

Carpel Tunnel Syndrome in Sports-A Short Communication

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The success of every sporting event depends upon the performance of the sports persons, involved in it. The sportive performance of every sports person is influenced by his/her physiological capacities, biochemical composition, psychological make-up and the type of training undergone. Upper extremities are usually affected in some sports viz. hockey, archery, fencing, about 50% athletes sustain injury, out of which 25% - 50% are because of overuse. If we analyze any sportive event, then it is clear that in every event, a particular group of muscles and joint movement is involved, and the repetitive movement of any joint may sometimes lead to various musculoskeletal disorders (MSD). Carpal tunnel syndrome (CTS) is a MSD which is very common in the sports.

Variety of injuries, such as a fractured wrist bone, improper forearm postures and repetitive strain injury are the cause of CTS. There are median nerves in the carpal tunnel (a narrow passage in the wrist made up of small bones and tissue). The main role of the carpal tunnel is to protect the median nerve, tendons and blood vessels as they run through the wrist. The median nerve controls the thumb muscles, and the tendons control the fingers and wrist movements. When the carpal tunnel is narrowed, it exerts pressure on the median nerve. As the nerve passes through the carpal tunnel, CTS patients often experience the symptoms such as pins and needles, numbness, weakness, tingling sensations and pain. Patients also finds it difficult to apply force even during pinching or gripping activities.

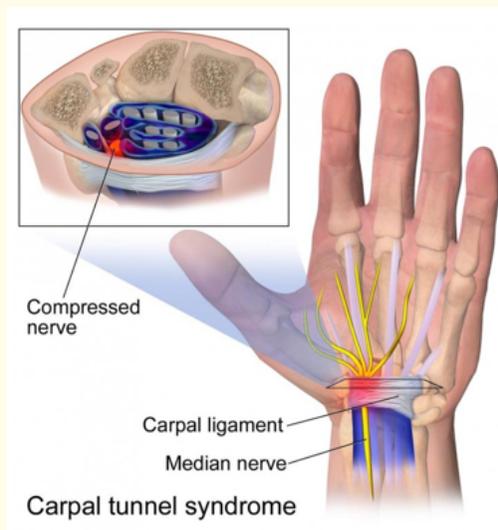


Figure 1: Source: <https://www.alaismc.com/en/sindrome-del-tunel-carpiano-2/>.

In CTS, the increased pressure in the carpal tunnel could be because of all factors that results in reduction of the dimensions of the carpal tunnel or increase the volume of its contents that predispose to the development of the syndrome. As such, CTS may occur secondary to many conditions, but in most of cases the condition is of unexplained aetiology. Obesity, sex and age have all been correlated as predisposing to idiopathic CTS. The dimensions and shape of the wrist have further been involved as predisposing factors and several wrist anthropometric measurements and derived ratios have been reported in an attempt to additionally define a relationship. An initial evaluation shows that in most patients with idiopathic CTS exhibited 'squarer' wrists so that the anthropometric measurements can be availed for developing a diagnostic tool.

After CTS surgery, Grip and pinch strength (lateral and palmar) are commonly used to evaluate motor outcomes. Gender and occupation are also known to affect the incidences of CTS, as the prevalence of CTS is higher in women and in several occupational groups that involves the repetitive movements of wrist.

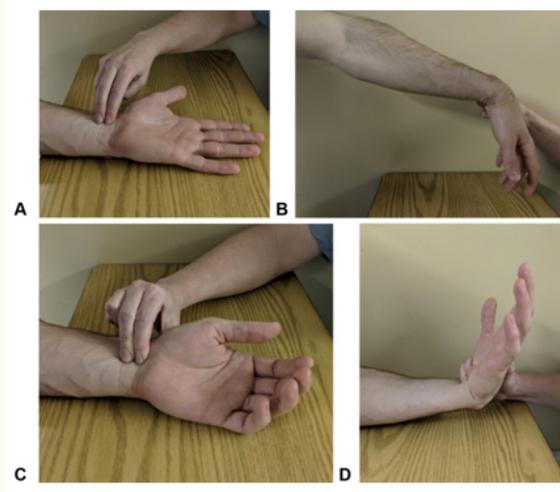


Figure 2: Demonstration of A. Tinel's Test, B. Phalen's Test, C. Durkan's Test and D. Phdurkan Test. Source: [https://www.jhsgo.org/article/S2589-5141\(20\)30018-9/fulltext](https://www.jhsgo.org/article/S2589-5141(20)30018-9/fulltext).

Special Tests Phalen's & Tinel's Tests

- Phalen's
 - Wrist flexion to maximum for 60 sec
- Tinel's
 - Tapping over transverse carpal ligament
- Symptoms
 - Pain
 - Anesthesia
 - Paresthesia

Figure 3: Source: <https://www.pinterest.com/pin/643944446689436477/>.

For diagnosing CTS, usually Phalen's and Tinel's Test is employed. They are simple test that measures the intensity of pain while moving and tapping the wrist. In Phalen's test, the patient is asked to flex their wrist and keep it in that position for 60 seconds. A positive response will involve pain in the distribution of the median nerve. The sensitivity of Phalen's test ranges from 67% to 83%, whilst the specificity is in the range of 40% and 98%.

Tinel's test is performed by tapping over the volar surface of the wrist. A positive result is if there is paraesthesia in the thumb, index, middle finger and the radial side of the ring finger that are innervated by the median nerve. Tinel's test sensitivity ranges from 48% to 73%, whilst the specificity is in the range of 30% to 94%.

Other tests that can be included for nerve conduction studies as diagnostic tool for CTS are Durkan's test, Phdurkan test, the Symptom Severity Scale (SSS) and Functional Scale (FS), the Katz hand diagram and the Hand elevation test.

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