



Acute Non-Specific Mechanical Neck Pain Treated with Cox® Technic

Michael A. Johnson, DC
2990 East Main Street
Richmond, IN 47374
765-962-9900

info@DrMichaelJohnson.com

submitted on November 2, 2021

Non-specific neck pain has a postural or mechanical basis and affects about two thirds of people at some stage, especially in middle age. Several interventions have been reported and reviewed including, but not limited to: acupuncture, biofeedback, drug treatments, exercise, heat or cold, manipulation (alone or plus exercise), mobilization, patient education, percutaneous radio frequency neurotomy, surgery, and traction.¹

In this case, I have combined an un-reported combination of treatment approaches that effectively reduced this patient's pain and increased her cervical range of motion with no adverse reactions in a relatively short amount of time.

Discussion:

Static stretching and **proprioceptive neuromuscular facilitation** (PNF) stretching of the hamstrings have been shown to have immediate effects on straight leg raising and cervical range of motion after one session in neck pain patients with hamstring tightness.²

An osteopathic technic of **doming of the diaphragm** has been reported in the literature to both improve hamstring flexibility³ and generate a significant improvement in cervical extension and right and left lateral flexion⁴.

Thoracic spine thrust manipulation has also been reported to provide improvement in patients with acute or subacute mechanical neck pain⁵.

A systematic review found that mobilization need not be applied at the symptomatic level(s) for improvements of non-specific neck pain patients⁶.

Individuals with mechanical neck pain who received a combination of thoracic spine thrust manipulation and **cervical spine non-thrust manipulation** demonstrated better overall short-term outcomes on the numeric pain rating scale and the Neck Disability Index versus cervical spine non-thrust manipulation alone⁷.

Cervical along with thoracic manual therapy reduced neck pain and associated neck disability more effectively than cervical manual therapy alone⁸.



Stretching as performed with **Cox® Technic** long y-axis distraction is an effective procedure at improving cervical active range of motion and alleviating neck pain^{9,10}.

This case reports a patient that presents with **acute non-specific mechanical neck pain** treated with proprioceptive neuromuscular facilitation, doming of the diaphragm, vagus nerve stimulation at the celiac plexus, upper thoracic HVLA manipulation and **Cox® Technic**.¹¹

Presenting Complaints:

Hannah, a dental assistant, age 38 presented herself to my office on September 13, 2021. Her chief complaint was that of acute neck pain and stiffness that had begun the previous morning upon arising. She reports no known precipitous to her condition other than she had been working out the previous week. She rated her pain a 7-8 on a visual analog scale of 0-10, with 0 being no pain and 10 being excruciating pain. She described her pain dull with sharp pain upon movement.

Examination:

Her cervical range of motion was markedly limited to 15 degrees of flexion, extension, and right and left rotation. Cervical compression test increased her neck pain and cervical decompression test decreased her pain. Her upper extremity deep tendon reflexes were +2 and symmetrical. She had no motor deficits in her upper extremities.

Imaging:

Cervical films were taken in my office on September 13, 2021. There is a loss of the normal cervical lordosis. Her disc heights appear to be well maintained. No gross osseous pathologies are present.

Diagnosis:

Acute non-specific mechanical neck pain

Treatment:

Hannah was first instructed to lie comfortably supine on a Cox 8 Table. PNF hamstring stretching was performed bilaterally, followed by doming of the diaphragm and vagus nerve stimulation at the celiac plexus. An anterior HVLA manipulation of T6 was then performed while she was still in a supine position. She then was instructed to lie prone where T1-T4 were mobilized. Finally, Cox Protocol II was performed on her cervical spine, that is long y-axis distraction with passive range of motion in lateral bending, rotation, and coupled motion of lateral bending and rotation under a distractive force. Ultrasound was then applied to the cervical spine.

Discussion:

She received the above treatment for 4 of 5 days of that week. Her pain level reduced each successive visit from 7-8/10 on her initial Monday visit, to 6.5/10 her Tuesday visit, to 4.5/10 her Wednesday visit and down to 3/10 by her Friday visit. Her cervical range of motion



increased on each visit as well. Following up with her a week later, she had regained her normal pain-free full range of motion.

References:

1. Allan I Binder. Neck pain. *BMJ Clin Evid*. 2008 Aug 4;2008:1103.
2. Eun-Dong Jeong , Chang-Yong Kim , Nack-Hwan Kim , Hyeong-Dong Kim. Immediate effects of static and proprioceptive neuromuscular facilitation stretching of hamstring muscles on straight leg raise, craniovertebral angle, and cervical spine range of motion in neck pain patients with hamstring tightness: A prospective randomized controlled trial. *J Back Musculoskelet Rehabil*. 2021 Jun 17.
3. Valenza MC1, Cabrera-Martos I, Torres-Sánchez I, Garcés A, Mateos-Toset S, Valenza-Demet G. The Immediate Effects of Doming of the Diaphragm Technique in Subjects With Short Hamstring Syndrome: A Randomized Controlled Trial. *J Sport Rehabil*. 2015 Jun 24.
4. González-Álvarez FJ1, Valenza MC1, Torres-Sánchez I1, Cabrera-Martos I1, Rodríguez-Torres J1, Castellote-Caballero Y1. Effects of diaphragm stretching on posterior chain muscle kinematics and rib cage and abdominal excursion: a randomized controlled trial. *Braz J Phys Ther*. 2016 Jun 16;0:0.
5. Kevin M Cross, Chris Kuenze, Terry L Grindstaff, Jay Hertel. Thoracic spine thrust manipulation improves pain, range of motion, and self-reported function in patients with mechanical neck pain: a systematic review. *J Orthop Sports Phys Ther*. 2011 Sep;41(9):633-42.
6. Benjamin Hidalgo, Toby Hall, Jean Bossert, Axel Dugeny, Barbara Cagnie, Laurent Pitance. The efficacy of manual therapy and exercise for treating non-specific neck pain: A systematic review. *J Back Musculoskelet Rehabil*. 2017 Nov 6;30(6):1149-1169.
7. Michael Masaracchio, Joshua A Cleland, Madeleine Hellman, Marshall Hagins. Short-term combined effects of thoracic spine thrust manipulation and cervical spine non-thrust manipulation in individuals with mechanical neck pain: a randomized clinical trial. *J Orthop Sports Phys Ther*. 2013 Mar;43(3):118-27.
8. Aatik Arsh, Haider Darain, Muhammad Iqbal, Mujeeb Ur Rahman, Irfan Ullah, Shah Khalid. Effectiveness of manual therapy to the cervical spine with and without manual therapy to the upper thoracic spine in the management of non-specific neck pain; a randomized controlled trial. *J Pak Med Assoc*. 2020 Mar;70(3):399-403.
9. Saad Alfawaz, Everett Lohman, Mansoor Alameri, Noha Daher, Hatem Jaber: Effect Of Adding Stretching To Standardized Procedures On Cervical Range Of Motion, Pain, And Disability In Patients With NonSpecific Mechanical Neck Pain: A Randomized Clinical Trial. *Bodyw Mov Ther* 2020;24(3):50-5
10. River Y, Levital T, Belgrade M. Computerized Mobilization of the Cervical Spine for the Treatment of Chronic Neck Pain. *Clin J Pain*. 2012 Jun 28.
11. Komegae EN, Farmer DGS, Brooks VL, McKinley MJ, McAllen RM, Martelli D. Vagal afferent activation suppresses systemic inflammation via the splanchnic anti-inflammatory pathway. *Brain Behav Immun*. 2018 Oct;73:441-449. doi: 10.1016/j.bbi.2018.06.005. Epub 2018 Jun 5. PMID: 29883598; PMCID: PMC6319822.