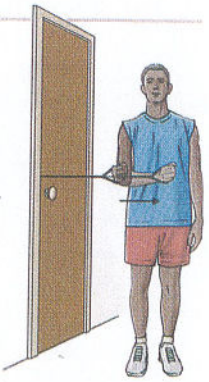


PRONE SHOULDER EXTENSION

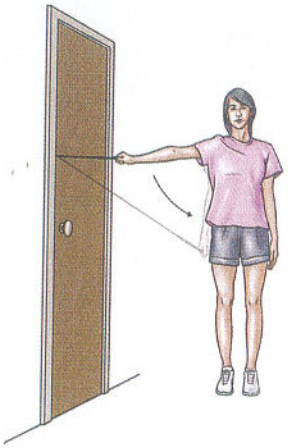
14. SINGLE-ARM SHOULDER ABDUCTION: Stand with your arms at your sides with your palms resting against your sides. With your elbow straight, lift one arm out to the side and toward the ceiling. Hold the position for 5 seconds. Repeat 10 times. Add a weight to your hand as this exercise becomes easier.

SINGLE-ARM SHOULDER ABDUCTION

15. RESISTED SHOULDER INTERNAL ROTATION: Holding tubing connected to a door knob at waist level, keep your elbow in at your side and rotate your arm inward across your body. Make sure you keep your forearm parallel to the floor. Do 3 sets of 10.



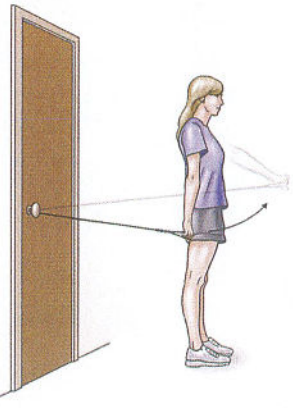
RESISTED SHOULDER INTERNAL ROTATION



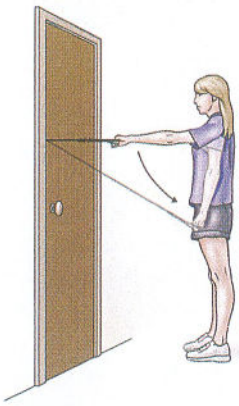
16. RESISTED SHOULDER ADDUCTION: Stand sideways next to a door. With the hand closest to the door, hold tubing connected to a door knob at waist level. Stand away from the door approximately 8 to 10 inches. Slowly bring your arm with tubing next to your body. Do 3 sets of 10.

RESISTED SHOULDER ADDUCTION

17. RESISTED SHOULDER FLEXION: Holding tubing connected to a door knob at waist level, face away from the door, keep your elbow straight and pull your arm forward. Do 3 sets of 10.



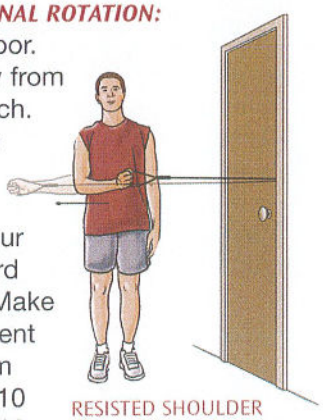
RESISTED SHOULDER FLEXION



18. RESISTED SHOULDER EXTENSION: Face a door holding tubing connected to the door knob at waist level, pull your arm back. Be sure to keep your elbow straight. Do 3 sets of 10.

RESISTED SHOULDER EXTENSION

19. RESISTED SHOULDER EXTERNAL ROTATION: Stand sideways next to a door. Rest the hand farthest away from the door across your stomach. With that hand grasp tubing that is connected to a doorknob at waist level. Keeping your elbow in at your side, rotate your arm outward and away from your waist. Make sure you keep your elbow bent 90 degrees and your forearm parallel to the floor. Repeat 10 times. Build up to 3 sets of 10.



RESISTED SHOULDER EXTERNAL ROTATION

GROIN (INGUINAL) HERNIA

What is a groin (inguinal) hernia?

A hernia is a condition in which part of the intestine (bowel) bulges through a weak area or gap in the abdominal muscles. A groin, or inguinal, hernia occurs in the groin. The groin is the lower abdominal area where the legs join the body. A groin hernia happens when the bowel pushes through a weak spot in the inguinal canal. The inguinal canal is an opening between layers of muscle in the groin.

How does it occur?

Some people, especially men, are born with a weakness in their groin muscles. With or without this weakness, a hernia may be caused by anything that causes the intestine to push against the inguinal canal. Activities or conditions that might cause this pressure are:

- lifting heavy objects
- coughing or sneezing a lot
- being constipated or pushing too hard when having a bowel movement
- being overweight
- being pregnant
- in men, pushing too hard to urinate when the prostate is enlarged

What are the symptoms?

Symptoms of a groin hernia may include:

- a lump in the groin that you can push back in
- pain or discomfort in the lower belly or groin, especially with physical activity
- a lump in the groin that cannot be pushed back in, which can become a life-threatening problem because the bowel may become blocked

How is it diagnosed?

Your healthcare provider will ask about your symptoms and medical history and examine you. You may have X-rays, ultrasound or CT scans, or blood tests.

How is it treated?

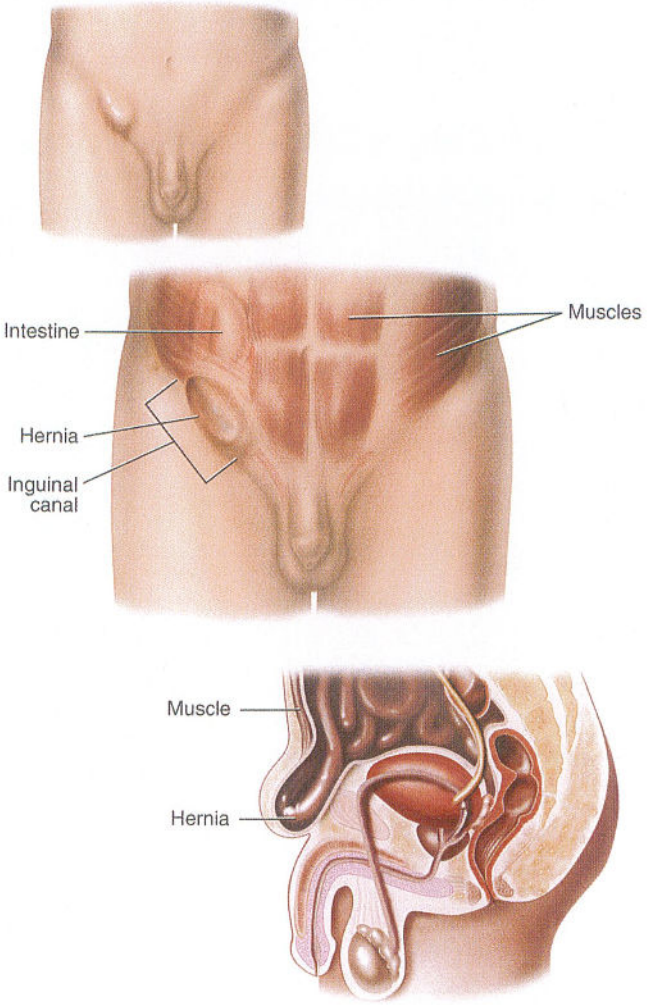
The main treatment for a painful groin hernia is surgery to repair the opening in the muscle wall. Sometimes the weak area is reinforced with mesh during the surgery. Your healthcare provider will usually suggest that you have the operation as soon as possible to avoid complications.

If your hernia is causing few or no symptoms, you may choose not to have surgery. You may need to use a groin support. You need to discuss with your provider what symptoms you should watch for and when you should seek medical care for possible problems resulting from your hernia, such as bowel blockage.

How long will the effects last?

The hernia will not get better on its own, but it may not get worse for months or even years. A complication of a groin hernia is that after the bowel has pushed through the muscle wall, its contents may become trapped. A dangerous complication of this trapping is that the blood supply to the bowel may be cut off and the tissue may die, resulting in gangrene. This is a medical emergency requiring surgery.

GROIN (INGUINAL) HERNIA



How can I take care of myself?

Follow your healthcare provider's instructions.

Be careful when you lift, pull, or push heavy objects. Learn to lift, push, or pull heavy objects the correct way. Adjust your duties at work or your recreational activities if necessary.

Ask your provider if you need to wear a groin support. Follow your provider's advice for losing weight if you are overweight.

Avoid constipation by eating foods that are high in fiber, using stool softeners, or drinking a natural stimulant beverage such as prune juice. Use laxatives or enemas only if recommended by your provider.

Avoid smoking to help prevent coughing. Coughing puts extra pressure on the abdominal and groin muscles.

Take medicine to reduce sneezing and coughing from allergies.

If your symptoms continue or if you develop new symptoms, tell your provider right away.

Also call your healthcare provider if:

- you have nausea and vomiting that doesn't get better after a few hours
- you can't have a bowel movement
- you are unable to urinate
- the hernia bulges through the muscles and will not go back in
- the skin over the hernia becomes red or darker than your usual skin color
- you have severe abdominal pain
- you have a fever higher than 101.5° F (38.6° C) orally

How can I help prevent a groin hernia?

- Follow safe practices when you move heavy things. Learn how to lift and move heavy items safely. Remember to use your legs. Bend at your knees, not at your waist.
- Keep a healthy weight.
- Avoid becoming constipated.

RIB INJURY

What is a rib injury?

The 12 ribs on each side of your chest may be bruised, strained, broken, or separated. All of the ribs are attached to the vertebrae (backbone) in the rear. In the front, 10 of them are attached to the sternum (breastbone) by pieces of cartilage. Direct blows to the ribs may bruise or break the ribs or injure the rib cartilage. The ribs may tear away from the cartilage that attaches them to the breastbone. This tearing away from the cartilage is called a costochondral separation. Costochondritis is inflamation of the rib cartilage.

How does it occur?

Rib injuries usually result from a direct blow to the chest wall. Breaks usually occur in the curved portion of the outer part of the rib cage. A costochondral separation may occur from trauma, when you land hard on your feet, or even when you cough or sneeze violently.

What are the symptoms?

A rib injury causes pain and tenderness over the place of injury. You may have pain when you breathe, move, laugh, or cough.

How is it diagnosed?

Your healthcare provider will review your symptoms, examine your rib cage, and listen to your lungs. He or she may order a chest X-ray to look for rib damage, lung damage, or bleeding around the lungs.

How is it treated?

To help your injury heal, your provider may recommend that you:

- Rest.
- Put an ice pack over the injured rib for 20 to 30 minutes every 3 to 4 hours for 2 to 3 days or until the pain goes away.
- Take an anti-inflammatory or other pain medicine (adults aged 65 years and older should not take non-steroidal anti-inflammatory medicine for more than 7 days without their healthcare provider's approval)
- Wear a rib belt, which your healthcare provider may suggest for very painful injuries. The belt works as a girdle for your chest and helps support your ribs. It limits movement of your ribs when you cough, breathe, or move your body in other ways. This helps decrease pain. If you wear a rib belt, your provider will give you breathing exercises to help you avoid lung complications.

When can I return to my sport or activity?

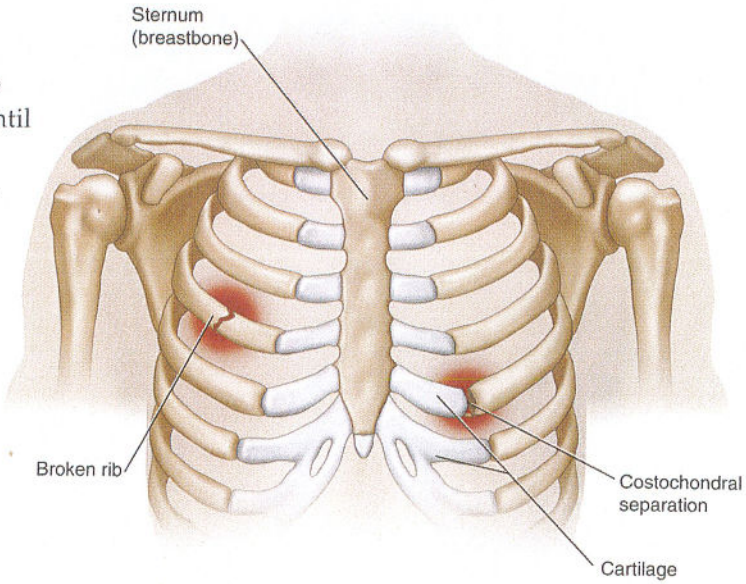
The goal of rehabilitation is to return you to your sport or activity as soon as is safely possible. If you return too soon you may worsen your injury, which could lead to permanent damage. Everyone recovers from injury at a different rate. Return to your sport or activity will be determined by how soon your ribs recover, not by how many days or weeks it has been since your injury occurred. In general, the longer you have symptoms before you start treatment, the longer it will take to get better.

Bruised ribs and a costochondral separation usually take 3 to 4 weeks to heal. If you broke a rib, it may take 6 to 8 weeks to heal. Your healthcare provider may take an X-ray to see that the bone has healed before he or she allows you to return to your activity, especially if it is a contact sport. You may participate in noncontact activities sooner if you can do so without pain in your ribs and without pain when you breathe. If you have bruised your ribs or separated the cartilage from the ribs, you may return to your activity when you can do so without pain.

How can I prevent a rib injury?

Ribs are often injured in accidents that are not preventable. However, in contact sports such as football it is important to wear appropriate protective equipment.

RIB INJURY



SPORTS HERNIA

What is a sports hernia?

A sports hernia, also known as athletic pubalgia, is a tear in the muscles of the lower abdomen. It causes pain in the lower abdomen or groin.

Men get athletic pubalgia more commonly than women.

How does it occur?

The pain from a sports hernia usually begins slowly. There are different theories about how this hernia occurs. One possibility is that tight or strong hip flexor muscles tilt the pelvis forward and stretch the lower abdominal wall muscles, eventually leading to small tears in the muscles and tissues.

Activities that require a lot of bending over and leaning forward can lead to this problem. Athletes who play soccer, ice hockey, rugby, field hockey, tennis, or run track are most likely to get a sports hernia.

What are the symptoms?

Symptoms may include:

- lower abdominal pain
- groin pain
- pain just on one side of the lower abdomen
- pain that is usually worse with sudden movements such as sprinting, kicking, side-stepping, sneezing, or coughing.

How is it diagnosed?

Your healthcare provider will take your history and do a physical exam. You will have tenderness in the lower abdomen and at the top of the groin. There are no tests that help diagnose this condition. Some tests might be done to rule out other conditions that cause groin pain.

How is it treated?

The initial treatment for a sports hernia is rest. Healing will take longer if you continue to participate in activities that cause you pain. It may take a few weeks to a few months for symptoms to go away. Anti-inflammatory medicines (such as ibuprofen) and using an ice pack on the area for 20 to 30 minutes 3 to 4 times a day will decrease the discomfort. Your healthcare provider may recommend physical therapy.

If rest and physical therapy do not relieve symptoms, surgery can be done. During surgery, the lower abdominal muscles and connective tissue are released and reattached and some hip muscles are loosened.

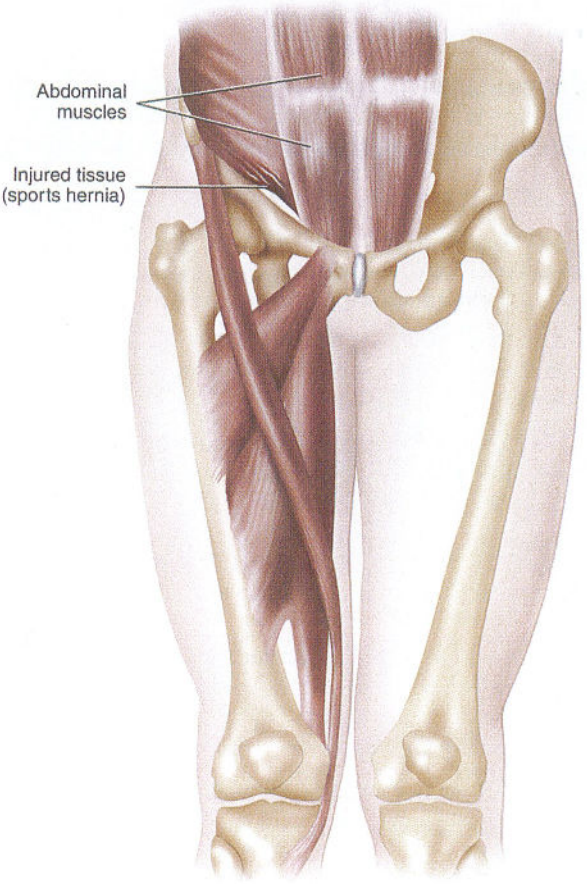
People who have had sports hernias sometimes continue to have ongoing lower abdominal muscle pain and groin pain.

When can I return to my sport or activity?

The goal of rehabilitation is to return you to your sport or activity as soon as is safely possible. If you return too soon you may worsen your injury, which could lead to permanent damage. Everyone recovers from injury at a different rate. Return to your activity will be determined by how soon your abdominal muscles recover, not by how many days or weeks it has been since your injury occurred. In general, the longer you have symptoms before you start treatment, the longer it will take to get better.

You may return to your activity when you can bend at the waist to touch your toes and straighten back up without pain. You should be able to do a sit-up or abdominal crunch without pain.

SPORTS HERNIA



STERNOCLAVICULAR JOINT SEPARATION

What is a sternoclavicular joint separation?

The sternoclavicular joint is located where the collarbone (clavicle) attaches to the breastbone (sternum). These bones are held together by a piece of connective tissue called a ligament. A sternoclavicular separation occurs when the ligament tears.

How does it occur?

A sternoclavicular joint separation most commonly occurs when there is a direct blow to the sternum or a fall onto the shoulder or outstretched hands that causes a force along the length of the collarbone. It may occur in a contact sport when a player's shoulder hits the ground and another player lands on top of the other shoulder.

What are the symptoms?

There is pain, swelling, and tenderness over the sternoclavicular joint. There may be movement between the breastbone and the collarbone. Your collarbone may be displaced either in front of your breastbone or behind your breastbone.

How is it diagnosed?

Your healthcare provider will review your symptoms and examine your sternoclavicular joint. An X-ray or CT (computed tomography) scan may be ordered to see if there is a gap between your collarbone and breastbone.

How is it treated?

Treatment may include:

- putting ice packs on the injury for 20 to 30 minutes every 3 to 4 hours for 2 to 3 days or until the pain goes away
- taking anti-inflammatory medicine or pain medicines prescribed by your healthcare provider (adults aged 65 years and older should not take non-steroidal anti-inflammatory medicine for more than 7 days without their healthcare provider's approval)
- wearing a sling
- resting your shoulder and arm on the side of the separation until the pain goes away.

In cases where the collarbone is forced behind the breastbone, there may be a risk of damage to the heart or the blood vessels in the chest and surgery may be required to repair the separation.

In some cases, the sternoclavicular joint heals but may have some instability, or movement, when you move your arm or shoulder. If this instability causes pain, your healthcare provider may recommend surgery.

When can I return to my sport or activity?

The goal of rehabilitation is to return you to your sport or activity as soon as is safely possible. If you return too soon you may worsen your injury, which could lead to permanent damage. Everyone recovers from injury at a different rate. Return to your sport or activity will be determined by how soon the injured area recovers, not by how many days or weeks it has been since your injury occurred.

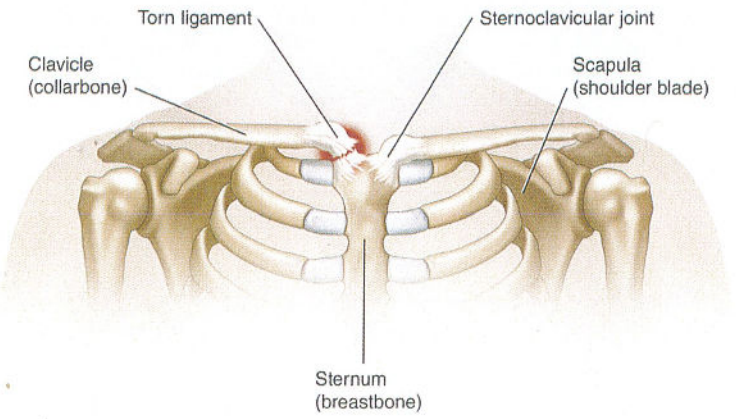
You may safely return to your sport or activity when:

- You no longer have pain at the sternoclavicular joint.
- You have full range of motion and strength of your shoulder.

How can I prevent a sternoclavicular joint separation?

A sternoclavicular joint separation is usually caused by an accident that cannot be prevented.

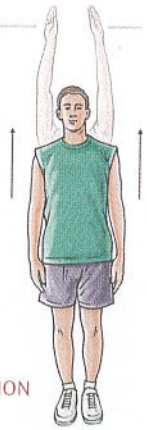
STERNOCLAVICULAR JOINT SEPARATION



STERNOCLAVICULAR JOINT SEPARATION REHABILITATION EXERCISES

1. CHEST STRETCH: Grasp your hands behind your back and lift your arms away from your body. Hold 15 to 30 seconds. Repeat 3 times.

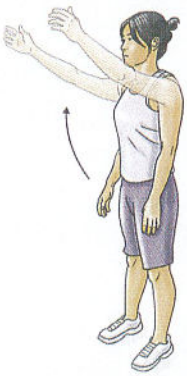
CHEST STRETCH



2. SHOULDER FLEXION: Stand with your arms hanging down at your side. Keep your elbow straight and lift your arms up over your head as far as you can reach. Hold the end position for 5 seconds. Do 3 sets of 10.

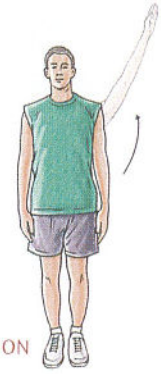
SHOULDER FLEXION

3. SCAPTION: Stand with your arms at your sides and with your elbows straight. Slowly raise your arms to eye level. As you raise your arms, they should be spread apart so that they are only slightly in front of your body (at about a 30 degree angle to the front of your body). Point your thumbs toward the ceiling. Hold for 2 seconds and lower your arms slowly. Do 3 sets of 10. Hold a soup can or light weight when doing the exercise and increase the weight as the exercise gets easier. Your provider may instruct you to do this exercise with your thumbs down.



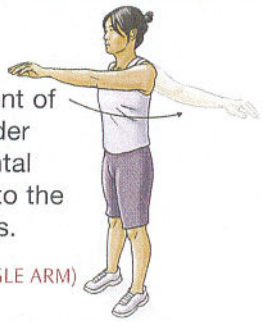
SCAPTION

4. SINGLE-ARM SHOULDER ABDUCTION: Stand with your arms at your sides with your palms resting against your sides. With your elbow straight, lift one arm out to the side and toward the ceiling. Hold the position for 5 seconds. Repeat 10 times. Add a weight to your hand as this exercise becomes easier.

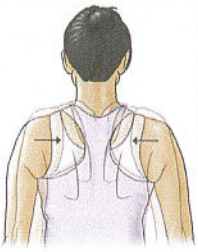


SINGLE-ARM SHOULDER ABDUCTION

5. SHOULDER HORIZONTAL ABDUCTION (SINGLE ARM): Standing with your arm out in front of you, elbow straight and at shoulder level, move your arm in a horizontal direction out to the side. Return to the starting position. Repeat 10 times.



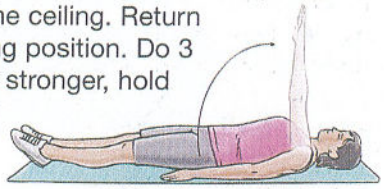
SHOULDER HORIZONTAL ABDUCTION (SINGLE ARM)



6. SCAPULAR SQUEEZE: While sitting or standing with your arms by your sides, squeeze your shoulder blades together and hold for 5 seconds. Do 3 sets of 10.

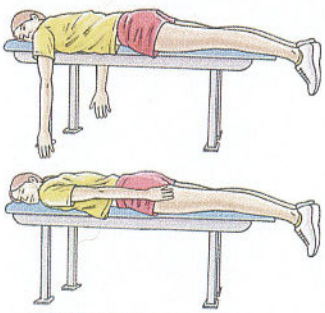
SCAPULAR SQUEEZE

7. SUPINE SHOULDER FLEXION: Lie on your back, hold your arm out straight, and move your arm up until your hand is toward the ceiling. Return your arm to the starting position. Do 3 sets of 10. As you get stronger, hold a weight in your hand as you do this exercise.



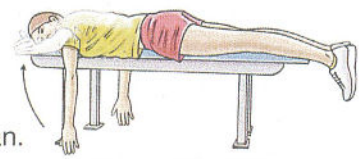
SUPINE SHOULDER FLEXION

8. PRONE SHOULDER EXTENSION: Lie on your stomach on a table or a bed with one arm hanging down over the edge. With your elbow straight, slowly lift your arm straight back and toward the ceiling. Return to the starting position. Do 3 sets of 10. As this becomes easier, hold a weight in your hand.



PRONE SHOULDER EXTENSION

9. HORIZONTAL ABDUCTION: Lie on a table or the edge of a bed face down with one arm hanging down straight to the floor. Raise your arm out to the side, with your thumbs pointed toward the ceiling until your arms are parallel to the floor. Hold for 2 seconds and then lower it slowly. Start this exercise with no weight. As you get stronger add a light weight or hold a soup can. Do 3 sets of 10.



HORIZONTAL ABDUCTION

THORACIC OUTLET SYNDROME

What is thoracic outlet syndrome?

The thoracic outlet is a passage between your neck and armpit that contains blood vessels and nerves. In thoracic outlet syndrome there is a compression of the nerves, blood vessels or both.

How does it occur?

Thoracic outlet syndrome occurs when the size and shape of the outlet is compressed and narrowed. This can happen because of posture, muscle tightness, exercise, trauma, pregnancy, or being born with an extra rib (a cervical rib which is above the first rib).

Certain activities or postures can lead to thoracic outlet syndrome. People who stand for long periods of time (like cashiers or assembly line workers) may droop their shoulders and lean their head forward. People who carry heavy loads on their shoulders can develop a compression in the outlet. Athletes or those in occupations with repetitive overhead arm movements may also develop thoracic outlet syndrome.

What are the symptoms?

Symptoms can be caused by the compression of nerves, blood vessels or both. They can include:

- tingling or numbness in the fingers, hands, arm, shoulder or neck
- weakness of the hand or arm
- hand or arm swelling
- aching in the shoulder or neck

Symptoms may be worse when the arm is lifted above shoulder height.

How is it diagnosed?

Your provider will listen to your history and will do a exam examine your neck, shoulder, arm and hand. There may be swelling, weakness or numbness in your hand or arm. You may have tightness in your neck. You may have a loss or decrease of the pulse at your wrist. Your provider may order X-rays to see if you have a cervical rib or to make sure there are no problems in your neck. They may order special nerve tests.

How is it treated?

Treatment is aimed at reducing the compression in the thoracic outlet. This can include:

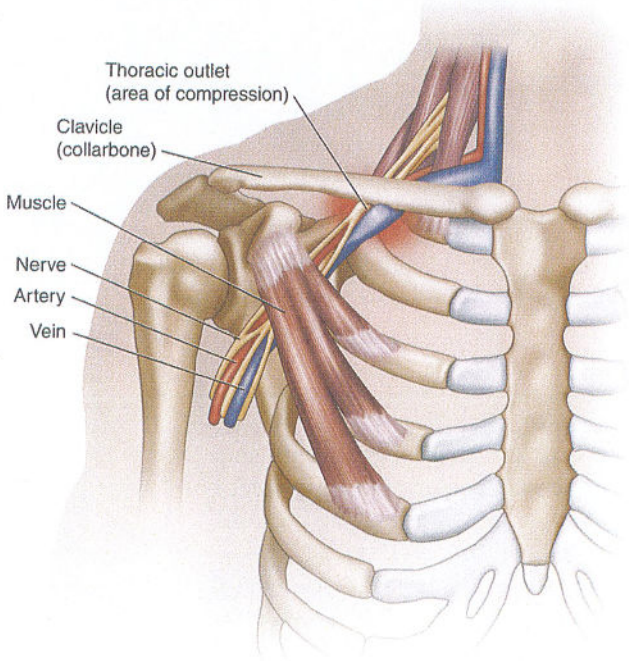
- exercises to improve your posture that will allow you to stand and sit straighter
- exercises to help stretch tight tissue around the thoracic outlet
- exercises to strengthen and stabilize the muscles in the shoulder and neck
- changing your workstation to have better posture.
- avoiding sleeping with your arm in an overhead position
- losing weight (if you are overweight)
- taking anti-inflammatory medication as needed (adults aged 65 years and older should not take non-steroidal anti-inflammatory medicine for more than 7 days without their healthcare provider's approval)

In rare cases surgery is done to relieve the symptoms of thoracic outlet syndrome.

When can I return to my sport or activity?

The goal of rehabilitation is to return you to your sport or activity as soon as is safely possible. If you return too soon you may worsen your injury, which could lead to permanent damage. Everyone recovers at a different rate. Return to your sport or activity will be determined by how soon your symptoms

THORACIC OUTLET SYNDROME



improve, not by how many days or weeks it has been since you started having symptoms. In general, the longer you have symptoms before treatment, the longer it will take to get better.

It is important that your sport or activity does not worsen your symptoms. You may need to make modifications such as reducing repetitive activities or changing your posture or technique.

If you have had surgery your provider will give you specific instructions about return to activity.

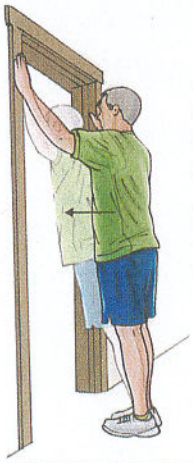
How can I prevent thoracic outlet syndrome?

Thoracic outlet syndrome is best prevented by avoiding repetitive overhead activities, avoiding carrying heavy loads on your shoulders, and by having good posture.

THORACIC OUTLET SYNDROME REHABILITATION EXERCISES

1. SCALENE STRETCH: This stretches the neck muscles that attach to your ribs. Sitting in an upright position, clasp both hands behind your back, lower your left shoulder, and tilt your head toward the right. Hold this position for 15 to 30 seconds and then come back to the starting position. Lower your right shoulder and tilt your head toward the left until you feel a stretch. Hold for 15 to 30 seconds. Repeat 3 times on each side.

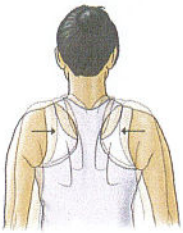
SCALENE STRETCH



2. PECTORALIS STRETCH: Stand in a doorway or corner with both arms on the wall slightly above your head. Slowly lean forward until you feel a stretch in the front of your shoulders. Hold 15 to 30 seconds. Repeat 3 times.

PECTORALIS STRETCH

3. SCAPULAR SQUEEZE: While sitting or standing with your arms by your sides, squeeze your shoulder blades together and hold for 5 seconds. Do 3 sets of 10.



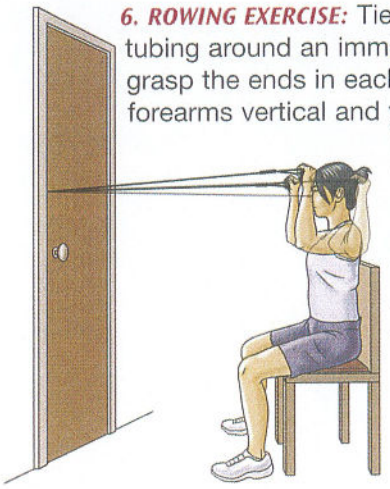
SCAPULAR SQUEEZE

4. ARM SLIDE ON WALL: Sit or stand with your back against a wall and your elbows and wrists against the wall. Slowly slide your arms upward as high as you can while keeping your elbows and wrists against the wall. Do 3 sets of 10.

ARM SLIDE ON WALL

5. THORACIC EXTENSION: While sitting in a chair, clasp both arms behind your head. Gently arch backward and look up toward the ceiling. Repeat 10 times. Do this several times per day.

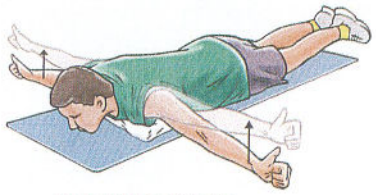
THORACIC EXTENSION



6. ROWING EXERCISE: Tie a piece of elastic tubing around an immovable object and grasp the ends in each hand. Keep your forearms vertical and your elbows at shoulder level and bent to 90 degrees. Pull backward on the band and squeeze your shoulder blades together. Repeat 10 times. Do 3 sets.

ROWING EXERCISE

7. MID-TRAP EXERCISE: Lie on your stomach on a firm surface and place a folded pillow underneath your chest. Place your arms out straight to your sides with your elbows straight and thumbs toward the ceiling. Slowly raise your arms toward the ceiling as you squeeze your shoulder blades together. Lower slowly. Do 3 sets of 15. Progress to holding soup cans or small weights in your hands.



MID-TRAP EXERCISE