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**Objective:** Victims of electrical injury (EI) often experience injuries to the peripheral nervous system and neuromuscular damage that may diminish motor function, such as flexibility/dexterity. These difficulties may continue after rehabilitation due to the reorganization of muscle afferent projections during peripheral nerve regeneration. Therefore, understanding how patients with a history of thermal burn injuries perform on motoric measures is necessary to explain the impact neuromuscular damage has on both motor and non-motor tests of cognition. However, no studies have examined the impact of motor functioning on cognition in patients who experienced thermal and electrical injuries compared to an electrical shock injury. This study explored the impact of motor dysfunction and psychiatric distress measured by depression severity on psychomotor speed and executive test performances among EI patients with and without thermal burn injuries.

**Participants and Methods:** This cross-sectional study consisted of EI patients undergoing an outpatient neuropsychological evaluation, including tests of motor dexterity (Grooved Pegboard [GP]), psychomotor speed (Wechsler Adult Intelligence Scale-IV Coding, Trail Making Test [TMT] Part A), and executive functioning (Stroop Color and Word Test [SCWT] Color-Word trial, TMT Part B). The sample was 83% male and 17% female, 88% White, 3% Black, 5% Hispanic, and 2% other race/ethnicity, with a mean age of 43.9 years (SD=11.36), mean education of 12.9 years (SD=2.05), and mean depression severity of 20.05 (SD=12.59) on the Beck Depression Inventory-II (BDI-II). Exclusion criteria were: 1) injury history of moderate-to-severe head trauma, 2) >2 performance validity test failures, and 3) any amputation of the upper extremity. Regression analyses included GP T-Scores for dominant hand and BDI-II total score as independent variables and neuropsychological normative test data as dependent variables.

**Results:** Among validly performing patients with EI ( $n=86$ ), regression analyses revealed GP performance accounted for significant variance ( $R^2 = .153-.169$ ) on all neuropsychological measures. Among EI patients with burn injuries ( $n=50$ ), regression analyses revealed GP

performance accounted for significant variance ( $R^2 = .197-.266$ ) on all neuropsychological measures. Among EI patients without burn injuries ( $n=36$ ), analyses revealed that neither GP performance nor BDI-II severity accounted for significant variance across the neurocognitive tests ( $R^2 = .056-.142$ ).

Furthermore, among EI patients with burn injuries and the total sample, regression analyses revealed depression severity negatively predicted GP performance ( $R^2 = .099-.13$ ), however, in patients without burn injuries, depression did not predict GP performance ( $R^2 = .052$ ).

**Conclusions:** Overall, results showed that GP performance is a significant predictor of neurocognitive performance on both motor and non-motor measures in EI patients with burn injuries. Therefore, among EI patients with burn injuries, GP performance may have potential utility as an early indicator of injury severity, considering that it predicts neuropsychological test performance on measures of psychomotor speed and executive functioning. Lastly, depression predicted GP performance within the burn injury sample illustrating that psychological distress may negatively impact motor functionality.

**Categories:** Medical/Neurological Disorders/Other (Adult)

**Keyword 1:** electrical injury

**Keyword 2:** executive functions

**Keyword 3:** motor speed

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## 75 Neuropsychological performance in vestibular migraine: Preliminary findings from a meta-analysis

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**Objective:** Primary headache disorder is characterized by recurrent headaches which lack underlying causative pathology or trauma. Primary headache disorder is common and encompasses several subtypes including migraine. Vestibular migraine (VM) is a subtype of migraine that causes vestibular symptoms such as vertigo, difficulties with balance, nausea, and vomiting. Literature indicates subjective and performance-based cognitive problems (executive dysfunction) among migraineurs. This study compared the magnitude of the total effect size across neuropsychological domains to determine if there is a reliable difference in effect sizes between individuals with VM and healthy controls (HC). An additional aim was to meta-analyze neuropsychological outcomes in migraine subtypes (other than VM) in reference to healthy controls.

**Participants and Methods:** This study was a part of a larger study examining neuropsychological functioning and impairment in individuals with primary headache disorder and HCs. Standardized search terms were applied in OneSearch and PubMed. The search interval covered articles published from 1986 to May 2021. Analyses were random-effects models. Hedge's *g* was used as a bias-corrected estimate of effect size. Between-study heterogeneity was assessed using Cochran's *Q* and *I*<sup>2</sup>. Publication bias was assessed with Duval and Tweedie's Trim-and-Fill method to identify evidence of missing studies.

**Results:** The initial omnibus literature search yielded 6692 studies. Three studies (*n*=151 VM and 150 HC) met our inclusion criteria of having a VM group and reported neuropsychological performance. VM demonstrated significantly worse performance overall when compared to HCs (*k*=3, *g*=-0.99, *p*<0.001; *Q*=4.41, *I*<sup>2</sup>=54.66) with a large effect size. Within-domain effects of VM were: Executive Functioning=-0.99 (*Q*=0.62, *I*<sup>2</sup>=0), Screener=-1.15 (*Q*=3.29, *I*<sup>2</sup>=69.59), and Visuospatial/Construction=-1.47 (*Q*=0.001, *I*<sup>2</sup>=0.00). Compared to chronic migraine (*k*=3, *g*=-0.59, *p*<0.001; *Q*=0.68, *I*<sup>2</sup>=0.00) and migraine without aura (*k*=23, *g*=-0.39, *p*<0.001; *Q*=109.70, *I*<sup>2</sup>=79.95), VM was the only migraine subgroup to display a large effect size. Trim-and-fill procedure estimated zero VM studies to be missing due to publication bias (adjusted *g*=-0.99, *Q*=4.41).

**Conclusions:** This initial attempt at a meta-analysis of cognitive deficits in VM was hampered by a lack of studies in this area.

Based on our initial findings, individuals with VM demonstrated overall worse performances on neuropsychological tests compared to HCs with the greatest level of impairment seen in visuospatial/construction. Additionally, VM resulted in a large effect size while other migraine subtypes yielded small to moderate effect sizes. Despite the small sample of studies, the overall effect across neuropsychological performance was generally stable (i.e., low between-study heterogeneity). Given that VM accounts for 7% of patients seen in vertigo clinics and 9% of all migraine patients, our results suggest that neuropsychological impairment in VM deserves significantly more study.

**Categories:** Medical/Neurological Disorders/Other (Adult)

**Keyword 1:** cognitive functioning

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## 76 Differential Performance in Visual Learning and Retrieval in a Validity Controlled Chronic Pain Sample

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**Objective:** Individuals with chronic pain frequently report diminished cognitive functioning. Prior cross-sectional studies have demonstrated strong associations between chronic pain and neurocognitive impairment, most notably in memory, attention, processing speed, and executive functioning. However, there is a paucity of research evaluating visual learning and memory abilities in this population. Further, while current practice standards advocate for the use of performance validity tests (PVTs) to assess the credibility of neuropsychological test performance, they have infrequently been incorporated into studies examining chronic pain samples, despite a