

References and Publications:

Grant Proposals:

W.C. Paske, PhD; ***“Functionality Evaluation via Biomechanical Screening”***. A Proposed Study Prepared for Dr. David H. Hildreth, MD And Dr. Evan D. Collins, MD Baylor College of Medicine, Texas Medical Center; August 2004.

W.C. Paske, PhD; ***“Nutritional Outcome Study: Hand Functionality vs. Diet”***. A Proposed Study Prepared for Dr. R. McDaniel, MD, Medical Director, Mannatech Products; December 2003.

W.C. Paske, PhD; ***“B3.02-8646: Nonintrusive Human Performance Monitor”***. Proposal submitted to NASA, September, 2003.

W.C. Paske, PhD; ***“B3.05 Proposal: Baseline Determination for a Quantitative Exercise Monitor”***. A proposal submitted to NASA, September 2003.

W.C. Paske, PhD; ***“Comparative Study: Pre- and Post Surgery Evaluation of CTS via Mechanical Screening”***. A Proposed Clinical Study Prepared for Dr. Charles Metzger, MD Memorial Hermann Northwest Hospital; December 2002

W.C. Paske, PhD; ***“Comparative Study: On-Site Methods for Screening CTS at Work”***. A Proposed Clinical Study Prepared for Dr. Ekkehard Bonatz, MD Birmingham, AL and Dr. Charles Metzger, MD Memorial Hermann Northwest Hospital; December 2002.

W.C. Paske, PhD; ***“Mechanical Correlate to Electrodiagnosed CTS Patients”***. Proposal to Mississippi Methodist Rehabilitation Center (MMRC): Dr. A.A. Leis, MD, Electrodiagnostic Consultants, PLLC; January 2000.

Company Publications:

W.C. Paske, PhD; ***“Description of Performance Parameters”***. Service manual supplement for clinicians, May 2004

W.C. Paske, PhD, reviewed by A. A. Leis, MD and Charles Metzger, MD; ***“A New Instrument to Detect Carpal Tunnel Syndrome: SensoKinetoGram Ranking: A Proof of Principal Study”***. A clinical review, 2002.

W.C. Paske, PhD, reviewed by Dr. C. Metzger, MD; ***“Proof of Principle for SKG-1 Handset: Sensitivity and Specificity based on Clinical Studies and Baseline Studies”***. Internal Summary Report; May 2002.

W.C. Paske, Ph.D.; *“Sensitivity and Specificity based on Clinical cs4 and Baseline studies”*; Internal Summary Report, May 2002.

W.C. Paske, PhD; *“Correlation Study: NCS Parameters vs KaDance2000 Quality Factors”*. Clinical Study for Mississippi Methodist Rehabilitation Center (MMRC): Dr. A.A. Leis, MD, Electrodiagnostic Consultants, PLLC; May 2001.

Refereed Publications:

William C. Paske, Charles L. Metzger, and Jeffrey M. Sutherland; *“Biomechanical hand-functionality measurement system”*. Review of Scientific Instruments, **76**, 054301 (2005).

Abstract: Functional assessment of the hands may now be accomplished via a biomechanical handset designed to repeatably and reproducibly aid in the identification of fine motor performance issues which may be present in either or both hands of the test subject. The test is accomplished by monitoring the thumb (digit I), index finger (digit II), and small finger (digit V) as they maintain a grip on a hand sensor throughout several repetitive exercises. The sensor consists of three load cells built into a single block. The three independently applied forces are sampled every 4 ms. These forces are evaluated as a function of time and test parameters are then derived for use as diagnostic aids. © 2005 American Institute of Physics. [DOI: 10.1063/1.1896946]

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The above article "Biomechanical hand-functionality measurement system," published in Review of Scientific Instruments 76, 054301 (2005), was selected for the April 15, 2005 issue of the Virtual Journal of Biological Physics Research. The Virtual Journal, which is published by the American Physical Society and the American Institute of Physics in cooperation with numerous other societies and publishers, is an edited compilation of links to articles from participating publishers, covering a focused area of frontier research. You can access the Virtual Journal at <http://www.vjbio.org>.

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Submitted to Refereed Publications:

Charles Metzger, MD, and William C. Paske, PhD; “*Carpal Tunnel Syndrome Evaluation With a New Testing Device, The SensoKinetoGram: Case Series*”. Submitted to Orthopedics 5/23/05.

Abstract: We describe a new tool for use in diagnosis and serial evaluation of the hand functionality for patients with carpal tunnel syndrome. The new device is handheld, and operated by simultaneous application of the thumb, index and small fingers. The data is collected for each of the three contacts every four milliseconds and stored on a computer until it can be transmitted to a server for remote analysis followed by the generation of a SensoKinetoGram. We have used this device to assemble data sets characteristic of normal hands and those with carpal tunnel syndrome. The effectiveness of the device is demonstrated by a case series of 3 patients tested before and after surgical carpal tunnel release. In each case, the sensory function of the hands improved significantly ($p < 0.02$) after the release surgeries.