

# Workplace Health and Safety Bulletin



## New Thinking About Carpal Tunnel Syndrome

Recent research findings into the causes of carpal tunnel syndrome show just how mysterious the human body can be. This ailment affects up to 10 percent of the population, with women affected more often than men. The incidence of carpal tunnel syndrome peaks at approximately age 42 and reveals itself as numbness, tingling and pain in the hands, especially the thumb, index and middle fingers.

Carpal tunnel syndrome became widely known in the 1990s, as the number of office workers increased significantly. It is commonly believed to be caused by overuse of the hands, most often due to typing on a keyboard, but the actual cause is still unknown.

### Description and symptoms

Carpal tunnel syndrome is the result of increased pressure on the median nerve as it passes from the forearm to the hand through a structure in the wrist known as the carpal tunnel. This tunnel is formed by the wrist (carpal) bones on three sides and then an overlying ligament on the fourth. In addition to the median nerve, the nine tendons that allow the fingers to move also pass through this tunnel. It's a crowded place.



The median nerve can be compressed by sources external to the tunnel, for example, resting the wrist on a tool handle or table edge. Or the compression can be caused internally by inflammation at the wrist or an accumulation of fluid, which may occur, for example, during pregnancy. Symptoms begin gradually, without specific injury, often appearing at night or in the morning. This is because many people sleep with their wrists bent, which further compresses the carpal tunnel.

In addition to numbness and tingling, many people experience weakness and have difficulty gripping objects. In the early stages, people often attribute the symptoms to poor blood circulation and feel that their hands are “falling asleep”. However, unless significant numbness and tingling are the main symptoms, it is unlikely that the problem is carpal tunnel syndrome.

## New research findings

Among some researchers, health care providers and insurers, the relationship between work and carpal tunnel syndrome remains controversial. Two studies point out that while work and lifestyle-related factors affecting wrist position may be a factor, there may also be an underlying genetic component.

A research report released in early 2007 suggests that pressure in the carpal tunnel varies with the angle of the wrist. The researchers provide guidelines for the extent to which the wrist can be safely bent backwards, towards the palm, and side to side over extended periods of time. This information may be useful to designers of tools and workstations who are seeking to limit one of the factors that contribute to carpal tunnel syndrome. The key message to workers is to try to maintain the wrist in a “neutral” position during sustained work, and to avoid excessive sustained bending of the wrist.

The second study suggests that the link between hand use and carpal tunnel syndrome is overstated and may be inaccurate. The researchers say that a genetic component may place certain people at risk.

## Resources



[www.hfes.org/Web/HFESNews/wristposture.pdf](http://www.hfes.org/Web/HFESNews/wristposture.pdf)

Peter K. Keir, Joel M. Bach, Mark Hudes and David M. Rempel,  
“*Guidelines for Wrist Posture Based on Carpal Tunnel Pressure  
Thresholds.*” February 2007.



[www.aaos.org/news/emr/press\\_release.cfm?PRNumber=536](http://www.aaos.org/news/emr/press_release.cfm?PRNumber=536)

Press Release, American Association of Orthopaedic Surgeons,  
February 14, 2007



[http://orthoinfo.aaos.org/brochure/thr\\_report.cfm?Thread\\_ID=5&topcategory=Hand](http://orthoinfo.aaos.org/brochure/thr_report.cfm?Thread_ID=5&topcategory=Hand)

Carpal Tunnel Syndrome, American Association of Orthopaedic  
Surgeons



[http://en.wikipedia.org/wiki/Carpal\\_tunnel\\_syndrome](http://en.wikipedia.org/wiki/Carpal_tunnel_syndrome)


Carpal Tunnel Syndrome, Wikipedia


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