They hypothesized that there was a stretch or traction injury to the median nerve in the case of carpal tunnel syndrome due to compressive and traumatic wrist hyperextension. This can then cause a neuropraxic type of injury to the nerve. Some studies have shown that nerves that are elongated to just 8% beyond their normal length can undergo ischemic changes from decreased blood flow causing parasthesias.

When a patient complains of parasthesias in the upper extremity, the treating doctor should have the following in their differential diagnosis: radiocapulopathy, thoracic outlet syndrome, pronator teres, cubital tunnel syndrome, radial tunnel syndrome, and carpal tunnel syndrome. There are several clinical/orthopedic tests that may be performed during the exam that are helpful: Tinel’s test over each tunnel; Phalen’s test; Wright’s test; Roos’s test; Eden’s test; in addition to neurologic testing of vibration, two point discrimination, light touch, pinprick, and manual muscle testing.

Thoracic outlet syndrome may be commonly seen after an accident and is often due to myofascial entrapment of the neurovascular bundle between the scalenes or under the pectoralis minor tendon, in addition to posttraumatic peripheral fibrosis.6

In a study by Capistrant, 30/35 patients had NCV evidence of slowed nerve conduction across the thoracic outlet region.6 In another study by the same author thoracic outlet syndrome was seen and confirmed by electrodiagnostic tests in 31% of the patients complaining of post-MVA upper extremity parasthesias.6 Useful tests such as ultrasonography and somatosensory/dermatomal Evoked potentials have been demonstrated to be helpful in the diagnosis and management of thoracic outlet syndrome.

In a study by Coert and Dellon,1 725 patients with peripheral nerve entrapments such as carpal tunnel syndrome, cubital tunnel syndrome, and radial tunnel syndrome were studied. There were 157/725 MVA induced (22%). In 25% of the patients the nerve compression or entrapment was bilateral. There were 68/157 that had carpal tunnel syndrome (42%), 64/157 (41%) had cubital tunnel syndrome of the ulnar nerve, and 25/157 (16%) had radial nerve entrapment. This study documented a high percentage of upper extremity peripheral nerve entrapments secondary to MVA. The most common factors predisposing the patient to these types of injuries were being in the ‘driver’s seat’, and position of the hands on the steering wheel, as well as a primary rear or front impact type of collision.

Identification of focal peripheral nerve entrapments are very important because if left unattended, treatment outcome will often be suboptimal. In addition to spinal and extraspinal manipulation, myofascial treatment is very important, especially if it is involved in the entrapment. Active release technique is often very effective in reducing myofascial/fibrotic related nerve entrapments as described by Leahy and Mock.

In conclusion, peripheral nerve entrapments are commonly seen after motor vehicle collision injuries. When patients present with upper extremity parasthesias it is prudent for the treating doctor to perform a distal examination to be absolutely certain that there are no secondary diagnoses besides the cervical dysfunction.

References
3. Guyon MA.