

sociodemographic and occupational questionnaire was used to obtain sex, age, marital status, education, among others. The WAI consists of seven items, with scores ranging from 7 to 49 points and classified as low (7-27 points), moderate (28-36 points), good (37-43 points) and excellent (44-49 points). Data was descriptively analyzed.

Results: The majority of the sample was composed by women (51,9%), between 31 and 40 years old (37,3%), married (54,7%) and having completed higher education (83,2%). In 2020, 49% of workers had good, 25% had excellent, 23% moderate and 3% low workability. In 2021, 47% had good, 28% excellent, 22% moderate and 3% low workability. In 2022, 50% had good, 27% excellent, 22% moderate and 1% low workability. In 2023, 43% had good, 32% excellent, 22% moderate and 3% low workability.

Conclusion: Brazilian workers from different economic sectors had immediate and late impacts on occupational health during and after the COVID-19 pandemic. In the first year there was a reduction from good to moderate, in the second year the WAI increased from good to excellent and there was a reduction in moderate frequency. In the third year of follow up there was a reduction in moderate and good frequencies and an increase in excellent.

Implications: Implications: It is necessary to implement individual and collective actions to maintain the working capacity of Brazilian workers, with a focus on those with moderate and low workability.

Keywords: Work ability, work, pandemics

Conflict of interest: The authors declare no conflict of interest.

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TRANSCRANIAL DIRECT CURRENT STIMULATION FOR REDUCING IRRITABILITY IN CHILDREN WITH AUTISM SPECTRUM DISORDER

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Background: Autism Spectrum Disorder (ASD) is a neuropsychological condition that affects behavior and communication. Irritability is a common symptom, manifesting as outbursts of anger and difficulties with changes. Transcranial Direct Current Stimulation (tDCS) is a promising technique for modulating these symptoms.

Objectives: Investigating the effect of tDCS combined with virtual reality on reducing irritability in children with ASD.

Methods: A quasi-experimental study was conducted with 18 children diagnosed with ASD. The Childhood Autism Rating Scale (CARS) and the Affective Reactivity Index (IRA) were administered before and after the intervention. For statistical analysis, the Shapiro-Wilk test and paired t-test were used.

Results: There was a statistically significant difference in irritability levels after the intervention ($p = 0.00$), suggesting that tDCS had a positive impact on reducing the symptom.

Conclusion: tDCS combined with virtual reality demonstrated efficacy in reducing irritability in children with ASD, making it a promising alternative for managing these symptoms.

Implications: The results reinforce the need for randomized clinical trials to confirm the effects of tDCS and its clinical applicability.

Keywords: Transcranial Direct Current Stimulation, Irritability, Autism Spectrum Disorder

Conflict of interest: The authors declare no conflict of interest.

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SINGLE-PULSE TMS IN ALS DIAGNOSIS: EMERGING INSIGHTS FROM A SCOPING REVIEW

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Background: Amyotrophic Lateral Sclerosis (ALS) is a progressive neurodegenerative disease with no precise biomarkers that makes early diagnosis challenging. The current diagnostic criteria, such as the El-Escorial and Gold Coast criteria, have limited sensitivity, often delaying neuroprotective treatments and clinical trial recruitment. Transcranial Magnetic Stimulation (TMS) has emerged as a valuable tool to assess corticospinal pathway integrity, offering a potential alternative in detecting early cortical hyperexcitability. Despite promising findings, inconsistencies in methodology and protocol standardization remain inconclusive.

Objectives: This study aims to evaluate the effectiveness of Single-Pulse TMS in ALS diagnosis, addressing key gaps and challenges in existing research.

Methods: In this scoping review, we searched for articles on Single-Pulse TMS using parameters like Resting Motor Threshold (RMT), Central Motor Conduction Time (CMCT), Motor Evoked Potential (MEP), and Silent Period (SP). The PICO strategy guided the research question, ensuring relevant evidence retrieval. Only cross-sectional studies were included, selected from Scopus, PubMed, Embase, and Web of Science (May 2021–Feb 2025). Inclusion criteria required ALS diagnosis using Single-Pulse TMS, while exclusions involved non-relevant techniques, ALS treatment, or language restrictions. Data extraction included patient demographics and disease characteristics. Methodological quality was assessed using JBI checklists for cross-sectional studies, addressing potential biases.

Results: A total of 1,222 articles were identified across four databases, with 19 totally meeting inclusion criteria. The JBI appraisal identified 11 studies as high quality and eight as moderate quality, based on criteria assessing bias, methodological rigor, and validity in cross-sectional research. The studies included 730 ALS patients and 526 controls. Findings in the majority showed reduced SP, lower MEP amplitude, prolonged CMCT, and shorter RMT. Five studies had ambiguous cortical hyperexcitability results.

Conclusion: The lack of standardized protocols and inconsistent methodology limit conclusions on ALS diagnosis using TMS. Furthermore, it becomes difficult to relate the impact of factors such as the onset of symptoms, affected hemisphere, and time of diagnosis with the presence/absence of hyperexcitability. Future research should focus on refining diagnostic criteria based on the standardization of corticospinal activity measurement.

Implications: The study highlights the potential of Single-Pulse TMS for early ALS diagnosis but faces limitations such as methodological heterogeneity, lack of standardized protocols, and inconsistent parameter definitions. These challenges impact result reproducibility and clinical applicability. In clinical approach, improved TMS standardization could enhance early ALS detection, optimizing patient referral for neuroprotective therapies and clinical trials. In physiotherapy, better diagnostic accuracy may guide personalized interventions, delaying functional decline.

Keywords: Motor Neuron Disease, Cortical Hyperexcitability, Neurophysiology

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VOLUNTARY EXERCISE WITH ENRICHED ENVIRONMENT REDUCES ANXIETY- AND DEPRESSION-LIKE BEHAVIOR AFTER NERVE CONSTRICTION IN FEMALE MICE

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Background: Neuropathic pain results from injuries or diseases affecting the somatosensory system, impacting 7–10% of the global population. Additionally, psychological factors such as depression and anxiety are linked to heightened pain perception. Studies using animal models with chronic sciatic nerve constriction injury (CCI) are essential for investigating its pathophysiology. Although pharmacological treatment is widely used, environmental enrichment (EE) and voluntary exercise (VE) have shown efficacy as adjuvant interventions in managing neuropathic pain, including reducing anxiety- and depression-like behaviors associated with pain exacerbation. EE provides motor, sensory, social, and cognitive stimuli, which can be enhanced by VE, consisting of voluntary physical activity performed by the animal on a freely accessible running wheel. However, few studies have compared the effects of EE alone versus EE combined with VE.

Objectives: To compare the effects of EE with or without VE on anxiety- and depression-like behavior in a neuropathic pain model induced by CCI.

Methods: Twenty female BALB-C mice aged 7–8 weeks, weighing 30–35 g, were obtained from the Instituto Evandro Chagas (IEC) animal facility after approval by the animal research ethics committee. The animals were divided into four groups: CCI, CCI + VE, CONTROL, and CONTROL + VE. All groups received EE; the CCI groups underwent nerve constriction surgery, while control groups were not

exposed to surgical intervention. Anxiety- and depression-like behaviors were assessed using the Open Field (OF) test, where animals were placed in a 30 × 30 × 40 cm apparatus for 5 minutes and filmed for later analysis. Statistical analyses included the Shapiro-Wilk normality test and one-way ANOVA with Tukey's post-hoc test, using Prism 9 software. p-values < 0.05 were considered significant.

Results: In the OF test, the CCI + VE group maintained total distance traveled like pre-injury measurements, with no significant changes over the 28-day experiment. In contrast, the CCI group showed increased immobility and progressive distance reduction on days 14, 21, and 28 (one-way ANOVA, $F(4,16) = 6.47$; $p = 0.003$). Furthermore, time spent in the corners of the apparatus increased significantly in the CCI group compared to pre-injury (one-way ANOVA, $F(4,16) = 3.34$; $p = 0.03$).

Conclusion: The combination of VE with EE enhanced the reduction of anxiety- and depression-like behaviors in mice subjected to CCI.

Implications: These findings suggest that combined non-pharmacological interventions could be promising strategies for managing neuropathic pain through reducing anxiety- and depression-like behaviors, warranting further studies to explore their mechanisms and clinical applications.

Keywords: Physical Exercise, Hyperalgesia, Nervous System

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ENRICHED ENVIRONMENT WITH VOLUNTARY EXERCISE PROMOTES SENSORY RECOVERY AFTER SCIATIC NERVE CONSTRICTION IN FEMALE MICE

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Background: Neuropathic pain results from injuries or diseases affecting the somatosensory system, impacting 7–10% of the global population. Animal models with chronic constriction injury (CCI) of the sciatic nerve are essential for investigating its pathophysiology. Although pharmacological treatment is widely used for neuropathic pain, non-pharmacological interventions such as environmental enrichment (EE) and voluntary exercise (VE) have shown promising efficacy. EE, which provides motor, sensory, social, and cognitive stimuli, can be enhanced by VE, performed in a freely accessible activity wheel. However, there is a scarcity of studies comparing isolated EE and its combination with VE.

Objectives: To evaluate the effects of EE, alone or combined with VE, on sensitivity modulation in a model of neuropathic pain induced by sciatic nerve constriction in female mice.

Methods: Twenty female BALB-C mice, aged 7–8 weeks and weighing 30–35 g, were used, acquired after approval by the animal research ethics committee. The 29-day experiment divided the animals into four groups: CCI, CCI + VE, SHAM, and SHAM + VE. All groups underwent EE, and the SHAM group consisted of animals without sciatic nerve injury. Sensitivity was assessed using the Von