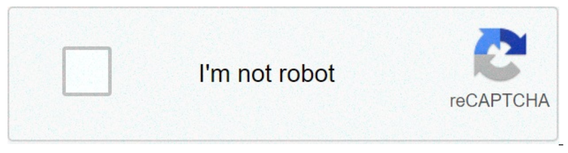

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Thoracic outlet physical therapy

Our physical therapists work closely with our physicians and see a range of musculoskeletal injuries and disorders. Together, our team of experts creates a customized plan to help patients achieve the highest level of function and offers one-on-one care. They utilize cutting-edge technologies, including the AlterG treadmill, Shockwave, 2-D video analysis, and HydroWorx underwater treadmill to aid in overall patient care and recovery*. Additionally, our physical therapists collaborate with our performance team to provide movement analysis and sports-specific assessments. *Equipment may vary per location; contact site for further details A physical therapist can improve the quality of life for patients. Knowledge of the human body and movement techniques enables a physical therapist to assist patients in managing pain and recovering from illness or injury. The U.S. Bureau of Labor Statistics projects that there will be 77,400 new jobs for physical therapists during the decade from 2010 to 2020. By studying physical therapy, you can learn the skills necessary to help patients with rehabilitation, and can potentially earn a six-figure income. According to the U.S. Bureau of Labor Statistics, the median annual salary of physical therapists in May 2011 was $78,270. Those with wages in the lowest 10 percent earned up to $54,710, but those with wages in the highest 10 percent earned more than $110,670. To qualify for a licensing exam and begin practicing as a physical therapist, candidates must pursue a postgraduate education. It's best to seek a master's or doctorate degree that is accredited by the Commission on Accreditation in Physical Therapy Education. From 2011 to 2012, there were over 25,000 students enrolled in the nation's 211 accredited programs. Another option is to work in this field by joining over 10,000 students in the nation's 293 physical therapy assistant programs. Accredited physical therapist programs offer degrees at the master's and doctorate level. There are only five accredited programs that culminate in a master's degree, located in California and Puerto Rico, as of July 2012. The remaining accredited programs for graduate students culminate in a doctorate degree. If you decide to get a doctorate, you can choose between a program for entry-level candidates and a program for students who already hold a master's degree in physical therapy. The latter programs may be offered entirely online. There are also bridge programs for physical therapy assistants who want to become physical therapists. Graduate studies in physical therapy consist of course content in the life sciences, health sciences and clinical practice. Course topics might include anatomy, physiology, pathology, orthopedics, human growth and development, neurology, radiology, neuroscience, and physiotherapy. Clinical rotations and research help round out a candidate's preparation for professional practice. A physical therapist needs clinical skills to help patients, including collecting a patient's medical information for diagnosis and treatment, explaining therapies in a treatment plan, and assisting patients with individualized rehabilitation programs. This profession is physically demanding. A therapist must move patients, demonstrate exercises, and participate in physical conditioning, helping to motivate patients to complete their therapy goals. Physical therapists can expand their earning potential by opening a practice alone or with other therapists. To grow a practice even more, you can add physical therapy assistants, and alternative care professionals such as massage therapists and acupuncturists. Physical therapy is an individualized program of gentle stretching and exercises that are used in rehabilitating an existing injury and preventing a future injury. Through consultation with a physical therapist, the participating patient will work to restore strength and flexibility in muscles surrounding the injury site in hopes of reducing the degree of limitation and restoring functionality. Related Definitions The chest x-ray shows the compression of the nerves and blood vessels in the thoracic outlet.Thoracic outlet syndrome refers to a group of conditions caused by the compression of nerves and blood vessels (neurovascular structures) in the thoracic outlet, which is the area of the upper chest between the collarbone and the first rib. There are three types of thoracic outlet syndrome:Neurogenic thoracic outlet syndrome, which affects the nerves – most common type, majority of casesVenous thoracic outlet syndrome, which affects the veins – second-most common type, about 3% of casesArterial thoracic outlet syndrome, which affects the arteries – least common type, about 1% of cases Symptoms of thoracic outlet syndrome depend on the neurovascular structure that is compressed. Symptoms of neurogenic thoracic outlet syndrome that affects the nerves include: PainAbnormal sensations such as burning or itchingNumbnessWeaknessSymptoms are worsened by activities that require sustained use of the arms or hands or raising the arms or hands, such as reaching or lifting overhead and prolonged working at a computer or driving. Turning the neck, tilting the head, and extending or rotating the arm may also cause symptoms.Prolonged, severe compression can lead to muscle atrophy (rare) Symptoms of venous thoracic outlet syndrome that affects the veins include:Frequently occurs in people who perform vigorous repetitive actions of the arms, usually when the arms are above shoulder levelForearm fatigue within minutes of performing an activitySwelling of arms and handsPainBluish color to the skin of the affected extremity due to low oxygenNumbness and tingling in the fingers (usually due to swelling)Visible veins in the skin overlying the shoulder, neck, and chest wallDeep vein thrombosis (DVT)Symptoms of arterial thoracic outlet syndrome that affects the arteries include:Usually associated with a cervical rib or anomalous rib (extra ribs that are a congenital abnormality)Loss of blood supply to the hand that causes pain, pallor, numbness, and tingling, and cold sensationArm pain There are two main causes of thoracic outlet syndrome - bony and soft-tissue factors. Bony factors include:Abnormalities such as anomalous cervical ribs (extra rib that is present from birth)Underdeveloped first thoracic ribsAbnormal bone growth of the first rib or clavicle, usually hereditarySoft-tissue factors include:Abnormal fibrous muscular bands near the brachial plexus (congenital – present from birth)Enlarged muscles in athletes and weight liftersLesions that take up space such as tumors or cystsInflammatory processes in the soft tissues Trauma and stress to the neck, shoulders, or upper arms can also cause thoracic outlet syndrome. After a physical exam, some tests may be ordered to rule out other conditions that can cause similar symptoms.Blood tests to help exclude other diseases and causes of inflammation include:Blood glucose levelComplete blood cell (CBC) countErythrocyte sedimentation rate (ESR)Basic metabolic panelThyrotropin levelRheumatologic workupImaging studies to help diagnose thoracic outlet syndrome may include:A scalene muscle test injection may be used to help diagnose neurogenic thoracic outlet syndrome. What Is Rheumatoid Arthritis (RA)? Symptoms, Treatment, Diagnosis See Slideshow Treatment for thoracic outlet syndrome depends upon the type, and is only needed in patients who experience symptoms of the condition. Treatment for neurogenic thoracic outlet syndrome may include:Treatment for venous neurogenic thoracic outlet syndrome may include:Anticoagulation/thrombolysis Surgical decompression Treatment for arterial neurogenic thoracic outlet syndrome may include:Catheter-directed thrombolysis Surgical embolectomy (with or without intraoperative thrombolysis) in conjunction with thoracic outlet decompressionArterial stenting Complications of thoracic outlet syndrome may include:Blood flow problems (ischemic changes) A blood clot in the lungs (pulmonary embolism)Upper extremity phlegmasia cerulea dolens Nerve injury (e.g., brachial plexus neurapraxia) is a serious postoperative complication after thoracic outlet decompressionNeed for chronic anticoagulationBleeding problems from the subclavian vessels and lymph leakage from the thoracic duct (uncommon) Source: Facebook Twitter Linkedin Pinterest Symptoms include pain, tingling or weakness in the shoulder and arm, especially when raising the arms. Having a cervical rib (an extra rib extending from the neck) increases your chance of developing thoracic outlet syndrome. Different types of thoracic outlet syndrome call for different treatments. Treatments include physical therapy, injections or surgery to cut muscle or remove an extra rib that is pressing on the nerves or blood vessels. The thoracic outlet is the ring formed by the top ribs, just below the collarbone. Thoracic outlet syndrome (TOS) occurs when nerves or blood vessels are compressed by the rib, collarbone or neck muscles at the top of the outlet. What are the types of thoracic outlet syndrome? Neurogenic TOS occurs when the nerves leading from the neck to the arm (the brachial plexus) is compressed. More than 90 percent of cases are neurogenic. Venous TOS occurs when a vein is compressed, leading to upper body thrombosis. Five percent of cases are venous. Arterial TOS occurs when an artery is compressed. Only about 1 percent of cases are arterial. Sometimes, the venous and arterial syndromes are known together as vascular thoracic outlet syndrome. Assistant professor of surgery and vascular surgeon Ying Wei Lum discusses causes, symptoms and risk factors of thoracic outlet syndrome. The symptoms of thoracic outlet syndrome depend on the type of TOS. Symptoms of Neurogenic Thoracic Outlet Syndrome Pain or weakness in the shoulder and arm Tingling or discomfort in the fingers Arm that tires quickly Atrophy — shrinking and weakness — of the pad of the thumb, the muscle of the palm that leads to the thumb; this is quite rare Symptoms may come and go, but they are often made worse when arms are held up. The longer the arms stay up, the worse the symptoms can get. Symptoms of Venous Thoracic Outlet Syndrome Edema (swelling) of the arm, hand or fingers Blueness of the hand and arm Painful tingling in the hand and arm Very prominent veins in the shoulder, neck and hand These symptoms occur because compression of the vein may cause blood clots. This is known as effort thrombosis, or Paget-Schroetter syndrome. Effort thrombosis is a type of deep vein thrombosis. In this case, the clots are formed as the result of overhead motions (efforts) that compress the vein. Deep vein thrombosis is more common in the legs. When it occurs in the shoulders or arms, the cause is either recent surgery, a foreign object inserted into the upper body — such as a central line, pacemaker or implantable cardioverter defibrillator — or thoracic outlet syndrome. Symptoms of Arterial Thoracic Outlet Syndrome Cold and pale hand Pain in the hand and arm, especially during overhead motions of the arm Embolism (blockage) of an artery in the hand or arm Aneurysm of the subclavian artery What causes thoracic outlet syndrome? Sometimes, a congenital (from birth) abnormality can cause thoracic outlet syndrome, but it is more likely to occur after injury or bodybuilding. Specifically: Cervical rib: A cervical rib is an extra rib that grows from the cervical spine — the neck part of the spine. Between 1 and 3 percent of the population has a cervical rib, which may grow on one side or both, and may reach down to attach to the first rib or may not be fully formed. Having a cervical rib increases the chance of nerve or blood vessel compression between the rib or its muscles and ligamentous connections sharing this small space. A small percentage of people with a cervical rib develop thoracic outlet syndrome. Many people with a cervical rib never know it, because the bone is often tiny and isn’t noticed, even in X-rays. Abnormal muscle or first rib formation: Some people may have an extra or aberrant scalene muscle (an inner muscle of the neck) or an abnormal first rib or clavicle (collarbone). Any of these abnormal formations can compress blood vessels or nerves. The following events may cause thoracic outlet syndrome, especially in people with the above bone or muscle abnormalities in the neck: Whiplash: Arm and hand symptoms that persist long after a whiplash injury may be a sign of thoracic outlet syndrome. Bodybuilding: Built-up muscles in the neck may grow too large and compress nerves or the subclavian vessels. Repeated overhead motions: People who take up swimming, baseball or painting, or who work as hairstylists, auto mechanics or other jobs that require raised arms may develop thoracic outlet syndrome. Weight gain: As with extra muscle mass, extra fat in the neck may compress nerves or subclavian vessels. Tumor in the neck: On rare occasions, a tumor may be the cause of the compression. How is thoracic outlet syndrome diagnosed? Thoracic outlet syndrome is sometimes considered controversial, as symptoms can be vague and similar to other conditions. It’s important to be evaluated by someone who can distinguish between the various types of thoracic outlet syndrome and rule out other conditions. Evaluation begins with most or all of the following: Complete medical history and review of symptoms Physical maneuvers (movements) to provoke symptoms Evaluate by history to rule out nerve-related conditions, such as carpal tunnel syndrome, cubital tunnel syndrome, cervical spine disease or other types of nerve entrapment, which have similar symptoms and may be confused for thoracic outlet syndrome. Sometimes, tests such as nerve conduction studies or MRI of the cervical spine are necessary to rule these out. Other tests that aid with diagnosis that are frequently ordered: Duplex ultrasound to check for stenosis (narrowing) or occlusion (blockage) of blood vessels Chest X-ray to check for cervical rib or abnormal first rib If neurogenic thoracic outlet syndrome is suspected: Brachial plexus block: Local anesthetic is injected into the scalene muscles of the neck. The chance of having neurogenic TOS is stronger if other symptoms disappear while this area is numb. How is thoracic outlet syndrome treated? Treatment depends on whether thoracic outlet syndrome is neurogenic or vascular. Treatment for Neurogenic Thoracic Outlet Syndrome Physical therapy is typically the first treatment. Botulinum toxin injections are sometimes effective when physical therapy doesn’t completely relieve symptoms. If symptoms persist after physical therapy and injections, surgery may be recommended. Surgery can involve cutting small muscles of the neck (anterior and middle scalene) and removing the cervical or first rib. Recurrence: Sometimes, neurogenic TOS recurs months or years after treatment. This may happen because of scar tissue from the surgical site or because the condition was misdiagnosed. Nerve Block is a non-surgical alternative for patients suffering from Thoracic Outlet Syndrome (TOS). This animation illustrates how physicians at the Johns Hopkins Thoracic Outlet Syndrome Clinic perform interscalene brachial plexus blocks using botulinum toxin type A injections to provide temporary pain relief for patients. Surgery is usually recommended for venous TOS. This may involve removing both the scalene and subclavius muscles and first rib. The vein itself must also be treated. Blood clots often form around the damaged inner surface of the compressed vein. Treatments include: Medication: Blood thinners to treat clots Thrombolysis: A procedure to remove a clot from the vein, usually done before TOS surgery Post-rib resection venogram: A procedure done two or three weeks after TOS surgery to check any remaining damage to the vein; the vein can usually be treated with balloon angioplasty, in which a balloon is used to expand the narrowed vein. Learn more about the tranaxillary first rib resection surgical approach to treat TOS from the Johns Hopkins Thoracic Outlet Syndrome Clinic. Watch to find out what happens during and after this decompression surgery, which is a low risk and effective surgical treatment for patients diagnosed with neurogenic or venous TOS. Surgery is usually recommended for arterial TOS. This may involve removing both the scalene muscles in the neck, the cervical rib if present and the first rib. Other treatments include: Medication: blood thinners to treat clots Reconstruction or replacement of the artery if the artery has an aneurysm or contains a clot Bilateral Treatment Occasionally, thoracic outlet syndrome is bilateral — meaning it occurs on both sides. People who are diagnosed with TOS on one side should have the other side checked, but they should not be treated unless they show definite signs or symptoms. If you have a new or existing heart problem, it's vital to see a doctor. Our heart health checklist can help you determine when to seek care.