

Ali HM, Sathiyasekaran BW. Computer Professionals and Carpal Tunnel Syndrome (CTS) Int J Occupat Safety Ergonom 2006;12:319-325.

Design: Cross-sectional study

Population/sample size/setting:

- 648 employees (538 men, 110 women, mean age 25) of 21 companies in a large computer facility office complex in Madras, India
- The 648 subjects were selected from 4276 employees by simple random sampling, with criterion for inclusion being at least 6 months of continuous work as a computer professional prior to inclusion

Main outcome measures:

- A questionnaire ascertained sociodemographic information, hours of computer work per day, years of computer use, leisure time Internet use, smoking, alcohol use, BMI, and comorbid conditions
- The workers demonstrated for the first author how they normally kept their hands while using the computer; this was recorded as flexed, extended, or neutral (lower arm and hand in a straight line at the wrist)
- Participants were asked about numbness or pain in the median nerve distribution of the hand; any person who had these symptoms and had either Phalen or Tinel signs was diagnosed as having CTS
- Most common job was data entry (37.7%), and 7.7% were system administrators; mean hours of computer use was 9 hours per day
- Among men, 87% had 8 hours or more per day of computer work; among women, 83% had 8 hours or more per day
- 29.5% had hands in flexed position, 19% in extended position, and 51.5% in neutral position
- There were 85 cases of CTS, and it was more prevalent among men (14.5%) than among women (6.8%)
- No one with a history of comorbid conditions (DM, RA, or thyroid disorders) had CTS
- Multiple logistic regression was used to estimate odds ratios for computer use and CTS, with risk factors adjusted for age, sex, smoking, alcohol, and BMI
- A linear dose-response trend was observed between computer use and CTS; those with 8 years of computer work had increased risk compared to those under 4 years (adjusted odds ratio=2.7); those with more than 12 hours per day had increased risk compared to those under 8 hours per day (OR=4.4), and those with 8-12 hours also had in increased risk (OR=3.6)
- System administrators had elevated OR for CTS (2.4) compared to other job categories; leisure time internet use also had elevated OR (1.7)
- Flexed or extended hand position had a small and not statistically significant elevation of OR (1.3) compared to neutral position

Authors' conclusions:

- High levels of computer use is associated with CTS

- System administrators are constantly involved with typing and using a mouse; and are under greater work pressure and stress; this higher intensity of computer use results in higher risk of CTS
- The higher prevalence among men may be due to their higher proportion of having >4 years of computer work and >8 hours per day of use

Comments:

- The hours of exposure that led to CTS appear to include both work and leisure use (i.e., Internet use); the number of hours of each is not partitioned, but Internet use was an independent risk factor for CTS
- There appear to be some special characteristics of this office setting (system administrators with more computer use than data entry)
- As is the case with cross-sectional studies, the elevated odds ratios may be related to both increased occurrence of CTS and increased survival times (could have less attrition among males and system administrators), with factors leading to departure from the workplace misleadingly appearing to be protective
- Thus, for example, if system administrators have higher salaries than data entry personnel, this economic incentive to continue working could account for increased survival in the workplace and could contribute to the elevated OR

Assessment: Adequate for evidence that very intense computer use (8 hours or more per day) is associated with increased risk of CTS