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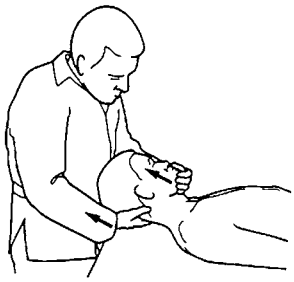
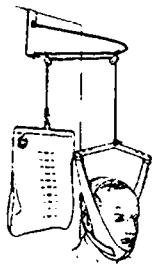
PRONEX®

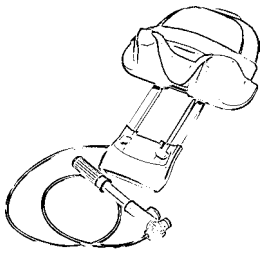
Pneumatic Cervical Traction

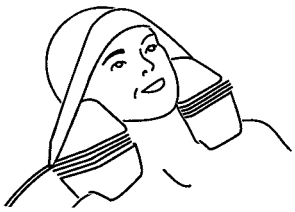
Safe, Effective, Comfortable Pneumatic Cervical Traction

The Pronex® Cervical Traction device is a patient-controlled, at-home therapy intended to treat musculoskeletal or neurologic impairment of the cervical spine to relieve pain, relax muscle spasms and decompress spinal structures. Pronex offers a few advantages over other, more traditional cervical traction options including over-the-door traction, rigid pneumatic traction devices and manual manipulation.









	Manual Traction	Over-the Door Traction	Rigid Pneumatic Traction	PRONEX®
Product Design	No device, simply the hands of a trained medical professional.	Involves a system of pulleys and weights connected to a head halter.	Self-contained device with foam neck rest on sturdy metal ramp and a two-hand air pump.	Self-contained device with soft foam cushions above and below an inflatable bellow and single hand pump.
Usability	During this treatment the clinician supports the patient's head and creates a gentle, controlled stretch. Patients must invest their time and money for a clinic visit.	Patients use at home either standing or sitting. Lifting the counter-weight requires assistance and can put a patient at risk of additional injury.	Patients use at home only on a hard, flat surface. Getting into a prone position on the ground can be painful and uncomfortable for the patient.	Patients use at home on any hard or soft surface, including a bed, couch or sofa.
Application of Traction	Use of manual traction allows the clinician to change the position of the head: moving it from side to side or gently flexing and extending the cervical spine to assess and relieve symptoms.	Places pressure on the jaw, it is not suitable for treatment of temporomandibular joint disorders (TMJ) and may even exacerbate these conditions.	Places pressure on the occipital joint that can lead to headaches in some patients.	Provides even distraction in the anterior and posterior cervical discs without pressure points. Supports and reinforces the natural curvature of the spine.[1]
Traction Force	Traction force applied will vary by clinician and patient need.	Generally limited to less than 20 lbs.	Provides up to 50 lb. of force.	Air-inflated bellows provides up to 35 lb. of force.

Therapeutic Benefits of Cervical Traction

Actions on Muscles

Cervical traction gently stretches and releases muscles, reduces muscle spasm, and improves range of motion and flexibility. Blood vessels compressed by rigid muscles are allowed to relax, enabling blood flow and lymphatic circulation to return to the affected area.

The unique design of Pronex can provide a stretch that extends into the suboccipital muscles and the muscles that extend to the front of the skull and down to the trapezius and thoracic musculature in addition to the cervical musculature. This stretch and release may help to relieve several conditions associated with cervical neck pain such as headache, TMJ and back pain.

Posture

The cervical traction provided by the Pronex device can also help to retrain muscles thereby restoring natural posture, curvature and position. Pronex has demonstrated the ability to improve vertebral alignment and restore the normal C2–C7 lordosis in the spine without placing pressure on the TMJ or forehead.[1]

Loss of normal cervical lordosis often yields a forward head posture which has been implicated in a variety of conditions including unilateral vestibular hypofunctioning and postural instability.[2] By stretching cervical muscles, as well as those of the suboccipital region and front of the skull, and the trapezius and thoracic musculature, Pronex may help to address a range of conditions including problems associated with forward head posture.

Because many patients with neck pain and poor posture also suffer from TMJ, it is important to understand that Pronex applies traction force to the occipital area and trapezius muscles without placing pressure on the TMJ or forehead.

Decompression

The application of a tractive force to decompress spinal structures alleviates pressure on the nerve root causing radicular symptoms. It acts to:

» Separate the vertebrae, taking pressure off the intervertebral discs;
» Enlarge the intervertebral foramen;
» Separate the facet joints; *and*
» Facilitate improved range of motion.

Practitioners of cranial or cranio-sacral therapy have noted that Pronex complements this therapeutic modality by exerting soft traction on the dural membrane to decompress the dura and facilitate dural release.

Maintenance and Prevention

The cumulative effects of age-related changes and the force of gravity exert pressure on the spine. Many clinicians prescribe Pronex as a preventive measure to counter the effects of gravity on the cervical disc. This is achieved by decompressing the spinal structures, maintaining the natural curvature of the cervical spine and retraining muscles that have adapted to poor postural positions.

Pronex may also be effective for patients at risk for repetitive strain injuries by retraining muscles so they may assume more ergonomically correct postural positions and maintain the natural curvature of the spine.

Clinical Considerations

The cervical traction provided by the Pronex device is intended to treat a musculoskeletal or neurologic impairment of the cervical spine to relieve pain, relax muscle spasms and decompress spinal structures. Depending on the nature and acuity of the complaint – acute, subacute or chronic – cervical traction may be used alone or in conjunction with other treatment modalities.

Common conditions/symptoms treated by traction include:

Pain or Stiffness When Moving Neck

Cervical traction helps to relieve neck pain and stiffness by gently stretching muscles and ligaments to release tension and reduce muscle spasm. This helps to increase flexibility and range of motion. Decompression of spinal structures can alleviate neck pain caused by compression of neural structures.

Additionally, Pronex supports the natural curve of the cervical spine, improving alignment and postural tone to help resolve cervical pain and stiffness related to poor posture.

Tension Headaches

Cervical traction and muscle retraining are frequently used interventions for headache.[4] For headache pain caused by upper cervical spine disorders, cervical traction has been found to be especially effective. Research suggests that as much as one-fifth of chronic unilateral headache pain is cervical in origin.

By improving cervical curvature and restoring blood flow, Pronex can help to relieve headache pain. By placing little to no pressure on the head or TMJ, the risk of exacerbating headache pain is minimized.

Myofascial Pain

Myofascial pain syndrome (MPS) of the shoulder and neck, as well as myofascial pain of the forearm extensors, is often associated with poor posture and ergonomic stressors that develop after prolonged computer use. Traction and a rehabilitative exercise may be effective treatment for myofascial pain.[5]

Pronex not only corrects posture but many clinicians report that it also helps to increase patient awareness of posture and position. By experiencing muscle stretch and the release of tension and spasm, they are better able assume healthy postures while at work.

Limited Range of Motion in Back, Shoulder, Neck or Limbs

Soft tissue injuries and bone immobility not only produce pain but also limit flexion, extension, rotation and lateral bending. Cervical traction serves to decompress nerve roots and reduce the painful muscle spasms that reduce range of motion.

Pronex facilitates complete ease and relaxation since the patient is supine and can control the rate and force of traction.

Muscle Spasms in Neck or Shoulders

The gentle, even, consistent stretch of muscles in the neck helps to reduce muscle spasm. Blood vessels compressed by rigid muscles are allowed to relax, enabling blood flow and lymphatic circulation to return to the affected area.

By applying opposing forces, Pronex stretches the musculature in a gentle and effective manner. A small amount of pressure applies maximum force by applying pressure against the occipital region and trapezoid muscles.

Numbness and Tingling in the Hands or Arms
Numbness in the upper extremities may result from nerve impingement or entrapment resulting from common disc issues (e.g., degeneration of the cervical discs in the neck, arthritis of the cervical spine).[3] It also may be attributable to nerve impingement resulting from herniated disc.

The even distraction delivered by the Pronex device opens both anterior and posterior disc space, relieving pressure on nerves and blood vessels.

Whiplash
Cervical traction may effectively treat whiplash injuries and whiplash associated chronic headache.[11] Recent research reveals that TMJ symptoms may be associated with, or occur independently of, whiplash attributable to motor-vehicle collisions.

The Pronex device helps to relieve the muscle spasms associated with whiplash pain, improves blood flow to the injured muscles and helps to relieve TMJ symptoms.

TMJ Dysfunction
Targeted cervical traction has proven effective for relieving TMJ pain[12] and helps increase patient awareness of muscle tension that contributes to TMJ. TMJ frequently presents with neck and facial pain and cervical traction may act to alleviate symptoms of these co-occurring and inter-related disorders.

Because the Pronex device applies no pressure to the TMJ, it is uniquely suited for such therapy.

Poor Posture
Postural problems such as forward head posture/cervical lordosis, loss of the cervical neck curve and cervical kyphosis (military neck) are associated with neck and shoulder pain, stiffness, limited range of motion and fatigue. Many people consider them occupational hazards of the information age.[8]

Pronex helps to restore the natural curvature of the spine and musculo-skeletal alignment which may serve to prevent re-injury.

Thoracic Outlet Syndrome (TOS)
TOS is neck, shoulder or arm pain that may be neurogenic in origin, resulting from compression of the brachial plexus; vascular, resulting from compression of the subclavian artery or vein; or nonspecific (i.e., unknown etiology). TOS frequently occurs as a result of ergonomic stressors such as typing and using a mouse.[8]

Cervical traction may help to decompress structures pinching the nerves and vasculature and alleviate symptoms.[9] Since postural changes have been implicated in TOS,[10] the ability of the Pronex device to improve posture and alignment may not only help to relieve symptoms but also may help to prevent recurrence.

Repetitive Strain Injury (RSI)
Repetitive strain injuries resulting from occupational or recreational activities can cause pain, weakness and parasthesias.[6] The resulting poor posture (from weakened muscles and muscle memory) can be difficult to change as strong muscles are more easily retrained.[7]

Repetitive use of the Pronex device in the clinic, reinforced by home use, can help to retrain muscle memory and improve musculoskeletal alignment.

Recommendations for Traction Treatment

Traction treatment considers multiple variables such as flexion, static or intermittent treatment, amount of traction force, patient positioning and the frequency and duration of traction treatment. This section reflects current thinking about these variables and describes how to customize the treatment protocol for each patient.

The Application of Static or Intermittent Traction
Static traction employs only one traction level for the entire traction treatment. A patient may increase or decrease the traction level during the treatment depending on sensation, but it is not at pre-set intervals.

For home use, static traction is the preferred mode because it is easier and more convenient for patients to self-administer.

Intermittent traction is traction performed at specific intervals with predetermined on and off times. Intermittent traction settings range from 60 seconds on and 40 seconds off to 2-4 minutes on and 1-2 minutes off. One of the ways that intermittent traction reduces pain may be by improving circulation or by preventing or reducing adhesions and contractures of cervical structures.[15]

Several studies suggest that intermittent cervical traction may effectively relieve pain and disability associated with radicular symptoms in patients with mild cervical compressive myelopathies attributable to a herniated disc.[16,17] At least one randomized clinical trial (RCT) found intermittent traction to be significantly better for resolution of cervical spine pain and disorders.[18]

When using intermittent traction in the home, a regimen of 2-4 minutes on and 1-2 minutes off time ration is recommended to simplify self-administered treatment. To shorten deflation time, the patient does not need to completely deflate the device. The patient should deflate until a stretch is no longer felt.

The Application of Flexion
The neutral position is frequently the most effective treatment option for patients. While flexion may increase posterior separation, it also has been shown to decrease anterior separation and may produce some anterior compression. Furthermore, using flexion with traction may be counter productive for patients with postural problems such as forward head because it may exacerbate rather than assist to alleviate this posture.

Some clinicians find that for selected patients, particularly those with disc related problems or facet osteoarthritis, using traction with flexion offers relief of pain and muscle spasm.[13] Pain relief has been attributed to the ability to achieve greater intervertebral separation in the posterior vertebral space, lower cervical spine and facet joints with flexion.

The Pronex flexion wedge may be used when the patient needs flexion in order to assume a neutral position (i.e. the patient appears to be in extension if the flexion wedge is not used) or to enhance the comfort of patients with severe forward head posture or thoracic kyphosis. This will enable patients who are unable to assume a neutral position to more comfortably receive traction treatment. Such patients should work towards a progressively more neutral position as their symptoms resolve.

The Application of Traction Force
To apply traction patients should inflate the device until they feel a gentle stretch. Over time, as range of motion and flexibility increase and the muscles begin to stretch, patients will be able to use progressively more traction force. Research suggests that intervertebral separation begins at 20 lbs. of traction. For middle and lower cervical spine, a distraction force of 25 lbs. or more is optimal for separating intervertebral space. However, force in excess of 35 lbs. is considered excessive and may itself cause neck pain.[14]

The unique bellows technology in Pronex allows the application of traction force in both directions, producing a gentler, more continuous and fluid stretch than possible with other traction units. This comfortable, effective traction force improves patient satisfaction and encourages adherence to treatment.

Positioning the Patient

The supine position is more comfortable for most patients. It is intuitively correct – it's simply easier to relax lying down than sitting upright. The supine posture facilitates release, relieving the muscles of the neck from the burden of holding the weight of the head and makes it easier to achieve even distraction. Further, clinical research comparing seated and supine cervical traction finds that supine traction may be more effective for increasing posterior vertebral separation than seated cervical traction.[19]

Pronex, with its supportive and comfortable fit, is designed for use in the supine position to optimize muscle relaxation and deliver consistent and uniform traction treatment. Patients should use Pronex in the supine position, with knees bent at a 45 degree angle to flatten the lumbar spine.

Length of Treatment

The acuity of the injury or condition and the patient's tolerance and perceived relief may be used to plan treatment duration. The adage, "Start low, go slow" should be observed to prevent muscle soreness. Initial treatment may begin with just 2-5 minutes and with growing tolerance and relief of symptoms may escalate to 10-20 minutes per treatment.

Frequency of Use

Patients using the device for the shortest periods of time, 2-5 minutes, typically benefit from multiple sessions per day, with 2 hours between treatments. Those taking longer treatments of 10- 20 minutes typically find relief with 1-2 treatments a day. Traction may be performed before and after work or just before going to sleep. Many patients report that treatment at bed time eases the strains of the day and promotes calm, restorative sleep.

Continuing Use

Because Pronex cervical traction is comfortable, easy to use, and offers symptom relief, adherence to prescribed treatment is generally excellent. It is important, however, to encourage patients to schedule daily treatment for as long as symptoms persist. Many find that even after symptoms subside, regular treatment helps to prevent recurrence of symptoms and supports the natural curvature of the cervical spine.

Contraindications/Warnings

Cervical traction should be avoided in any condition of the cervical spine where movement can aggravate the condition or result in spinal instability, spinal injury and/or nerve root injury at risk for causing paralysis or ischemia.

Patients should be advised that traction should never cause pain. A stretching sensation or some slight discomfort may be felt during treatment. If pain increases in the neck, back, arms or legs or if dizziness, nausea or any other discomfort occurs during or after treatment, traction treatment should be discontinued.

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