

# Accuracy of Ultrasonography for the Diagnosis of Carpal Tunnel Syndrome: A Systematic Review and Meta-Analysis

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**Objective:** To evaluate the accuracy of inlet and outlet ultrasonography measurements for the diagnosis of carpal tunnel syndrome (CTS). **Data Sources:** MEDLINE, EMBASE, the Cochrane Library, and the Web of Science databases were systematically searched from inception to February 2017. **Study Selection:** Observational studies comparing the diagnostic accuracy of inlet and outlet ultrasonography measurements were selected. **Data Extraction:** Random-effects models for the diagnostic odds ratio (dOR) values computed by Moses' constant for a linear model and 95% confidence intervals (CIs) were used to calculate the accuracy of the test. Hierarchical summary receiver operating characteristic curves were used to summarize overall test performance. **Data Synthesis:** Twenty-eight published studies were included in the meta-analysis. The pooled dOR values for the diagnosis of CTS were 31.11 (95% CI, 20.42-47.40) for inlet-level and 16.94 (95% CI, 7.58-37.86) for outlet-level measurements. The 95% confidence region for the point that summarizes overall test performance of the included studies occurred where the cutoffs ranged from 9.0 to 12.6mm<sup>2</sup> for inlet-level measurements and from 9.5 to 10.0mm<sup>2</sup> for outlet-level measurements. **Conclusions:** Both ultrasonography measurements for the diagnosis of CTS showed sufficient accuracy for their use in clinical settings, although the overall accuracy was slightly higher for inlet-level than for outlet-level measurements. The addition of outlet and inlet measurements does not increase the accuracy for the diagnosis. Therefore, the inlet-level ultrasonography measurement appears to be an appropriate method for the diagnosis of CTS. © 2017 American Congress of Rehabilitation Medicine

Median nerve

Median neuropathy

Rehabilitation

Ultrasonography

carpal tunnel syndrome

clinical evaluation

Cochrane Library

comparative study

diagnostic accuracy

diagnostic test accuracy study

echography

Embase

human

Medline

meta analysis

Review

sensitivity analysis

systematic review

task performance

Web of Science

adult

aged

anatomy

anatomy and histology

carpal tunnel syndrome

diagnostic imaging

female

male

median nerve

middle aged

observational study

odds ratio

procedures

receiver operating characteristic

statistical model

Adult

Aged

Anatomy, Cross-Sectional

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Humans

Linear Models

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Median Nerve

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Observational Studies as Topic

Odds Ratio

ROC Curve

Ultrasonography