

## Whiplash -- Thoracic Implications

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Whiplash injury and cervical trauma have become synonymous terms. Clinical practice, however, reveals a different scenario. Almost all patients present with midback or thoracic pain following hyperextension/hyperflexion trauma. Unlike cervical pain, the thoracic pain is chronic, recurrent, and debilitating. How and why is this area affected?

A typical driver or passenger sitting upright in a vehicle usually has the upper/mid thoracic spine contacting the seat back. During a rear end collision, both the cervical and thoracic spine hyperflex/hyperextend, pivoting about the thoracic "contact." During hyperflexion the upper and mid trapezius fibers and the rhomboids are overstretched from the spinous and scapular origins.

The driver usually assumes a posture with the arms extended, contacting the steering wheel. This position externally rotates the scapulae, affecting the latissimus dorsi and serratus anterior muscle groups.

Another common finding is that the shoulder harness primarily protects the left side of the driver and the right side of the passenger. Hence in the rear end collision the unstrapped side torques forward, stretching and straining the thoracic tissues on that side.

Unlike the cervical spine, the thoracic spine has limited ranges of motion, naturally, creating low impact "tearing" of the musculoligamentous structures during injury.

Patients complain primarily of pain, tenderness, stiffness, and crepitus in the posterior thoracic region. "Trigger points" are a common finding and deep pressure on these points often radiates pain into distant areas. X-rays of this area are usually negative.

It has been postulated that the upper thoracic sympathetic chain is often traumatized during whiplash. Injury to this area produces symptoms affecting the sweat glands, peripheral vessels, and hair follicles.

Treatment is usually directed at the cervical region for weeks, months, and sometimes years. The cervical spine which has already been hypertraumatized needs to be stabilized instead of being mobilized. The dynamic forces of the ten to twelve pound head during "whiplash" have been dissipated and absorbed by the thoracic area. This region requires aggressive mobilizing/manipulative therapy, restoring the joint motion and muscle integrity.

Examination following MVA trauma must include detailed scrutiny of the thoracic spine. Unlike the cervical spine, this area primarily affects the musculoligamentous structures which are difficult to substantiate objectively. Biomechanics of the whiplash injury dictate that this region must be treated with urgency to prevent posttraumatic dysfunctional syndrome.

