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AdMIRable REVIEW

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MEDICAL IMPAIRMENT RATING REGISTRY

**CUMULATIVE TRAUMA INJURIES
AND CASE LAW**

**PHYSICIAN SPOTLIGHT:
JAMES HUBBARD, MD, MPH**

**NERVE ENTRAPMENT
IMPAIRMENTS**

**American Job Centers
The “Next Step” for disabled
workers seeking meaningful
employment**



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In This Issue of AdMIRable Review

Volume 8, Spring 2019, Pages 811-820

MEDICAL

812 MIR Physician Spotlight:
James Hubbard, MD, MPH

813 Rating Nerve Entrapments
AMA Guides, Sixth Edition

Jay Blaisdell, MA
James B. Talmage, MD

817 Selected Public Domain Medical Literature
Abstracts from MedPub.gov.

RE: Nerve Entrapment Causation
James B. Talmage, MD

LEGAL

816 Cumulative Trauma Injuries and Case Law
Jane Salem, Esquire

RETURN TO WORK

815 American Job Centers:
The Next Step in Finding Meaningful Employment
Brian Holmes, MA

NEWS

820 TN BWC Events and Announcements
Editorial Staff

820 AdMIRable Review Submission Guidelines
Jay Blaisdell, MA

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Tennessee's first "Workmen's Compensation Act" was passed by the General Assembly and signed into law by Governor Albert Roberts in April 1919. It took effect on July 1, 1919.

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MIR PHYSICIAN SPOTLIGHT JAMES HUBBARD, MD, MPH

Since joining the MIRR in 2016, James Hubbard Jr., MD, has functioned as the proverbial Swiss Army knife of independent medical evaluators. He is a failsafe and versatile expert for both employers and employees alike, providing concise, defensible opinions on the rarest combinations of workers' compensation impairment injuries, whether soft tissue or musculoskeletal. His uncanny ability to rate from nearly every chapter of the AMA Guides has quickly established Dr. Hubbard as the go-to MIR Physician in the Memphis area. His MIR Reports are always clear, objective, and well supported, and he delivers his opinions within a few days of the evaluation, providing a quicker resolution for disputing parties.

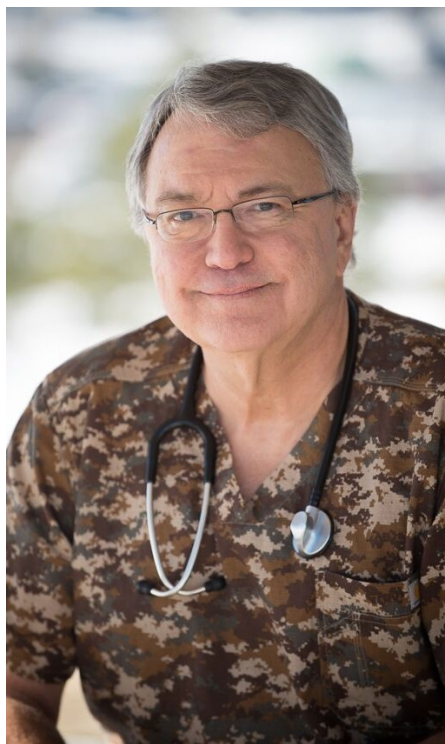
Dr. Hubbard is unique because he has a strong background in medicine and writing. From 2009 through 2017 he published and wrote the most visited survival medicine website TheSurvivalDoctor.com. Prior to that, he published the national magazine, *My Family Doctor*. He has written five books, including *The Survival Doctor's Complete Handbook*, which was published by Reader's Digest in 2016. An avid reader, he enjoys biographies and fiction thrillers. He also makes time for hiking and gardening.

Dr. Hubbard graduated from the University of Mississippi School of Medicine in the top of his class. A member of the Alpha Omega Alpha Honor Medical Society (for the nation's top medical students), he was then chosen for the highly acclaimed Parkland Memorial Hospital internship in Dallas, where he trained in internal medicine.

He went on to establish two of the most successful medical practices in North Mississippi. He has earned a Master's of Public Health, is board-certified in occupational medicine and is a certified independent medical examiner. He has been a physician for over 38 years.

MISSISSIPPI

Dr. James Hubbard was born and raised in the small town of Pontotoc, Missis-



JAMES HUBBARD, MD, MPH

issippi. Growing up, he admired doctors and thought being one was "about the best you could be." His father was chief of police, then sheriff, and his mother was a homemaker. He became the first in his family to attend college.

Toward the end of his medical residency at Parkland Memorial Hospital, two of Pontotoc's five doctors died, so the town faced a dire shortage of medical care. Dr. Hubbard and his wife, Pam, decided that they would return to Pontotoc and he would practice there.

Dr. Hubbard opened his first clinic in 1980. "I did about everything you could do—office, emergency room, hospital." It was in Pontotoc that Dr. Hubbard first started weaving occupational medicine into his practice. After about 10 years, he decided to focus more on outpatient medicine. He

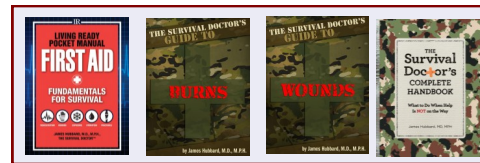
moved to the larger town of Tupelo, Mississippi, and opened a clinic in nearby Verona, where a lot of the local factories were. He also opened some nurse practitioner clinics in other towns. During this time, he earned his Master's of Public Health degree and his board certification in occupational medicine. He also started doing a few independent medical reviews.

COLORADO

Around 2001, Pam and Dr. Hubbard moved to Colorado. He had an opportunity to sell his Mississippi practice and relocate due to allergy problems. In Colorado, he did part-time workers' compensation and IMEs.

In 2003, while continuing to practice medicine, Dr. Hubbard launched a national health magazine, *My Family Doctor*. This publication was an in-depth, easy-to-read extension of the office visit—a venue for readers to connect to health-care providers in a new way. "I thought it was a good opportunity for somebody to sit in the waiting room and learn about their health care," he says. "I tried to make it entertaining." Doctors and other health-care providers wrote the articles. The magazine was in thousands of homes and doctors' offices. Samir "Mr. Magazine" Husni deemed it one of the "Most Notable Launches" of 2003. In 2009, Dr. Hubbard transferred his efforts to online education, transforming *My Family Doctor* from a print magazine into a website.

In 2013, he transitioned to a new venture, TheSurvivalDoctor.com, where he



[Continued on page 819](#)



Dr. Hubbard hosting a video training series from *The Survival Doctor*

CRITERIA FOR ESTABLISHING ABNORMALITY: Standardized Electrodiagnostic Values for Diagnosing and Rating Entrapment Neuropathies according to the AMA Guides, Sixth Edition

Jay Blaisdell, MA, and James B. Talmage, MD



Like the diagnosis-based method (DBI) and range-of-motion method, the approach for rating entrapment neuropathy in the upper extremity (such as carpal tunnel syndrome) is a separate and distinct methodology within the *AMA Guides*, Sixth Edition. Though it is similar to the DBI method, in that the MIR Physician uses the values of three different grade modifiers—one each for test findings, functional history, and physical evaluation findings—the way these modifiers are applied is different from the DBI method. For impairment rating purposes, the MIR Physician must have in hand valid nerve conduction test results. If these test results have not been submitted in the record and nerve entrapment is suspected, the MIR Physician should notify the MIRR Program Coordinator so these test results may be obtained before the MIR Evaluation occurs. Otherwise, without these test results, the MIR Physician is limited to choosing the diagnosis of “non-specific hand, wrist, or elbow pain, depending on the affected region” (Rondinelli, 2009, p. 446).

THE 2013 REFORM ACT

With the passage of the 2013 Tennessee Workers’ Compensation Reform Act, complaints of pain cannot be considered when rating the degree of impairment for injuries on or after July 1, 2014. The Bureau’s Medical Directors have suggested in their published impairment rating guidelines that this aspect of the new law might apply more directly to the selection of functional history grade modifier rather than to a diagnosis within a regional grid. The new law also likely requires a different approach when administering questionnaires commonly used in the impairment rating process. The Pain Disability Questionnaire (PDQ), for example, should be retired from use for most Tennessee workers’ compensation claims for injuries on or after July 1, 2014. The Medical Directors also recommend that MIR Physicians use a modified approach when administering the QuickDASH (short version of the Disability of the Arm, Shoulder and Hand), since some of the questions on these forms are based on complaints of pain. An integral part of the rating process for entrapment neuropathies, the QuickDASH should be administered in the MIR Physician’s office with questions 9 and 11 reworded to consider only sensory deficit, muscle atrophy, and skin changes, but not complaints of pain. Since different examiners would probably reword these questions differently, and since the questionnaire states it cannot be scored if more than one question is left unanswered, the other option is to disqualify this questionnaire for impairment rating and to accept the default or middle number in the appropriate Grade in Table 15-23 (Rondinelli, 2009, p.449).

DEFINITIONS

Axon Loss: Permanent death of some of the connecting nerve fibers (axons), leading to a wide range of symptoms including motor and sensory loss. It “is documented by the needled EMG and or nerve conduction studies” (Rondinelli, 2019, p.446).

CMAP: Compound Motor Action Potential. It “represents the summated action potentials of all stimulated motor endplates” (Molin, 2016, p.340).

Conduction Block: A transmission failure, not necessarily permanent, localized to the region of nerve compression whereby the nerve segments distal and proximal to the failure are unaffected. It is typically the result of focal demyelination and/or trauma. It “is measured by the (loss of) amplitude (voltage) of the motor, sensory, or mixed nerve response” (Rondinelli, 2019, p.446).

Conduction Delay: “Significantly prolonged distal peak sensory and/or motor latency. It is measured by distal latencies (milliseconds) and conduction velocity calculations (meters per second)” (Rondinelli, 2019, p.446).

Nerve conduction velocity (NCV): Also known as a nerve conduction study (NCS); a test, often done in conjunction with electromyography (EMG), that determines how fast electrical signals move through a nerve. The test is conducted by means of patches, or surface electrodes, placed in different spots on the skin at predetermined distances. The electrodes give a slight electrical impulse, stimulating the nerve, and the resulting electrical activity is recorded by other electrodes. The distance of the electrodes and the time it takes for the impulse to travel allow for the speed of the nerve signal to be determined.

SCOPE

Entrapment and compression neuropathies are rated in the upper extremities chapter, section 15.4f, on page 432 and are defined generally as “nerve entrapment or focal compromise (local compression) involving the median, ulnar or radial nerves” (Rondinelli, 2009, p. 432). The upper extremity range of impairment for this diagnosis is zero to nine percent. For Sixth Edition rating purposes, the diagnosis of nerve entrapment can be made only by examining diagnostic test results. Consequently, without these electrodiagnostic studies, the MIR Physician cannot diagnose or rate nerve entrapment or compression. Postoperative nerve conduction studies are not necessary for impairment rating purposes (Rondinelli, 2009, p.448).

Additionally, the diagnosis of nerve entrapment can be made only if electronic diagnostic test results meet the criteria for conduction delay, conduction block, or axon loss as provided in Appendix 15-B on pages 487-490 (Rondinelli, 2009, p.449). Until 2016, there was no consensus definition of normal or abnormal nerve conduction testing. Since each doctor doing this testing chose his or her own definition of abnormal, there was wide variability in how often these nerve entrapment diag-

Continued on page 814

noses were made. Appendix 15-B should be read in its entirety. These AMA *Guides* criteria match those established by the Normative Data Task Force (NDTF) after an extensive search of over 7,500 peer-reviewed scientific articles from 1990 to 2012 and were endorsed by the American Association of Neuromuscular & Electrodiagnostic Medicine (AANEM) (Chen, 2016, p.371).

Unfortunately, many of the doctors who do electrodiagnostic testing continue to use definitions of “normal” they learned in residency, which are different from the definitions of normal now established by the AANEM Task Force. Thus, the MIR physician cannot assume the conclusion stated on an electrodiagnostic test report is correct when determining either that the individual’s test is normal or abnormal, or if abnormal that the severity is correctly labelled (conduction delay, conduction block, or axon loss).

While doctors are free to choose whichever diagnosis they like for treatment purposes, when the purpose of a diagnosis is to determine impairment rating using the AMA *Guides*, Sixth Edition, the definitions in Appendix 15-B must be met for the diagnosis to be used.

This might result in an MIR physician being asked to rate a patient who has had a carpal tunnel release, yet whose test results are by the AANEM Task Force definition normal, and thus Section 15.4f (Entrapment Neuropathy) cannot be used for impairment rating. The examiner is instructed to rate these cases of perhaps very early, very mild carpal tunnel syndrome by use of the Non-Specific Wrist Pain diagnosis in line 1 of Table 15-3, page 395 (Rondinelli 2009, p 433). This would be analogous to attempting to rate impairment for diabetes or rheumatoid arthritis in a patient who does meet the current consensus criteria for the diagnosis.

The most common presentation of a nerve entrapment is for the patient to present with believable symptoms and a mildly abnormal nerve conduction test (conduction delay only) but with a normal neurologic physical exam. These patients commonly have subjective numbness, but on exam they recognize each light touch, and they can correctly tell “sharp” from “dull” stimuli. They have no neurologically based weakness in the muscles innervated by the nerve in question.

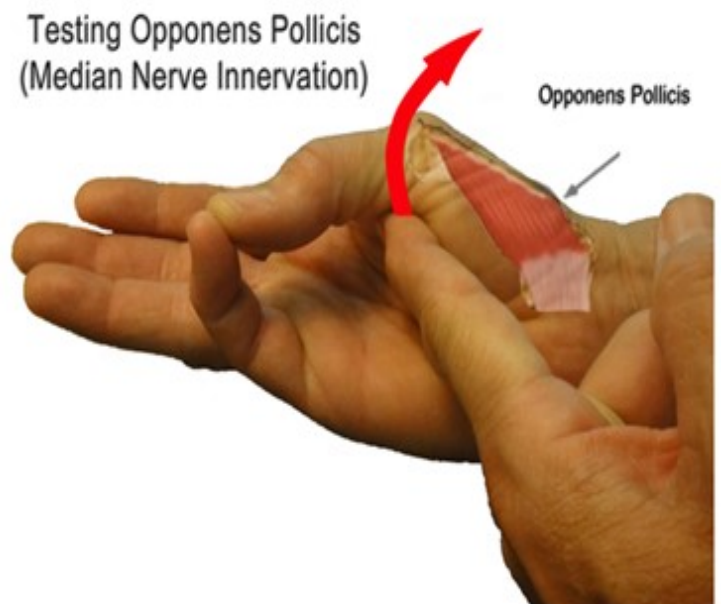
Examiners are aware, particularly in those subjects over age 40, that if thenar muscle atrophy or weakness in thumb abductor function is present, these are most commonly due to osteoarthritis in the thumb carpal-metacarpal joint, and are less likely to be due to carpal tunnel syndrome, especially if the electrodiagnostic tests do not show a clear basis for atrophy (axon loss) or weakness (at least major conduction block). If the nerve conduction tests show only conduction delay, it would

be most unusual for there to be neurologic weakness, as conduction delay only means by definition every axon is transmitting the signal to contract from the brain to the thenar muscles. (Rondinelli, 2009, p.445)

In a case in which an examiner finds either sensory loss or neurologic strength loss on physical exam and yet the nerve conduction studies are either normal or show only conduction delay, logically, either the physical examination or the nerve conduction testing is incorrect. It may be appropriate to repeat the physical examination by the same or a different examiner and/or to repeat the nerve conduction testing by an appropriately trained physician, which could include consideration of a physician with certification by the American Association of Neuromuscular and Electrodiagnostic Medicine (www.aanem.org) (Rondinelli, 2009, p. 445).

While the manual muscle test on physical exam is commonly a test of thumb abduction, the examiners should also remember that thumb abduction is produced by different muscles. The abductor pollicis brevis is a small muscle in the thenar eminence and it is innervated by the median nerve distal to the carpal tunnel. Thus, it might be affected by carpal tunnel syndrome. The abductor pollicis longus is a bigger, stronger muscle in the forearm innervated by the radial nerve and as such it is NOT affected by median nerve pathology. Trying to detect neurologic weakness in the smaller muscle in the presence of a normal bigger muscle is very difficult. A better test of motor function of the median nerve distal to the carpal tunnel is to test the opponens pollicis, as ONLY this muscle can rotate the thumb metacarpal. While the patient opposes the thumb and holds the pad of the thumb against the pad of the little finger, the examiner attempts to move the thumb away from the little finger by ROTATING the thumb metacarpal.

Continued on page 815



METHODOLOGY

If electronic diagnostic results meet the criteria for a diagnosis of nerve entrapment or “focal neuropathy,” and for conduction delay, conduction block, or axon loss as provided in Appendix 15-B, then diagnosis of nerve entrapment or compression might be appropriate for impairment rating purposes, depending on the employee’s history and the results of the physical evaluation. After all, doctors make diagnoses, not test results. Having had a sunburn or sprained ankle that healed is not a diagnosis, and if treatment permitting recovery, a current diagnosis and impairment might not be present. Grade zero might be chosen in such cases. The history should include the employee’s work duties and activities of daily living, symptoms and their frequency, and other notable factors that might corroborate or call into question the employee’s narrative. The goal of the physical examination is to obtain objective findings. Muscle strength, sensibility alterations, range of motion, and muscle reflexes should all be noted. With the nerve conduction testing completed, the employee’s history recorded, and objective evidence from the physical evaluation at hand, the MIR Physician is able to make a conclusive determination. If the diagnosis is indeed nerve entrapment, the MIR Physician then assigns the values of the grade modifiers using Table 15-23 on page 449, Entrapment/Compression Neuropathy Impairment. Remember that pain is not to be used in assigning the Grade Modifier for History. The MIR Physician then adds these three values and divides by three, thereby obtaining their average, and rounds that number to the nearest integer. This average value is used to determine the impairment grade, and thus the range of upper extremity impairment. A grade modifier average of two, for example, places the injury in “Grade Modifier 2” column with a range of four to six percent “UE Impairment,” with the default being the center number, or five percent.

Based on the results of the QuickDASH questionnaire, the MIR Physician then modifies the impairment rating in con-

junction with the Functional Scale within the same Table (15-23). Scores that fall in the “Mild” category will decrease the impairment by one percent; scores that fall in the “Moderate” category will keep the rating the same; and scores that fall into the “severe” category will increase the rating by one percent. Since the *Guides* recommends picking the severity by the QuickDASH score, and since the Tennessee Legislature disqualifies pain for use in grading severity, and since leaving two questions “off” the QuickDASH invalidates that questionnaire, the examiner may merely use the middle number in the “UE Impairment” row of Table 15-23 for the appropriate grade.

CONCLUSION

It is conceivable that some employees will be diagnosed with carpal or cubital tunnel syndrome for treatment purposes but will not qualify for the same diagnosis for impairment rating purposes. The MIR Physician must be familiar enough with electronic diagnostic test results to interpret them and see whether they conform to the criteria for conduction delay, conduction block, or axon loss. If they do not, the MIR Physician may alternatively consider using the DBI method with the diagnosis of non-specific pain. If the MIR Physician needs assistance in interpreting electronic diagnostic test results, please contact the Bureau’s Assistant Medical Director at James.Talmage@tn.gov .

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American Job Centers: The Next Step in Finding Meaningful Employment

Brian Holmes, MA



The Bureau of Workers’ Compensation launched the Next Step Program in December 2018. The purpose of the program is to return injured workers to meaningful employment. The program focuses on those workers who lose their jobs because of their injuries. While the Next Step Program offers a scholarship, the heart of the program is job placement.

Both the Department of Labor and the Next Step Program rely heavily upon the hard work of the employees of the 75 American Job Centers located across Tennessee. American Job Centers are run by non-profit entities with oversight

from the State of Tennessee and the federal government through the establishment of nine workforce development boards. These boards consist of business, government, and educational leaders who understand the workforce needs in their communities. They work together to find ways to meet those needs.

Injured workers begin by registering at www.jobs4tn.gov. The registration asks questions regarding work history and work interests along with establishing a user profile with the name, password, and personal identification information. Once registered, an injured worker has access to the vast resources of the American Job Centers that include more the 150,000 job listings,

CUMULATIVE TRAUMA INJURIES: Recent Case Law

Jane Salem, Esquire



Since the Reform Act took effect, the Tennessee Workers' Compensation Appeals Board has issued a handful of opinions on cumulative trauma injuries. Notice and medical causation are almost always disputed with this type of injury. The most recent of these was *Miller v. Old Folks Mission Center*, where the

central issues were—you guessed it—notice and medical causation. It's a fact-intensive opinion, yet it offers a few valuable lessons for medical and legal practitioners for future cumulative trauma/repetitive injury cases.

FACTS

Carolyn Miller worked for Old Folks as a housekeeper/janitor. She alleged suffering a gradual injury to her wrist and hand. She reported it on September 25, 2017, but the parties disputed whether she claimed her condition was work-related at that time or whether she merely reported that she intended to seek medical attention. Miller treated on her own with Dr. Harold Antwine, an orthopedic physician. At the first visit on September 27, 2017, she reported right-wrist and thumb pain, which, according to the records, was "gradual in onset with no injury." Dr. Antwine diagnosed de Quervain's tenosynovitis. At the next visit on October 26, Dr. Antwine noted Miller "does a lot of repetitive activity that certainly could be a causative factor for this current problem." He took her off work. After this appointment, Miller, reported her condition to Old Folks as a work-related injury, but Old Folks didn't provide a panel or initiate any workers' compensation benefits. In a December report, Dr. Antwine noted continuing complaints of pain and swelling in her right thumb and recommended surgery. He additionally wrote, "Patient informed me today that she started as a janitor in January 2015, and her symptoms started September 2017." In a February 15, 2018 report, Dr. Antwine noted Miller's history of symptoms and her description of her job as requiring "a lot of repetitive activity." He then stated, "It is my medical opinion that due to the repetitive nature of her job and the history supplied by the patient, I would consider this a work-related injury due to the repetitive activity." Old Folks denied the claim, asserting that she failed to provide timely notice and she didn't offer sufficient proof that her condition arose primarily from her employment. Following an expedited hearing, Judge Allen Phillips concluded Miller provided sufficient notice on November 3, 2017, and was entitled to continue treating with Dr. Antwine.

THE DECISION

A majority of the Appeals Board affirmed on these two issues. On the first issue, section 50-6-201(b) addresses the timeframe for notice of an injury that occurs from gradual or cumulative events or trauma. Specifically, the worker must give notice within 15 days after she "(1) Knows or reasonably should know that the employee has suffered a work-related injury that has resulted in permanent physical impairment; or (2) Is rendered unable to continue to perform the employee's

normal work activities as the result of the work-related injury and the employee knows or reasonably should know that the injury was caused by work-related activities." Old Folks argued that because Miller was diagnosed with de Quervain's tenosynovitis on September 27 following "a few week history of right wrist and thumb pain" and because she conducted her own "research" to determine the possible causes of her condition, she should've given written notice within fifteen days of that date. The Board disagreed. They reasoned that section 50-6-201(b)(1) didn't apply without evidence that Miller knew or reasonably should have known on September 27 that her condition was both "work-related" and "resulted in permanent physical impairment." As for (b)(2), the Board found insufficient evidence that Miller was restricted from working or rendered unable to perform normal work activities until after her appointment with Dr. Antwine on October 26. She reported the condition to Old Folks no later than November 3, 2017, which was within 15 days from Dr. Antwine's work restriction.

On the second issue, medical causation, Judge Tim Conner wrote that it was "a close question" but held the evidence didn't preponderate against the trial court's determination. The majority reasoned that Dr. Antwine stated he considered her condition a "work-related injury." That opinion wouldn't satisfy the standard of proof for a compensation hearing, the Board reminded. But it met the "likely to prevail" expedited-hearing standard. Importantly, Old Folks didn't offer *any* expert proof but merely argued that Dr. Antwine's opinion was based on inadequate or incorrect information and didn't meet the requirements for compensability as defined in the statute. As for the lay testimony, Judge Conner wrote that she "described her work duties as cleaning windows, dusting, sweeping, vacuuming, wiping down walls in thirty resident rooms, opening and breaking down boxes, and delivering supplies to residents. She further testified she described her work duties to Dr. Antwine, who considered her de Quervain's tenosynovitis to be a 'work-related injury.'" Miller's supervisor agreed that she performed these duties. Considering Miller's testimony along with the causation statements in Dr. Antwine's reports, the totality of the evidence supported the trial court's order. Presiding Judge Marshall Davidson dissented, calling the medical proof "speculative." The dissent's principle focus was the doctor's use of the phrase "could be" work-related; the majority emphasized that he wrote "*certainly* could be."

TAKEAWAYS

I always begin this section with a reminder that these are a staff attorney's opinions and *not* those of the Court of Workers' Compensation Claims or Appeals Board. That said, the first lesson, mostly for lawyers, and this really isn't "new," is that the physician's opinion is a critical consideration under the Reform Act. The Appeals Board majority thought the record contained ample proof that Dr. Antwine thought the injury was work-related, and significantly, Old Folks didn't offer a contrary expert opinion to overcome it. Stated another way, you must fight an expert's opinion with that of another expert; merely

[Continued on page 820](#)

[Clin Anat.](#) 2018 Jul;31(5):698-701.

doi: 10.1002/ca.23198. Epub 2018 May 25.

High wrist ratio is a risk factor for carpal tunnel syndrome.

[Author information](#)

Carpal tunnel syndrome (CTS) is the most common upper extremity entrapment neuropathy and various risk factors have been implicated in the etiology. In this study, we aimed to determine whether anthropometric measurements are independent risk factors for CTS. Patients with symptoms of CTS (n = 27) and asymptomatic controls (n = 27) were enrolled following electrophysiological confirmation. Body mass index (BMI) was recorded and anthropometric measurements of the hand were made by a digital caliper. BMI, wrist width, wrist depth, palm length, hand width, wrist ratio, wrist/palm ratio, and wrist/hand ratio were significantly higher in the CTS group. BMI, wrist ratio, wrist/palm ratio, and wrist/hand ratio were independent variables in the logistic regression analysis; wrist ratio was the only significant predictor of CTS. Patients with a wrist ratio higher than 0.69 were 8.2 times more likely to have CTS. This study suggests that wrist ratio may be considered as an independent risk factor for CTS. *Clin. Anat.* 31:698-701, 2018.

*Published verbatim from PubMed.gov,
in the public domain.

[Muscle Nerve.](#) 2018 Oct;58(4):497-502.

doi: 10.1002/mus.26145. Epub 2018 May 18.

Carpal tunnel release: Lifetime prevalence, annual incidence, and risk factors.

[Author information](#)

INTRODUCTION

We estimated the lifetime prevalence and incidence of carpal tunnel release (CTR) and identified risk factors for CTR.

METHODS

The study population consisted of individuals aged ≥ 30 years living in Finland during 2000-2001 (N = 6,256) and was linked to the Finnish Hospital Discharge Register from 2000 to 2011.

RESULTS

Lifetime prevalence of CTR was 3.1%, and incidence rate was 1.73 per 1,000 person-years. Female sex (adjusted hazard ratio [HR] = 1.8, 95% confidence interval [CI] 1.2-2.8), age of 40-49 years (HR = 2.5, CI 1.7-3.8 compared with other age groups), education (HR = 0.6, CI 0.4-0.9 for high level vs. low/medium level), obesity (HR = 1.7, CI 1.2-2.5 for body mass index ≥ 30 vs. < 30 kg/m²), and hand osteoarthritis (HR = 2.4, CI 1.4-3.9) were associated with incidence of CTR.

DISCUSSION

CTR is a common surgical procedure, performed on 1.9% of men and 4.1% of women during their lifetimes. Obesity and hand osteoarthritis are associated with an increased risk of CTR. *Muscle Nerve* 58: 497-502, 2018.

COMMENTS ON SELECTED ABSTRACTS

James B. Talmage, MD



As the abstracts in this issue demonstrate, risk factors for carpal tunnel syndrome include non-work related factors. Causation analysis should include documentation in the medical record that these factors have been considered. Wrist Ratio is an “anthropomorphic” or congenital structure factor with wrist shape reflecting tunnel cross-sectional area (those born with a small tunnel are more likely to experience nerve compression as the tunnel decreases in area with age as continued periosteal bone formation “raises the floor” of the tunnel).

Merely stating a job is repetitive is not helpful, since many daily activities, such as brushing one’s teeth and logging on to a computer, are innocuous, though repetitive. The “Inclusion Criterion” used most often in ergonomic studies of upper limb

disorders and work is to define “highly repetitive” (repetitive is not used as a term) as greater than 1000 repetitions of the same motion in an eight-hour work shift, or greater than two times every minute.

The best prospective study, with diagnosis validation by nerve conduction tests, indicates that FORCE, and force duration, NOT repetition are the predictive factors for CTS (Rempel et al., 2015). Additionally, they found that factors that would increase repetition -overtime work, having a second job, and work pace- were NOT risk factors (Bao et al., 2016). Perhaps paradoxically, workers diagnosed with carpal tunnel syndrome who had high strain index jobs became symptom free sooner than did workers with easy ergonomic jobs, and light duty and job change had no impact on symptoms (Cardona et al., 2019).

Thus, causation analysis should be more than a statement the worker’s job is “repetitive.”

[References on page 820](#)

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Psychosocial Risk Factors and the Association With Carpal Tunnel Syndrome: A Systematic Review.

[Author information](#)

BACKGROUND

Carpal tunnel syndrome (CTS) is the most common entrapment neuropathy of the upper limb. Research has shown that associative factors for CTS include occupational and biomechanical elements, sex, and age. To date, no systematic review has been undertaken to determine specifically whether there are any psychosocial risk factors in developing CTS. The objective is to determine whether psychosocial factors are associated with and/or predict the development of CTS.

METHODS

A systematic review was conducted including searches of PubMed (MEDLINE), EMBASE, and CINAHL from inception to May 30, 2017. Quantitative studies must have investigated a minimum of one or more psychosocial factors-cognitive, affective, behavioral, vocational, or interpersonal processes (eg, social support)-and include a point or risk estimate. One reviewer conducted the search and two reviewers independently assessed eligibility and completed methodological quality assessment using a modified Downs and Black checklist. Data were analyzed narratively.

RESULTS

Six moderate- to high-quality studies were included in the final review. Five studies reported a positive association between psychosocial factors and CTS, where psychosocial factors were more in those who reported CTS. One study reported no positive or negative association with CTS development. Four studies reported a negative association between psychosocial factors and CTS, where psychosocial factors were less in those who reported CTS.

CONCLUSIONS

There is limited evidence for a positive association between psychosocial factors and CTS. However, this was not a consistent finding across all included studies. Further research is indicated in standardizing CTS diagnostic criteria and investigating other working environments.

[Ann Work Expo Health](#). 2018 Apr 18;62(4):505-515.
doi: 10.1093/annweh/wxy015.

Observed Differences between Males and Females in Surgically Treated Carpal Tunnel Syndrome Among Non-manual Workers: A Sensitivity Analysis of Findings from a Large Population Study.

[Author information](#)

OBJECTIVES

We aimed at assessing whether differences among males and females in carpal tunnel syndrome (CTS) epidemiology might be attributable to segregation with respect to occupational biomechanical exposures or differential access to care by sex.

METHODS

We analyzed surgically treated cases of CTS occurring among non-manual workers in Tuscany between 1997 and 2000. We conducted a Monte Carlo simulation to estimate the difference in occupational biomechanical exposures between males and females necessary to explain the observed incidence rate ratios. We also accounted for the sex-specific probability of receiving surgery after the diagnosis of CTS, as women were reported to be more likely to undergo surgery in a subset of our study population. We quantified the hypothetical biomechanical overload through the hand activity level (HAL) metric proposed by the American Conference of Governmental Industrial Hygienists. To quantify the effect of HAL on CTS risk, we assumed a prior distribution based on findings from two large cohort studies of industrial workers.

RESULTS

After adjustment for the probability of receiving surgery, women showed a four-fold incidence of CTS as compared with men. To explain this association among non-manual workers, women should have an average value of HAL at least five points higher.

CONCLUSIONS

Our analysis does not support the hypothesis that the difference in CTS incidence between males and females is entirely attributable to occupational risk factors or to differential access to surgery. The causal pathway between sex and CTS might include more determinants such as hormonal factors, anthropometric characteristics, and non-occupational exposure to biomechanical overload (e.g. household tasks).

*Published verbatim from PubMed.gov, in the public domain.

DR. JAMES HUBBARD, MD, MPH

Continued from page 804

used news stories, likely scenarios and humor to teach people how to treat medical problems during disasters when they can't get to a doctor. "The basic premise of my publications has always been to provide medical information to the general public so they can become more knowledgeable about their health," he says. TheSurvivalDoctor.com quickly grew into the number-one survival-medicine website, and Dr. Hubbard became an author as well, writing five books, including *Living Ready Pocket Manual: First Aid* and *The Survival Doctor's Complete Handbook*, published by Reader's Digest in 2016. He also produced and hosted an in-depth first-aid video course. During this time, Dr. Hubbard became a go-to medical expert for many media outlets. He has been interviewed for more than 50 radio programs and podcasts (including WGN Radio); written a column for American Profile magazine; appeared on Denver and Colorado Springs news networks; and been consulted by People magazine and ABCNews.com. And his southern background sometimes came in handy for the interviews. "Once, the Colorado Springs news station interviewed me because I had close

experience with tornadoes, which they knew nothing about, but there was a scare at the Denver airport." Throughout all of these efforts, Dr. Hubbard continued practicing medicine.

RETURNING HOME

In 2016, Dr. Hubbard and Pam moved back to North Mississippi—this time to Oxford—to be near family. "I became so busy with medical care and IMEs that I haven't had time to continue updating the website," he says. So currently, he focuses full-time on seeing patients, doing IMEs and conducting disability evaluations for Veterans Affairs. "I've found that there is a need for IMEs in the North Mississippi and Southwest Tennessee areas, including up in Memphis, which is not far away. I've always looked for what I think is needed in whatever area I'm living in, and I enjoy seeing actual patients, talking to them, having time to discuss their problems and getting an overall picture of what their specific impairment might be. They go to specialists individually, but I get it all. I always liked to do different things—I like the variety. It's another thing to weave into everything else I do—family practice, workers' comp, IMEs. When I was in Colorado Springs, there were so many veterans out there that I became interested in doing veterans disability evaluations, and I still do them. I take pride in writing good IMEs—both medically correct

AMERICAN JOB CENTERS and Next Step

Continued from page 815

labor market services, educational services and workplace training.

The career services offered by the American Job Centers are extensive. The Career Explorer allows users to explore their skills, interests, values, knowledge of tools and technology, and match those with available occupations. This is a fantastic way to find jobs of interest and then understand which additional skills or education is needed. Those who match skills and education can quickly access job vacancies through Job Seeker Services. Many companies advertise vacancies online. Jobs4TN.gov connects and consolidates most of the major online job sites into one easy to access place. Users can find employers who are looking for help and apply online. The job center will provide assistance with writing resumes and drafting cover letters. Job applicants may also receive help with interview skills and get advice on how to follow up with employers post interview. The 10 Steps on a path to a new job provide is a tried-and-tested approach to matching employment opportunities with the employee's current skills. Those who want to obtain new skills can use Education Services.

Identifying schools that offer relevant trade programs and career paths is easy with Education Services. Users are able to search by school to find which programs are offered at which institutions, and they are able to search by program to find which school offers the desired curriculum. Education Services also offer online learning resources, certificate programs to distinguish job applicants as top-tier, and high school equivalency programs. Most importantly, they offer ways to pay for education.

Former Governor Bill Haslam initiated the Drive to 55 Program. The Drive to 55 is a goal for 55% of Tennesseans to obtain a post-secondary certificate or diploma. The initiative provided funding for college scholarships such as Tennessee Promise and Tennessee ReConnect. In addition to these state-funded opportunities, American Job Centers can connect injured workers with Federal resources. Each Next Step applicant seeking to go to school is asked to complete a Free Application for Federal Student Aid, or FAFSA. This is the framework to start the process to discover scholarship or grant opportunities available to disabled workers. The Jobs4TN.gov website lists 3,570 different scholarships. Combing scholarships, grants and opportunities can lead to a free or low cost education. The job centers are also hosts to connect customers to multiple government services. Some provide temporary assistance with housing, groceries, or utility bills. The website offers assistance with financial literacy and budget planning. Users can also follow a link to file an unemployment claim or file a wage protest. American Job Centers are tremendous resources.

Finding work can be a daunting task. Finding work with a temporary or permanent disability can be even more difficult. The workers' compensation system offers a great deal of support. Physicians who encourage employees to work and assign appropriate restrictions help ease transitions to new careers. Persistent optimism from attorneys and adjusters provides hope for better lives post claim. The Bureau, through the Next Step Program offers a comfortable hand to hold while engaging the American Job Centers.

For more information about the Next Step Program, please visit www.tn.gov/wc-nextstep. Details regarding the American Job Center's efforts to employ the unemployed are available at www.jobs4tn.gov.

CUMULATIVE TRAUMA and Case Law

Continued from page 816

attacking the bases of the opinion won't carry the day.

As for physicians, be advised that the Reform Act did *nothing* concerning cumulative trauma injuries. In 2013, an injured worker had to show that an alleged injury of this nature "arose primarily out of and in the course and scope of employment;" this remains the employee's burden under the new law. It appears that some physicians are under the impression that they're no longer compensable; see *Hilliard v. Amazon.com*. This is not so. Also, physicians, get a complete history, record it accurately, and offer a causation opinion as soon as possible as treatment progresses. Be decisive and precise in your wording. This opinion demonstrates that there's a significant difference between writing that an injury "certainly could be" versus just "could be" work-related. Here, Dr. Antwine offered an opinion on causation at almost every visit. In addition, the doctor's history matched closely with Miller's testimony about her job duties.

Finally, Old Folks argued that, because Miller obtained a diagnosis at the first visit and "conducted her own research to determine the possible causes of her condition," she should've given notice within fifteen days of that date. That intrigued me. These days, who doesn't Google something—a diagnosis, proposed treatment, or even just a statement from the doctor at a routine visit—to try to understand better what's going on with your body? Guilty. Moreover, I see countless files, typically involving self-represented litigants, where workers have included copies of their Internet research, which typically isn't admissible evidence. The Board rejecting this as an adequate basis for "knowledge" to trigger giving notice seems like common sense to me—especially if the research is completely inapplicable to the situation. It reminds me of a coffee mug for sale online that reads: "Please do not confuse your Google search with my medical degree."



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ABSTRACT COMMENTS REFERENCES

(Continued from page 816)

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