EFFECT OF FINGER POSITION ON THE MEDIAN NERVE AREA WITHIN THE CARPAL TUNNEL: AN ULTRASOUND IMAGING STUDY

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Introduction: Finger flexion has been suggested to contribute to the aetiology of carpal tunnel syndrome (CTS). The purpose of this study was to measure the immediate effects of finger flexion on the cross-section area of the median nerve (MNA).

Methods: Thirty-one healthy volunteers participated in this experimental study. The MNA was measured at the level of hook of hamate using high-resolution ultrasonography during four different finger positions.

Results: A significant change in MNA during different finger positions was found (F ¼ 24.149, P, 0.001). The biggest difference in MNA was recorded between full finger extension and forceful finger flexion (mean difference ¼ 1.29 mm2, P , 0.001). An inverse correlation between MNA and finger flexion was found (Pearson's r ¼ 20.348, P ¼ 0.002) where the MNA decreased as fingers moved toward flexion.

Conclusion: Finger flexion resulted in direct decrease in MNA, possibly contributing to median nerve compression.

Clinical implications: Hand therapists need to consider modifying their conservative treatment of CTS by limiting activities that require finger flexion and restricting the movement of the wrist and fingers to restrict finger flexion, thus limiting pressure increase on the median nerve.