

## Sacred and Baptist Hospital

### Drs. Kafie, Harlin and Yonehiro

Southeast Vascular Group  
5147 north 9th ave. 103  
Pensacola, Fl 32504  
phone 850-969-1491 or 850-434-1863  
fax 850-969-1443 or 850-432-9090

## Thoracic Outlet Syndrome

### General Information

Thoracic outlet syndrome (TOS) results from a compression of the nerves that pass into the arms from the neck (brachial plexus). The corridor through the area between the neck and the armpit (thoracic outlet) is narrowed causing the compression. This compression causes pain in the shoulder, arm or hand or some combination of the three.

This condition is difficult to diagnose and many times, the doctor will need to rule out other conditions before making a diagnosis.

### Causes of Thoracic Outlet Syndrome?

In many cases, no specific cause of TOS is found. However, any other condition, which results in growth or movement of the tissues near the thoracic outlet, can cause the syndrome to form. Examples of other conditions includes:

- . Muscle enlargement
- . Injuries to the area
- . Extra rib from the neck at birth (cervical rib)
- . Large callus from a healed clavicle fracture in an adult
- . Tumors at the upper part of the lung
- . Poor posture, especially in women with large breasts

An injury to the thoracic area may cause scar tissue to develop during the healing process. This scar tissue may lead to a compression of the nerves and blood vessels. Repetitive activities can also cause compression, especially activities that put the arms overhead. Slouching and dropping the shoulders is thought to be a common cause. This movement leads to tension in the muscles at the side of the neck and can constrict the nerves and arteries of the thoracic outlet.

### Symptoms of Thoracic Outlet Syndrome?

The most common symptoms of TOS are:

- . Neck, shoulder, arm and hand pain
- . Poor circulation to the extremities
- . Weakness, numbness and fatigue in the arm and hand

The symptoms of TOS can appear to be other conditions, making it difficult to diagnose. Herniated disks in the neck, [carpal tunnel syndrome](#) and [bursitis of the shoulder](#) all have similar symptoms.

In order to correctly diagnose the condition, electrical tests of the nerves in the arm may be ordered by your doctor. These tests will attempt to determine where and how the nerves in your arm are being squeezed. There are other tests used to determine whether or not the blood vessels are also being squeezed. Your doctor may also perform an x-ray of your chest to determine if there is an extra cervical rib causing the symptoms.

### Treatment

Many cases of TOS are successfully treated by exercise. Your doctor or physical therapist can show you a series of exercises that stretch the tissues of the thoracic outlet and improve posture. Weights may be used to pull the thoracic outlet into a restful position. These exercises may be done in the presence of a physical therapist or at home or work.

If the cause of TOS is an abnormality in the bone, exercise may not help treat the symptoms directly. However, improving your posture and conditioning your body will aid in the overall success of the treatment.

Losing weight if you are obese and using rest periods when tired can help treat the symptoms of TOS. It is important to avoid stress and to work on longterm solutions for home and work. You may have to make lifestyle changes in order to successfully treat the condition.

In some cases, your work environment may be the cause of the condition. If that is true in your case, the following measures may help.

- Ergonomics: A specialist can review your environment to conclude if your workplace is correctly set up. There are specially designed chairs and computer-related equipment that may help.
- Position of your arms: Make sure you do not extend your arms overhead for a long period of time.
- Avoid heavy lifting, pulling or pushing

If conservative treatments fail or if the cause of the TOS is vascular or neurological in nature, surgery may be considered. The surgery will focus on removing the source of the compression by releasing the scar tissue around the nerves. If the cause is an extra rib, the rib may be removed. The surgery to remove constriction is commonly done by making an incision under the arm, where the nerves of the brachial plexus are. The surgery will be done under general anesthetic and usually requires an overnight stay in a hospital. Breast reduction may be considered after a thorough evaluation.

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