Dynamic Chiropractic

ACTIVE CARE PROTOCOLS

Exercise Therapy Following Motor Vehicle Trauma (Pt. 2)

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Editor's Note: Part 1 of this article ran in the November issue. Part 3 (scheduled for January 2019 issue as of press time) concludes this series on exercise therapy for MVA trauma and includes additional exercises you can incorporate into your therapy regimen.

In cases of cervical spine trauma, particularly trauma related to a motor vehicle accident, my plan is to teach the patient one exercise per session and build a progression. This is an effective approach I call an "activation circuit." The patient is progressed with regard to exercise volume and intensity carefully. Each exercise builds upon the next, and at least some are performed on a daily basis at home.

The following plan can fit into a trial of treatment over six weeks – e.g., you schedule the patient two times a week for six weeks. Implementing exercises is part of your treatment plan and the goal is to increase range of motion, increase strength and decrease pain. The approach includes progressions for activation of the deep neck flexors as well as stabilization; and progressions for range of motion, core activation and sessions in which you just need to review previously taught exercises.

In part 1 of this article, I reviewed the deep cervical flexor tests and the importance of resolving deep flexor weakness. Cervical retraction exercises are effective for chronic neck pain, motor vehicle trauma (especially rear-end collisions), cervicogenic headache and postural dysfunction.[1-3]

Initial Recommendations

If you recall from part 1, the day-one exercise progression with a resistance band was performed standing. During the course of this treatment plan, you will be dealing with soft-tissue issues and should integrate range-of-motion (ROM) drills. I always suggest using whatever manipulation / mobilization technique you have championed. If you and your patient are so inclined, you can integrate other upper-body and core activation exercises as well. My clinical outcomes are better when I also get the patient on at least a five-day-a-week walking program.

Your hands-on approach should include a) joint manipulation / mobilization, particularly to stiff areas of the thoracic spine and when you are not sure whether it's OK to adjust the cervical spine; and b) releasing and stretching of the sternocleidomastoid (SCM), scalenes, levator scapulae, cervical extensors and upper trapezius muscles prior to activation exercise. These are the same muscles I would check if it's a shoulder dysfunction, too.

Exercise Progressions for Whiplash-Related Injuries

1. Standing deep neck flexor activation with resistance bands

- Have the patient stand facing a mirror. Engage good postural setting of the short foot, knees soft, neutral pelvis, ribs in position, and neck alignment. This is an opportunity to cue proper posture and explain what posture is – include pelvic tilt, feet parallel and hip width (2nd toe pointing forward in line with the anterior superior iliac spine). I continue to cue "tall spine" and I especially hear myself saying "elongate," "decompress" or "unload" the neck.
- Resistance band is around the occiput with the patient holding an end of the band in each hand.
- The patient extends their arms, but the head does not move. Remind the patient to stay in good posture – position the scapula.
- Have the patient slightly retract the cervical spine by pushing back into the band while maintaining a slight chin tuck (eyes and nose remain level).
- Instruct the patient to hold two breaths in / out while maintaining good position and slowly return to the starting position.
- Patient should perform 12-20 reps. A goal of 20 reps has been the standard for years, but the research really does suggest this is the number to stimulate collagen production.

Notes: Don't allow the patient to laterally flex or rotate the head. Don't allow the patient to overactivate the SCM. Don't allow excess scapular elevation.

2. Supine Cervical Retraction

- With the patient in the supine position, ask them to retract and elongate the head / neck into a table or the floor, which provides the resistance to an isometric contraction of the deep cervical flexors.
- Maintain proper head position with chin retraction to activate the target muscles. I want to see the chin retraction, and I want to feel the posterior cervicals to make sure they are not going into cervical flexion.
- Instruct patient to hold two breaths in/out while maintaining good position and slowly relax. Constantly remind the patient to elongate the spine.
- As with the deep neck flexor activation exercise, the patient should perform 12-20 reps.

Notes: While maintaining the above, let's get the patient to increase the hold time to 30 seconds. This helps increase the endurance of the deep neck flexors. Obviously the number of reps will decrease accordingly; I like to target five reps with 30-second holds.

3. *The next exercise integrates shoulder girdle movements. Our job is to coach the patient without compensation (i.e., SCM and scalene activation). Patient is in the supine position above while performing:*

- Palm ups, thumbs against the floor because we want upper-extremity external rotation. The patient's feet should be pointed "toes to nose and pointed to the opposite shoulder" to stretch tight heels and lateral calf fascia; the entire extremities press into the floor and the heels slide away. I cue calves, thighs, fingers, hands, forearms, and arms to press into the floor, especially at the posterior humerus.
- Arms should be at approximately 45 degrees of abduction; external rotation at the humerus to open the pectoralis.
- Instruct patient to hold for two breaths in/out while maintaining good position; perform 12-20 reps.

Notes: This posture is likened to a supine Brugger relief position and can help activate the posterior

chain. It is best performed with active exhalation. Patients with lack of thoracic spine extension, tight lats, tight pectoralis major and minor, and poor postural stabilization of the diaphragm may have difficulty with this exercise and need hands-on therapy to stretch muscles or increase joint motion.

References

1. Falla D, et al. Recruitment of the deep cervical flexor muscles during a postural-correction exercise performed in sitting. *Manual Ther*, 2007;12(2):139-143.
2. Jull GA, et al. The effect of therapeutic exercise on activation of the deep cervical flexor muscles in people with chronic neck pain. *Manual Ther*, 2002;14:696-701.
3. Jull G, et al. A randomized controlled trial of exercise and manipulative therapy for cervicogenic headache. *Spine*, 2002;27(17):1835-1843.

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