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Spinal Traction

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Therapeutic spinal traction uses manual or mechanically applied forces to stretch and mobilize the spine. It generally affects multiple levels of the spine. Traction may successfully alleviate back pain by stretching tight spinal muscles, by reducing pressure within the intervertebral disc, by reducing strain on facet joints, by alleviating soft tissue impingement and by widening the intervertebral foramen to relieve nerve root impingement. Spinal traction can be performed using a variety of methods. The overall goal of spinal traction is to reduce pain, improve mobility and to relax muscles. Traction can help increase the dimension of the openings along the side of the spine (neuroforamen), thereby helping reduce pressure upon the nerve root within the space. If spinal traction reduces pain there will usually be a corresponding reduction of muscle spasm or tightness. To be effective, traction of the spine usually has to be performed one or more times per week. Short duration traction or intermittent traction is usually more beneficial than sustained traction. Intermittent traction can have an effect on tissue blood flow and fluid exchange leading to mobilization of nutrients and reduction of inflammation. Intermittent traction of inflamed tissue may help reduce the risk for adhesion or scar development.

Intermittent and/or sustained traction may encourage migration nucleus of the disc or portions of the nucleus to a more centralized position. The use of traction may reduce impingement of meniscal structures in the spinal joints (facets), joint lining (synovial fringes), or bone fragments, which may be impinged between the facet joint surfaces.

The spinal muscles are stretched during spinal traction. The degree of stretch is influenced by the angle of the traction is performed. Intermittent traction tends to be more effective at reducing muscle spasm than sustained traction. Traction can be used to temporarily reduce pressure on spinal nerves that may be compromised between the vertebrae secondary to a bulging disc, facet joint cyst, or secondary to compression from openings along the side of the spine. The reduction of extremity paresthesia, pain or tingling during the course of traction suggests that there may be reduction of nerve pressure.

There are numerous traction techniques and devices available to physicians and therapists. The chosen approach should depend on the patient's physical condition, the spinal disorder being treated, the individualâ€™s tolerance for traction, and the spinal level (s) to be treated. The application of therapeutic traction may be manual or mechanical. Traction may be applied as a continuous force or intermittently. Sustained traction for prolonged periods of time is not utilized very often.

Manual therapeutic traction refers to a hands' on approach. To perform manual traction of the neck the patient lies in a supine or face up relaxed and comfortable position on the table. The attending physician or therapist carefully positions their hands in such a way as to support the patient's head and neck during distraction. The force that is manually applied is gentle and controlled. During neck (cervical) traction the physician or therapist may change the angle of the head and neck to localize the effects of the traction.

There are a number of mechanical traction devices that can be used to treat the cervical spine. Some patients may be instructed in using a traction system at home. The attending physician or therapist should instruct their patient how to set the system up, attach the supportive straps or headrest, apply the desired force correctly, and determine the duration of traction treatment. Depending on the system, the patient may be able to perform the traction while sitting, reclining, or laying supine.

Lumbar traction usually requires distracting the spine in the long axis with the equivalent of approximately one quarter to one half of the body's weight. A number of traction tables have been developed to assist the physician or therapist in the application of adequate low back traction. Mechanical traction may incorporate the use of a motorized traction table. This type of table usually requires that the patient be placed in a pelvic harness secured to one end of the table. The tabletop can be set to slide in a horizontal plane, resulting in axial traction. Some motorized units are computerized and elaborate such as the AntalgicTrac or the DRX 9000. The devices have sophisticated controls and settings enabling the therapist to program the patient's session of therapeutic traction. The Antalgictrac is capable of multiple axes of rotation, allowing for complex and specific decompression of the spine.

Intersegmental traction is a type of passive motion therapy that gently stretches the spine without the use of a harness based traction system. The intersegmental traction device has contoured rollers that roll up and down the spine. This is performed with the patient supine or face up on the table. A pair of rollers is then set to travel a set horizontal distance over the spine. The vertical roller height can also be set influencing how much movement is induced across the spinal segments. Intersegmental traction is a form of continuous passive motion therapy (CPM). Another type of CPM is commonly used as a postoperative treatment for knee and hip surgeries in physical therapy facilities.

Flexion-distraction is a type of traction using a table device capable of traction in multiple axes such as long axis traction and flexion or rotation. Examples of this specialized device include, the Cox Flexion-distraction table or the Leader/Leander table. The table has a pivoting section for the pelvis and torso, allowing traction in multiple directions to facilitate decompression.

There are absolute and relative contraindications for spinal traction. Contraindications include but are not limited to instability and an actual loss of spinal structural integrity. Examples include conditions such as osteoporosis, infection, spinal segment instability, tumor, and cervical rheumatoid arthritis. Physical conditions such as pregnancy, cardiovascular disease, hernia, and in some cases TMJ, may limit the type and duration of traction used.